



**BUSINESS
PAPER**

ORDINARY MEETING OF COUNCIL

To be held at 6.00 pm on

Monday 19 October 2015

Council Chambers, Level 10,
Council Administration Building, 41 Burelli Street, Wollongong

Order of Business

- 1 Acknowledgement of Traditional Owners
- 2 Civic Prayer
- 3 Apologies
- 4 Disclosures of Pecuniary Interest
- 5 Petitions and Presentations
- 6 Confirmation of Minutes – Ordinary Council Meeting 14 September 2015
- 7 Confirmation of Minutes – Closed Council Session 14 September 2015
- 8 Public Access Forum
- 9 Call of the Agenda
- 10 Lord Mayoral Minute
- 11 Urgent Items
- 12 Notice of Motion
- 13 Item Laid on Table
- 14 Agenda Items

Members

- Lord Mayor –
Councillor Gordon Bradbery OAM (Chair)
- Deputy Lord Mayor –
Councillor John Dorahy
- Councillor Michelle Blicavs
- Councillor David Brown
- Councillor Leigh Colacino
- Councillor Chris Connor
- Councillor Bede Crasnich
- Councillor Vicki Curran
- Councillor Janice Kershaw
- Councillor Ann Martin
- Councillor Jill Merrin
- Councillor Greg Petty
- Councillor George Takacs

QUORUM – 7 MEMBERS TO BE PRESENT

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ITEM A

NOTICE OF MOTION - COUNCILLOR MERRIN - GREENHOUSE GAS EMISSION REDUCTION TARGETS

Councillor Merrin has submitted the following Notice of Motion –

“I formally move that Council –

- 1 Adopt a target of reducing greenhouse gas emissions from its own operations, including energy purchased and landfill, of CO²-e^[i] by 50% over 2013-14 levels by 2030;
- 2 Adopt a target of zero net emissions for the whole LGA by 2050;
- 3 Develop an action plan to achieve these goals;
- 4 Report annually on progress towards achieving these goals; and,
- 5 Review annually these goals considering the potential to tighten them.”

BACKGROUND

The Science

The Intergovernmental Panel on Climate Change (IPCC) 2014 Synthesis Report Summary for Policymakers summarises the physical science measurements that demonstrate that our planet is getting warmer^[ii]:

“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.”

The IPCC also confirm that the cause of this warming is human activity:

“Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century.”

The Need to Act

Global leaders have agreed to limit global warming to a maximum of 2°C above pre-industrial levels^[iii]. Global temperatures have already risen by nearly 1°C^[iv]. All levels of government in Australia have a duty to their constituents to contribute to mitigating climate change.

Furthermore, Wollongong is particularly vulnerable to the impacts of climate change (ie increased frequency and intensity of storms and flooding, greater bushfire risk, and erosion and inundation from sea level rise). As such, Wollongong needs to show leadership in mitigating against these adverse changes.

What Some Other Councils Are Doing

Many councils around Australia are setting emissions reduction targets. The list below includes a representative selection of councils and their targets.

Council	Target	Notes
Newcastle ^[v]	30% reduction in Council’s carbon footprint over 2008-9 levels	Started in 2001
Sydney ^[vi]	Reduce emissions city-wide by 70% by 2030	Achieved neutrality in 2008 by using offsets
Melbourne ^[vii]	Zero net emissions city-wide by 2020	Target set in 2002 for whole city
Brisbane ^[viii]	Carbon neutral Council operations by 2031	Started in 2006;
Coffs Harbour ^[ix]	Reduce Council emissions by 25% by 2020, and by 50% by 2025, over 2010 levels	
Yarra ^[x]	Reduce Council energy use by 50% by 2015, over 2010 levels	Achieved neutrality in 2012 by using offsets
Fremantle ^[xi]	“Zero net carbon” for Council buildings and structures by 2020	
Adelaide ^[xii]	Zero net carbon emissions for Council and community by 2020	
Hobart ^[xiii]	Reduce corporate emissions by 17% from by 2020 over 2010 levels	Reduced corporate emissions by 75% from 2000 to 2010

The Benefit of Emissions Reduction Targets

The setting of goals and targets sends a clear message to our residents and businesses about what is important. It also allows us to measure our progress towards those goals. Council already sets many goals and targets in its community strategic plan for 2022. These provide direction and priorities for Council staff. An emissions reduction target fits within this framework and will provide a clear goal to work towards.

Other benefits that will flow from emissions reductions are the health benefits from reduced air pollution, and the cost savings from measures that reduce energy consumption.

Feasibility of Carbon Accounting

Many other councils are measuring their CO²-e footprint, so systems are available for carbon accounting. For example, Newcastle Council follows the internationally recognised Greenhouse Gas Protocol Corporate Standard^[xiv], and Fremantle City Council is currently developing a carbon budget and carbon accounting system. Illawarra TAFE offers a course in carbon accounting^[xv].

Landfill Emissions Reduction

By far the largest contributor to Council's greenhouse gas emissions is from landfill. Council's Waste and Resource Recovery Strategy 2022 aims to manage the City's waste sustainably, by minimising its impact on "*amenity, public health and the local and global environment*". Council could apply to participate in the Federal Government's Emissions Reductions Fund which has a specific program for landfill gas^[xvi].

ATTACHMENT

IPCC Warming Graph

PLANNING AND POLICY IMPACT

This proposal contributes to the delivery of Wollongong 2022, Community Strategic Plan, Objective 1.3 – "Wollongong's ecological footprint is reduced". It specifically delivers on 1.3.2 – "Methods to reduce emissions are investigated and utilised", responsibility for which is allocated to Council and to the State Government.

CONCLUSION

Wollongong Council's total emissions in 2013-14 were about 113,150 T of CO²-e, 81% of which is attributed to landfill emissions^[xvii]. This provides a baseline from which to set percentage reduction goals. Reducing this by half in the next 15 years would be a modest and achievable goal.

To play its part in the global challenge of mitigating climate change, Wollongong should join with many other local councils and set emission reduction targets that are consistent with the global objective of avoiding more than 2°C of global warming.

[i] CO²-e means carbon dioxide equivalent. This is a standard unit to measure the global warming potential (GWP) of greenhouse gases. Carbon dioxide has a GWP of 1. By comparison, Methane has a GWP of 25.

[ii] http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

[iii] <http://www.nature.com/nature/journal/v458/n7242/full/nature08017.html#B1>

- [iv] https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SummaryVolume_FINAL.pdf (p.5)
- [v] <http://www.newcastle.nsw.gov.au/getmedia/b434c1a3-0034-4e46-a8f9-152b309dcaa3/pdf.aspx>
- [vi] <http://www.cityofsydney.nsw.gov.au/vision/towards-2030/sustainability/carbon-reduction/carbon-neutral>
- [vii] <https://www.melbourne.vic.gov.au/Sustainability/CouncilActions/Pages/ZeroNetEmissions.aspx>
- [viii] <http://www.brisbane.qld.gov.au/about-council/governance-strategy/vision-strategy/reducing-brisbanes-emissions/council-energy-targets>
- [ix] <http://www.coffsharbour.nsw.gov.au/coffs-and-council/media-centre/Pages/2015/MR-Council-Ambitious-Energy-Emissions-Targets.aspx>
- [x] <http://www.yarracity.vic.gov.au/environment/Energy-and-Emissions/>
- [xi] <http://www.fremantle.wa.gov.au/one-planet/zero-carbon>
- [xii] <http://www.adelaidecitycouncil.com/assets/Policies-Papers/docs/ACTION-PLAN-energy-management-2011-14.PDF>
- [xiii] http://www.hobartcity.com.au/Environment/Climate_and_Energy/Improving_Energy_Use_and_Reducing_Emissions
- [xiv] <http://www.ghgprotocol.org/standards/corporate-standard>
- [xv] <http://www.tafeillawarra.edu.au/course-and-careers/specialist-training/greenskills-training-australia>
- [xvi] <https://www.environment.gov.au/climate-change/emissions-reduction-fund/methods/landfill-gas>
- [xvii] Information provided in response to Wollongong Councillor request 475972, 2015

ITEM B

ITEM LAID ON TABLE ON 14 SEPTEMBER 2015 - WEST DAPTO
URBAN RELEASE AREA - YALLAH-MARSHALL MOUNT PRECINCT -
INFRASTRUCTURE COSTS

On 14 September 2015, Council laid this Item on the table, pending a detailed briefing with representatives from the Department of Planning and Environment. Prior to laying the matter on the table, Council had moved and seconded the following motion -

Moved by Councillor Martin seconded Councillor Dorahy that –

- 1 *The Yallah-Marshall Mount Planning Proposal (Attachment 4 of the report) be forwarded to the NSW Department of Planning and Environment for finalisation.*
- 2 *Council review the Section 94 Plan, with a view to entering into discussions with developers or landowners to meet land acquisition and road construction costs as part of a Voluntary Planning Agreement or similar where they will benefit from subdivisions that front a proposed road.*
- 3 *Landowners/developers be required to dedicate creek parklands at no cost to Council as part of a Voluntary Planning Agreement, or similar.*
- 4 *Final road layouts, including the conceptual roads mentioned in the local infrastructure report be prepared and costed with timelines over the 20 years of likely land release for design and construction, with developers and/or landowners carrying the majority of financial burden as per point (2).*
- 5 *Council prepare a submission to IPART and the NSW Housing Acceleration Fund to reduce the burden on Council for the cost of remaining local infrastructure across the entire West Dapto land release area.*
- 6 *A further report be submitted on amendments to the Wollongong DCP 2009 Chapter D16 to incorporate provisions for Yallah-Marshall Mount.*

On 9 March 2015, Council considered a report on the rezoning of the Yallah-Marshall Mount Precinct. Council resolved to adopt the Structure Plan for the Yallah-Marshall Mount Precinct. Council also resolved not to progress the draft zonings to the NSW Department of Planning and Environment, and requested a further report setting out the details of local infrastructure expenditure required for the precinct.

Council has recently carried out survey work and prepared concept designs for the major road infrastructure, with updated cost estimates. It is recommended that the updated costs be incorporated into a revised draft West Dapto Section 94 Development Contribution Plan.

RECOMMENDATION

- 1 The revised infrastructure cost estimates for Yallah-Marshall Mount be included in a revised draft West Dapto Section 94 Development Contribution Plan, which is scheduled to be reported to Council in November 2015 and if endorsed, exhibited and submitted to IPART for review.
- 2 Proceed with finalisation of the Yallah-Marshall Mount Planning Proposal once IPART and the NSW Government determine how the shortfall in funding for required local infrastructure across the West Dapto land release will be met.

ATTACHMENTS

- 1 Adopted Structure Plan
- 2 Main Roads and Open Space
- 3 Neighbourhood Precinct Plan with suggested staging
- 4 Planning Proposal including LEP Maps

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhoods

BACKGROUND

The Yallah–Marshall Mount precinct covers an area of approximately 1,000 hectares in the southern portion of the West Dapto Urban Release Area (Stage 5 of the Urban Release Area). The precinct includes 43 lots.

The precinct was included in the draft West Dapto Local Environmental Plan exhibited by Council in 2007-2008. In May 2009, Council resolved to abandon the draft zonings for the precinct and prepare a new set of planning controls.

Following development of a structure plan and draft zoning maps for the precinct, a draft Planning Proposal was exhibited from 17 March 2014 to 2 May 2014.

On 9 March 2015 Council considered a report on the exhibited draft Planning Proposal and resolved that:

- 1 *The Structure Plan for Stage 5 (Yallah-Marshall Mount) of the West Dapto Urban Release Area be adopted (Attachment 1 of this report).*
- 2 *The draft Planning Proposal, maps and documentation be updated based on the recommendations of this report, but not be progressed to NSW Department of Planning and Environment at this time.*
- 3 *A report be provided to Council by the end of September 2015, setting out details of necessary Yallah-Marshall Mount infrastructure expenditure, including the contribution that can be made from all sources of income, including Section 94,*

State infrastructure funds and potential contributions from the Lend Lease Delfin Calderwood Development. The income stream to include timelines and forecast expenditure for the roll out of the necessary infrastructure, including that involved and intersecting with other stages of the West Dapto land release program.

- 4 On receipt of the reports on the costs of infrastructure for Yallah-Marshall Mount, that Council prepare a revised Planning Proposal to be considered before calendar end 2015. Council should then make a future submission to IPART for appropriate investment by the NSW Government for the cost of the provision of infrastructure for the entire West Dapto land development area.*

Council has recently carried out survey work and concept road design work for the main road links within the Yallah-Marshall Mount precinct (Attachment 2). This report addresses parts 3 and 4 of the resolution.

PROPOSAL

The vision for the Yallah-Marshall Mount precinct is to create a sustainable community, with a diverse housing mix based on a walkable village centre. The Structure Plan seeks to concentrate the bulk of development around the proposed village centre and along public transport links. Areas on the fringe are intended to be much lower density.

The vision for the precinct aims to maximise use of public infrastructure and avoid a “blanket” of suburbia with wider servicing requirements.

The Structure Plan enables a community of up to 4,000 dwellings, a village centre, potential school site and open space nestled in a valley with ecological and riparian lands. The Structure Plan and draft Planning Proposal seek to conserve large stands of two Endangered Ecological communities, namely the Illawarra Lowlands Grassy Woodlands and Illawarra Subtropical Rainforest.

Infrastructure Issues

The Yallah-Marshall Mount precinct is Stage 5 of the West Dapto Urban Release Area. The precinct is considered to be a “floating” stage, which could proceed if infrastructure and servicing is available, as it was not linked to servicing of stages 1-4. In this respect, the timing of the precinct needs to be mindful of the nature of the development proposed, the potential industry response, and the provision of infrastructure, considering other infrastructure demands within West Dapto Urban Release Area and wider area.

The Structure Plan for Yallah-Marshall Mount challenges the traditional market approach to developing in Greenfield release areas. The densities and dwelling mix proposed set aspirational goals to achieve a long term sustainable outcome. In order to achieve these important environmental and social outcomes, it will be necessary for Council to resist changes that lead to more conventional housing products that can be developed in nearby release areas. This situation may impact on the short term timing of the Yallah-Marshall Mount precinct. The Structure Plan challenges the short term viability of the precinct to achieve long term sustainability and community goals.

If rezoned, the timing of development within the precinct is also influenced by other factors. Clause 6.1 of Wollongong Local Environmental Plan 2009 requires satisfactory arrangements to be made for provision of designated State Infrastructure before the subdivision of land for urban development occurs. The timing of the critical infrastructure provision depends on the ability of State agencies to service the area, considering competing priorities in other release areas. Once rezoned there would likely be more pressure on Government agencies and Council to provide supporting infrastructure to enable development to go ahead. This needs to be considered in assessing infrastructure funding priorities.

CONSULTATION

The draft Planning Proposal was exhibited from 17 March 2014 to 2 May 2014 and 25 submissions were received. The submissions were considered as part of the Council report of 9 March 2015 and Council resolved to endorse the minor adjustments made to the draft Planning Proposal.

No additional community consultation has occurred since March 2015. The landowners were informed of Council's resolution and landowners along Yallah and Marshall Mount Road were advised that the survey work was occurring.

Council has received further representations on behalf of the owner of Lot 102 DP 1070360 Marshall Mount Road seeking 4-5 additional lots/dwellings near the Duck Creek bridges on Marshall Mount Road. Advice has been submitted indicating that the proposed dwelling sites are above the 1:100 year flood level. Council officers have been concerned about erecting a small development island of only five dwellings in a moderate-high flood risk area with uncertain flood access. The development islands in the rest of West Dapto are larger areas, containing 200+ dwellings which provide a larger refuge area and less isolation.

This request would appropriately be further considered as part of the more detailed neighbourhood planning process undertaken to enable individual precincts to develop, following finalisation of the Planning Proposal. The incorporation of significant changes into the current draft Planning Proposal would require a new Gateway determination and re-exhibition. Accordingly, a separate process as part of neighbourhood planning would be a more appropriate means of addressing this landowner's issue/s.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 objective "Residents have improved access to a range of affordable housing options" under the community goal "We are a healthy community in a liveable city" and the objective "Walking, cycling and public transport is an accessible and well-resourced means of transport, and the use of private cars is reduced" under the community goal "We have sustainable, affordable and accessible transport".

It addresses the Annual Plan 2015-2016 5 Year Action "Implement the West Dapto Masterplan".

When the rezoning proceeds, this will potentially open a new development front in West Dapto Urban Release Area.

As part of Wollongong Development Control Plan 2009, Chapter D16 West Dapto Urban Release Area, and Clause 6.2 of Wollongong Local Environmental Plan 2009, a Neighbourhood Plan must be prepared and adopted by Council to guide development within the specified neighbourhood precincts. The neighbourhood precincts for the Yallah-Marshall Mount area are shown in Attachment 3. Development of the precinct will not be able to proceed until a Neighbourhood Plan is prepared for the precinct proposed.

Council could consider staging of the precincts within Yallah-Marshall Mount, to ensure development follows logical servicing strategies and avoid expensive servicing for out-of-sequence development.

This sequencing could begin with the Penrose/Elm Park precinct, as servicing reaches this area first, followed by the Village Core precinct, and following servicing up Marshall Mount Road (see Attachment 3). The concept and designs for the local road links also suggest that Council may need to update the Land Acquisition Maps and will need to be incorporated into a further draft Planning Proposal. This will occur as part of the broader West Dapto Review, which is underway.

FINANCIAL IMPLICATIONS

The draft Planning Proposal facilitates an increased dwelling yield from the 1,300 dwellings proposed in 2007 to 4,000 dwellings.

Since 2010, Council has funded some \$425,000 towards the studies to support the draft Planning Proposal. The road survey and concept design work recently undertaken cost an additional \$180,000, excluding staff time.

The five road infrastructure projects (Attachment 2) are based on the following design criteria:

1 Yallah Road (not including connection to Princes Highway)

Yallah Road will need to be upgraded from a two lane rural road to a Type 4 (a) – Major Collector Road (23m road reserve with 14m Carriageway width-4 lanes). The concept design follows the existing road alignment, with road widening to occur to the southern side of the road. The design replaces two culverts with two bridges, to provide access at a 1:100 flood level. This concept plan extends to approximately 100m east of the Yallah Road/Larkins Lane intersection. The road section east of this point, including realignment, the cost of bridging the Albion Park Bypass and intersection with the Princes Highway has not yet been costed.

2 Marshall Mount Road (between Marshall Mount Creek and Yallah Road)

The southern sections of Marshall Mount Road will need to be upgraded from a 2 lane rural road to a Type 4 Major Collector Road (22.4m road reserve with a 13.4m carriageway comprising 4 lanes). The concept plan begins at the

Shellharbour City Council boundary and extends to the intersection with Yallah Road. The planned road alignment avoids impacting on the historic 1859 Marshall Mount Public School. The design replaces one culvert with a bridge. It is noted that Shellharbour City Council does not propose to bridge Marshall Mount Creek floodplain.

The Calderwood Concept Plan depicts a separate road extending through the Calderwood Release Area to Marshall Mount Road near the intersection with North Marshall Mount Road. There is no design for this road, and its timing is unknown. If constructed, the traffic volumes on the southern part of Marshall Mount Road (south of North Marshall Mount Road) will reduce and a Type 4 – 4 lane road may not be required and a Type 3 – 2 lane Collector Road can be provided. A road reserve suitable for a 4 lane road will still be required, as the additional area is utilised for public transport and parking.

3 Marshall Mount Road (between Yallah Road and Huntley Road)

This northern section of Marshall Mount Road has had two optional concept designs.

Option 1: The first option would involve upgrading the road from a 2 lane rural road to a Type 4 road (22.4m road reserve with a 13.4m carriageway comprising 4 lanes). This option would involve significant new construction of new bridges and culverts.

Option 2: The second option is to upgrade this road from a 2 lane rural road to a Type 3 Minor Collector Road, with modifications in some sections. This option would effectively upgrade the existing road, maintaining the 2 lane format for the area north of the proposed village centre. Due to flooding constraints, there are only limited dwelling numbers north of the proposed village centre. If the road is not upgraded beyond 2 lanes, the existing single lane bridge structures (which still have a long life span) can be retained and the road left at its current levels. With limited through traffic, the cost of upgrading this northern section of road can be significantly reduced. It is recommended that Council use this option.

4 Proposed Road No 8 (between Marshall Mount Road and Avondale Road)

This road is conceptual, and would involve the acquisition of land and construction of a new Type 4 Major Collector Road, which would extend from the Yallah Road/Marshall Mount Road intersection to Avondale Road.

5 Internal Link Road (between Marshall Mount Road and Yallah Road)

This road is conceptual, and would involve the acquisition of land and construction of a new Type 3(a) Minor/Major Collector Road Local Road which would extend from Marshall Mount Road (starting approximately 270m north-east of the intersection with North Marshall Mount Road) to Yallah Road, alongside the power line easement. The construction of this new link road would enable traffic (including traffic from the Calderwood development) to bypass the proposed village

centre, which would assist in improved pedestrian activity within the village centre. It would however, involve significant additional cost.

An alternative alignment for this Internal Link Road has been suggested. This alternative has the potential to significantly reduce the costs of this road and will be explored in greater detail as part of the broader West Dapto Review.

The following table outlines the estimated costs to Council for roads, open space, drainage and community facilities.

Current West Dapto Section 94 Cost estimates (2010)	Revised S94 Cost Estimates
<p><u>Roads and Bridges</u></p> <ul style="list-style-type: none"> • Yallah Road – \$11.03m • Marshall Mount Road – \$33.6m • Road 8 – \$20.2m • Internal link road at Yallah (not included in current costs) <p>Total: \$64.83m</p>	<ul style="list-style-type: none"> • Yallah Road (excluding Princes Highway/M1 by-pass interchange) – \$20.32m • Marshall Mount Road (south of Yallah Road) – \$42.99m • Marshall Mount Road (north of Yallah Road) Option 1 – \$48.6m, Option 2 – \$10.03m • Road No 8 – \$52.53m • Internal Link Road – \$34m <p>Total: \$198.44m (including option 1) \$159.89m (including option 2)</p>
<p><u>Open Space and Recreation</u></p> <ul style="list-style-type: none"> • 4 hectare Neighbourhood Park and playground – \$3.5m • 2 hectare local park – \$1.8m • 2km off-road cycle ways – \$2.1m <p>Total: \$7.4m</p>	<ul style="list-style-type: none"> • 7.71 hectare Recreation area – \$5.35m • 1.45 hectare local park – \$1.5m • 2km off-road cycleways – No change – \$2.33m (indexed) <p>Total: \$9.18m</p>
<p><u>Community Facilities</u></p> <ul style="list-style-type: none"> • 0.35 hectare land – \$2.58m • 1 multipurpose children’s centre 750m² - \$2.17m <p>Total: \$4.75m</p>	<ul style="list-style-type: none"> • 0.6 hectare land – \$5.114m • 1 multipurpose Community Centre – 2,500m² \$4.342m <p>Total: \$9.456m</p>

Current West Dapto Section 94 Cost estimates (2010)	Revised S94 Cost Estimates
<p><u>Drainage – Acquisition</u></p> <ul style="list-style-type: none"> • Duck Creek and tributaries (not included in current costs) • Macquarie Rivulet (not included in current costs) 	<ul style="list-style-type: none"> • 41.9 hectares at \$40,000/hectare – \$1.68m • 4.3 hectares at \$40,000/hectare – \$173,504 • Drainage and water quality works not costed <p>Total: \$1.854m</p>
<p>Total: \$76.975m (with indexing since 2010 \$85.44m)</p>	<p>Total: \$212.93m (using Marshall Mount Road North Option 1) Total: \$180.38m (using Option 2)</p>

The construction cost of local infrastructure has increased to \$180.38m using the minimal upgrade to the northern part of Marshall Mount Road – Option 2. If the precinct achieves a development yield of 4,000 dwellings the cost per dwelling/lot would be \$45,095. Council is limited to a \$30,000 contribution per dwelling/lot, which means the total maximum revenue for this area is \$120m. This equates to a difference of \$60.38m or \$15,095 per dwelling/lot.

This cost estimate does not include the cost of connecting Yallah Road to the Princes Highway interchange, which has not yet been costed. RMS may fund all or some of this work, but agreement has not been reached.

There is already a shortfall in Section 94 funding for Stages 1-4 of the West Dapto Urban Release Area, therefore Yallah-Marshall Mount will not be able to be subsidised by the other stages. If the precinct does not achieve the desired dwelling densities the shortfall will increase.

There may be some reduction in the land acquisition costs of Road 8 and the Internal Link Road by requiring land owners/developers to dedicate the road reserve as part of the subdivision where the land is zoned Residential and construct the road (or a portion). This is similar to the rest of West Dapto where only the non-developable E3 Environmental Management Zoned land (usually in riparian corridors) is identified for acquisition and the Section 94 Plan funds the bridge construction. This has been estimated to reduce Council’s portion of the total road costs from \$159.89m to \$131.48m, and the total infrastructure cost to \$152m or \$38,000 per lot.

Council will be receiving a Section 94 contribution of \$304,920 for Stage 1 of the Calderwood major project area (231 lots). The contribution for the other stages has yet to be resolved. Traffic generated from the Calderwood development would make approximately 45.4% of the traffic volumes on the Yallah-Marshall Mount local roads, in 2036+ and ranges from 9% to 89% depending on proximity to Calderwood. Calderwood

traffic would also use local roads that have not yet been designed or costed, for Section 94 purposes. Any future contributions from Calderwood would further reduce the contribution required from Yallah-Marshall Mount and West Dapto.

As part of the West Dapto Review Project, Council is preparing an updated Section 94 Plan for the West Dapto Urban Release Area to submit to the Independent Pricing and Regulatory Tribunal (IPART). Any shortfall in additional funding agreed by IPART would provide Council with an opportunity to source additional funds from another source (e.g. State Government payments).

The additional infrastructure costs to Council associated with the Yallah-Marshall Mount Precinct has serious financial implications for Council, as once a development front starts, there will be pressure to provide infrastructure, even if development is scattered. Once constructed, there will be ongoing costs to Council to run and maintain facilities and infrastructure. This could result in significant infrastructure costs outpacing Section 94 income, and rates revenue.

Council has the following options:

- 1 Submit the Planning Proposal to NSW Department of Planning and Environment once a funding strategy is developed and approved by IPART and the NSW Government. This would leave the Structure Plan in place and leaves the zoning of Stage 5 on hold until the West Dapto Section 94 Development Contribution Plan has been updated, exhibited and reviewed by IPART and an alternate funding strategy has been developed to address the current revenue shortfall.
RECOMMENDED
- 2 Forward the Planning Proposal to NSW Department of Planning and Environment for the rezoning to be progressed.

If Council chooses to proceed with this option then delete part 2 of the recommendation and insert the following:

- 2 The Yallah-Marshall Mount Planning Proposal (Attachment 4) be forwarded to the NSW Department of Planning and Environment for finalisation.
- 3 A further report be submitted on amendments to the Wollongong DCP 2009 Chapter D16 to incorporate provisions for Yallah-Marshall Mount.

This option is not recommended as it would leave Council with an unacceptable financial liability with no strategy for funding.

- 3 Resolve not to finalise the Planning Proposal. This option effectively abandons the Structure Plan and draft zonings. As this precinct is part of an urban release area, Council would then need to freshly consider how development in the precinct would occur, and likely encounter the same servicing issues. This option is not recommended as Yallah-Marshall Mount is part of the West Dapto Urban Release Area and Council would effectively need to re-do the work undertaken for Yallah-Marshall Mount.

CONCLUSION

Council has expended significant time and funds in developing a long term vision for the future development in the Yallah-Marshall Mount precinct. This long term vision maximises the efficiency of development along the main servicing links within the precinct. The vision supports a diverse, sustainable long term community.

Council is currently in the process of reviewing the West Dapto Urban Release Area to provide better planning, funding and implementation of infrastructure servicing within this important urban release area.

As part of this review, Council will have the option of revising and developing a better understanding of the infrastructure requirements for the West Dapto Urban Release Area as an integrated whole-of-Council project.

These revised cost estimates for local infrastructure can inform Council's submission to the Independent Pricing and Regulatory Tribunal (IPART), and for submissions to apply for Government grants and alternate funding sources.

ITEM 1

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED
30 JUNE 2015

PRESENTER: Dennis Banicevic – PricewaterhouseCoopers – Financial Statements

Council officers have prepared the 2014-15 Annual Financial Statements in accordance with the Local Government Act 1993 (as amended) and the Regulations, the Australian Accounting Standards and the Local Government Code of Accounting Practice and Financial Reporting.

The draft Financial Statements were presented to the Audit Committee on 1 September 2015. At that meeting, the Audit Committee resolved that the General Purpose Financial Statements and the Special Purpose Financial Statements be recommended to Council for endorsement and the signing of the Statements by the Lord Mayor, Deputy Lord Mayor and Management.

The Statements have been reviewed by Council's Auditors, PricewaterhouseCoopers, and are presented to Council for an opinion to be formed in the prescribed format (as attached). Dennis Banicevic from PricewaterhouseCoopers will address the meeting to provide an overview of their Audit Report for the year ended 30 June 2015.

RECOMMENDATION

- 1 The Annual Financial Statements be endorsed and an opinion be formed in the prescribed format (as per Attachments 2 and 3) on the General Purpose Financial Statement and the Special Purpose Financial Statements.
- 2 The audited Financial Statements, together with the Auditor's Report and Financial Commentary (Attachment 5) be presented to the public at the 9 November 2015 Council meeting.

ATTACHMENTS

- 1 Annual Financial Statements
- 2 Statement by the Lord Mayor, Deputy Lord Mayor and Management on the General Purpose Financial Statements
- 3 Statement by the Lord Mayor, Deputy Lord Mayor and Management on the Special Purpose Financial Statements
- 4 Executive Summary
- 5 Financial Commentary
- 6 Flowchart of the Annual Statement Approval and Audit process

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Manager Finance
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

The Local Government Act 1993 (as amended) requires Council to prepare financial statements for each year and refer them for audit as soon as practicable after the end of that year.

A council's financial statements must include:

- 1 A General Purpose Financial Statement;
- 2 Any other matter prescribed by the regulations, and
- 3 A statement in the approved form by the Council as to its opinion on the General Purpose Financial Statement.

The Annual Financial Report Approval and Audit Process is outlined in Attachment 6 of this report. This process is largely governed by the requirements of the Local Government Act 1993 (as amended) having regard to the timing of Council meetings. In accordance with this process, the Audit Committee recommends to the Council whether the Financial Statements should be signed based on the Committee's assessment of them.

An Executive Summary and Financial Commentary to the Statements are also prepared to provide an introduction/summary of the Financial Statements. This Commentary is not audited (refer Attachment 5).

PROPOSAL

Section 413 of the Local Government Act 1993 (as amended) requires the Council to form an opinion as to whether Council's Annual Financial Statements have been drawn up in accordance with the Local Government Act and associated Codes and Australian Accounting Standards as prescribed by the Regulations. The Statements have been reviewed by Council's Auditors, PricewaterhouseCoopers, and are presented to Council for an opinion to be formed in the prescribed format (see Attachments 2 and 3). Subsequent to these Statements being signed, Council's Auditor will present its Audit Report to Council.

Following the signing of the opinions and receiving the Auditor's Report, a copy of the Audited Financial Statements will be submitted to the Department of Local Government in accordance with Section 417(5) of the Local Government Act 1993 (as amended).

Section 418 of the Local Government Act 1993 (as amended) requires that Council, as soon as practical after receiving a copy of the Auditor's Reports, fix a date for a meeting at which it proposes to present its Audit Financial Statements, together with the Auditor's Reports, to the public. The Council must give public notice of the date of the meeting. Consequently, an advertisement is scheduled to appear in The Advertiser on Wednesday, 21 October 2015.

Section 420 of the Local Government Act 1993 provides that any person may make submissions to the council with respect to the Financial Statements and/or the Auditor's

Reports and those submissions must be made in writing and lodged with the Council within seven days of the public meeting. The date of the Council meeting (public meeting) is 9 November 2015.

CONSULTATION AND COMMUNICATION

The Audit Manager and staff of PricewaterhouseCoopers have been consulted throughout the preparation of the Annual Financial Statements. The audit staff has been helpful in ensuring compliance with all accounting requirements.

Executive, senior managers and significant senior officers were requested to ensure that all relevant information with regards to the 2014-15 transactions relating to their area/s of responsibility had either been entered into the financial records or disclosed to the Manager Finance.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal '*We are a connected and engaged community*'. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
4.4.5 Finances are managed effectively to ensure long term financial sustainability	4.4.5.1 Effective and transparent financial management systems are in place	Provide accurate and timely financial reports monthly, quarterly and via the annual financial statement
		Continuous Budget Management is in place, controlled and reported
		Manage and further develop compliance program
		Monitor and review achievement of Financial Strategy

RISK ASSESSMENT

The Annual Financial Statements are required to be prepared in accordance with the Local Government Act 1993 (as amended), the Local Government Code of Accounting Practice and Financial Reporting and the Australian Accounting Standards. Council has professionally qualified staff to ensure compliance with the reporting requirements.

Council staff have also undertaken additional training in specialised areas. A higher level of assurance is attained from PricewaterhouseCoopers' review.

Further to this, Council's Executive, senior management and relevant senior officers each signed a document giving the necessary assurances that:

- 1 No matters or occurrences have come to their attention in respect to their areas of responsibility that would materially affect the Financial Statements or disclosures

therein, or which are likely to materially affect the future results or operations of the Council; and

- 2 Should any such matters or occurrences come to their attention after the date of signing the document, the Manager Finance will be immediately advised.

Consequently, there is considered to be a low risk of any material errors or omissions in reporting.

FINANCIAL IMPLICATIONS

Council is now presented with a set of Annual Financial Statements that have been prepared in accordance with the Australian Accounting Standards and other professional pronouncements and the Local Government Code of Accounting Practice and Financial Reporting.

ITEM 2

DRAFT PLANNING PROPOSAL FOR LOT 6500 DP 1083715
"HORSE Paddock" SITE, WEST OF EDGEWOOD ESTATE,
RIXONS PASS ROAD, WOONONA

MMJ Wollongong have submitted a Planning Proposal request on behalf of the Village Building Company to amend Wollongong Local Environmental Plan 2009 to enable development of a six residential lot and a community lot subdivision on Lot 6500 DP 1083715, known as the "Horse Paddock" to the west of Edgewood Estate.

It is recommended that Council resolve not to prepare a draft Planning Proposal.

RECOMMENDATION

- 1 A draft Planning Proposal for Lot 6500 DP 1083715 at Edgewood Estate, Woonona not be prepared.
- 2 The applicant be advised of Council's decision.

ATTACHMENTS

- 1 Locality Plan
- 2 Concept Plan

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhood

BACKGROUND

The Edgewood Estate utilised an old brickworks/quarry site at Woonona for a housing estate developed by the Village Building Company. In 1999-2000, Council rezoned part of the site from 4(a) Light Industrial and 4(c) Extractive Industrial zone to 2(b) Medium Density Residential (with other portions being 7(a) Environmental Protection – Special, 2(a1) Special Low Density Residential and 4(a) Light Industrial) under Wollongong Local Environmental Plan 1990 (Amendment No. 192). A portion of the site that contained an old brick pit/quarry was found to contain a colony of Green and Golden Bell Frogs, and was deferred under the rezoning.

Green and Golden Bell Frogs are listed as an endangered species under the NSW *Threatened Species Conservation Act 1995*, and as a vulnerable species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

In 2002, Council considered and approved DA-2002/877 for construction of a frog habitat to the west of the development area. This series of frog ponds was intended as compensatory habitat to enable the relocation of the Green and Golden Bell Frog colony from the old brick pit. The frog pond habitat is located in the area between the "Horse

Paddock” area and the Edgewood residential development (Attachment 1) and sits astride “Mountain Range Road” (a private road/right of way). The access road also serves two existing dwelling houses which are located further west and are not part of the Edgewood Estate. A Vegetation Management Plan was submitted with the Development Application and identified the management requirements for the frog pond habitat. The Vegetation Management Plan needed to be implemented to the satisfaction of Council and NPWS (now Office of Environment and Heritage). The future management of the Green and Golden Bell Frog habitat has been subject to on-going discussions between the Village Building Company, Office of Environment and Heritage and Council.

The old brick pit site (deferred area) was rezoned to 2(b) Medium Density Residential in 2004 through Wollongong LEP (Amendment No. 230) and a Development Application was subsequently lodged and approved for bulk earthworks and residential subdivision of the old brick pit site.

Council also holds a \$500,000 bond, lodged as part of the development of the former brick pit area, to be returned when the (then) NSW Department of Environment and Conservation (DEC) (now Office of Environment and Heritage (OEH)) advises Council that the criteria has been met with respect to the satisfactory conservation of Green and Golden Bell Frogs within the frog ponds.

An outstanding criteria requires the establishment of a funding scheme to the satisfaction of Council and DEC (OEH). Village Building Company have lodged a number of rezoning and Development Applications for the “Horse Paddocks” site, which they indicate would provide for an on-going funding scheme for the Green and Golden Bell Frog habitat, as outlined below:

- DA-2008/857 for a Community Title subdivision of land (withdrawn in 2009);
- DA-2010/51 for a boundary adjustment (withdrawn in 2010);
- DA-2010/1592 for construction of bed and breakfast accommodation (refused in 2011);
- A rezoning request to enable eco-living dwellings was considered by Council in 2007, but did not progress as it did not adequately address the potential impacts on the frog habitat or escarpment values; and
- On 15 October 2012, a Councillor briefing occurred on a 12 lot subdivision proposal on the horse paddock site. The proponent was advised that it was unlikely Council officers would support a Planning Proposal to facilitate the development, and the proposal did not progress.

A draft Planning Proposal request to facilitate a six lot subdivision was lodged on 1 May 2014. Assessment of this proposal raised issues concerning the demonstration of a lasting environmental improvement for the site, as well as a need to improve the information submitted on bushfire, flood, geotechnical and heritage.

The critical issue with respect to the draft Planning Proposal related to the environmental improvement required to justify development in this location. The information submitted with the Planning Proposal and correspondence with the proponent's ecological expert indicated that the Edgewood Green and Golden Bell Frog population was facing critical challenges to its future existence and translocation attempts have not resulted in successful on-site breeding.

The proponent requested additional time to address the environmental issues raised, with Council officers advising the submission of updated reports on bushfire, flooding, geotechnical and heritage issues can be submitted post-"Gateway", should Council proceed with the Planning Proposal; as the environmental justification is critical to determining whether Council should proceed to seek a "Gateway" determination.

A revised draft Planning Proposal was lodged in May 2015, still proposing the development of six lots in return for a Community Management Scheme to maintain the frog habitat. The subdivision Concept Plan is at Attachment 2.

The subject site is currently zoned E2 Environmental Conservation and E3 Environmental Management under Wollongong Local Environmental Plan 2009. The land is gently sloping, has been largely cleared of trees and has been used as a horse paddock. The site is within the Illawarra Escarpment.

PROPOSAL

The draft Planning Proposal seeks to amend Wollongong Local Environmental Plan 2009 to enable the subdivision and development of the "horse paddock" area into six housing lots which range in area from 1,100m² to 1,470m² and a Community Title lot. To enable this development, Council would need to amend the zoning of the site to E4 Environmental Living, amend the minimum lot size map and make amendments to the floor space ratio map. The existing 9m building height limit is suitable to remain.

It is proposed that a trust fund would be established using profits from the six housing lots, additional levies from the six housing lots and the return of the \$500,000 bond held by Council. The proposed trust fund would be used to fund the on-going maintenance of the adjoining frog pond area.

The draft Planning Proposal states that the allowance of six lots within the "Horse Paddock" area is crucial to the progression of a Community Title Land Management Strategy for the frog habitat and bushland area, to enable the on-going funding for maintenance of the frog habitat.

The "Horse Paddock" area is located to the west of the frog habitat, and the private road (Mountain Range Road) used to access the "Horse Paddock" site passes through the frog habitat area. This would need to be widened in order to accommodate the additional vehicle movements if the development proceeded. This area is mapped as Natural Resources Sensitivity – Biodiversity under the Wollongong Local Environmental Plan 2009, and is located within the Illawarra Escarpment.

PLANNING AND POLICY IMPACT

Illawarra Escarpment Strategic Management Plan (2015)

The Planning Proposal was lodged prior to the adoption of the Illawarra Escarpment Strategic Management Plan 2015. The Illawarra Escarpment Strategic Management Plan (2006) indicates that limited residential development opportunities could be considered in the escarpment within the context of active conservation, and as a secondary outcome. It also seeks to ensure development does not involve additional clearing of vegetation to enable a dwelling, provision of infrastructure, services or bushfire controls.

In July 2015 Council adopted a new Illawarra Escarpment Strategic Management Plan (2015). This Plan maintains the policy approach of the 2006 document, whilst bringing the objectives, principles, planning considerations and actions up to date with current planning frame works and presents clear guidelines for zoning changes.

Planning Proposals need to outline the conservation benefit from the proposal. The conservation benefit should be lasting, with the ability for the improvement to be maintained through permanent, legally binding mechanisms. The following matters are relevant for consideration of any Planning Proposal assessment in the escarpment:

1. The visual quality of the Illawarra Escarpment and its precincts;
2. Bushfire hazard and associated vegetation management;
3. Heritage values of the site;
4. Geotechnical stability of the site; and
5. Biodiversity.

The consideration of these issues follows:

Visual Impact:

The visual impact assessment submitted with the Planning Proposal is brief. The site is predominantly surrounded by vegetation and the draft Planning Proposal assumes that this vegetation would remain intact to screen the development. The assessment does not discuss the potential clearing for fire protection or vehicular access requirements and does not consider key vantage points from outside the site. If the Planning Proposal were to proceed to a "Gateway" determination, a more thorough visual assessment would be required, addressing issues such as potential vegetation removal and key view points from outside the site.

Bushfire Hazard and Associated Vegetation:

The bushfire report submitted with the draft Planning Proposal gives a good overview of bushfire conditions. Some tree removal may be necessary to achieve the Asset Protection Zones. It is noted by Council staff that the subdivision may also require a secondary access road, as the proposed dwellings are more than 200m from a public through road. The draft Planning Proposal would also require the dedication of road under "Planning for Bushfire Protection 2006" as it would result in more than three

dwellings accessing via Mountain Range Road (private road). Consideration of the location of a secondary access road could be undertaken following a Gateway determination. However, it is unlikely this could be undertaken without significant vegetation removal, which would compromise environmental outcomes within its escarpment location.

If the draft Planning Proposal request is progressed, it will be referred to the NSW Rural Fire Service for comment.

Heritage Values of the site:

The submitted Aboriginal Heritage Report dates from 2007 and does not address the requirements of the NSW Office of Environment and Heritage for Planning Proposals, and does not refer to the Aboriginal Heritage Assessment of the Illawarra Escarpment (completed in 2007).

The non-indigenous heritage study also dates from 2007. While the study indicates that the site is unlikely to contain items or sites of significance, the draft Planning Proposal does not adequately address the potential visual impacts upon the heritage values of the Illawarra Escarpment.

Should the draft Planning Proposal proceed to a Gateway determination, then these heritage reports would require updating.

Geotechnical Stability of the site:

The geotechnical report appears to have been undertaken for a previous proposal for bed and breakfast accommodation, which was proposed for a smaller area than the proposed six dwelling lots. Should the draft Planning Proposal proceed to a Gateway determination, a new geotechnical report for this proposal would need to be submitted.

Biodiversity:

The environmental outcome is a crucial deciding factor for this Planning Proposal. While the other issues might be addressed with further work, there is little point in requesting that the applicant expend further time and money updating these reports if the main premise behind the rezoning does not satisfy the lasting environmental outcome requirements of the Illawarra Escarpment Strategic Management Plan.

The draft Planning Proposal relies on the provision of habitat for the Green and Golden Bell Frog as the lasting conservation benefit obtained from the development of six house lots within the “horse paddock” clearing.

The draft Planning Proposal request seeks to justify the proposed development on the basis that this is needed as the only funding solution for the long term management of the Green and Golden Bell Frog habitat. However, the information submitted with the application indicates that the attempts to establish a Green and Golden Bell Frog population on the site appear to have been unsuccessful. The draft Planning Proposal request also includes a funding model that is based on a reduction in the current maintenance and monitoring program for the frog habitat area.

The draft Planning Proposal would result in the frog habitat area being located between two residential areas. The Species Impact Statement submitted with the Planning Proposal indicates that there are potential impacts on the frog habitat area, both during construction, and during occupation of the site. These impacts include:

- disruption from on-going noise and activity;
- fuel/chemical spills;
- light pollution;
- changes to surface water quality;
- increased non-native predators;
- increased weeds;
- increased risk of *chytrid* pathogens; and
- increased human visitation on-site.

While mitigation measures can be implemented, these cannot guarantee against all negative impacts. It is also noted that the road through the frog habitat area would be the access route to the proposed development and would need to be widened. These potential additional impacts would be a negative impact on the same area that the proposed development is intended to protect. This compromises the lasting environmental improvement outcome sought by the Illawarra Escarpment Strategic Management Plan.

The basis of the conservation benefit for the draft Planning Proposal is to finalise a funding scheme for the compensatory Green and Golden Bell Frog habitat which Village Building Company committed to in 2003 as an offset for habitat lost to a previous development.

The Green and Golden Bell Frog habitat has had 12 years in which to become established and support a viable breeding population of the frogs. Considering the state of the current population (less than 10 individuals), the lack of an observation of a female Green and Golden Bell Frog with breeding fitness in the last eight years, competition from other abundant frog species, the presence of *chytrid* fungus and the potential for inbreeding depression and lack of nearby populations, the data, opinion of the expert ecologist and principles of population ecology, suggest that the conservation outcome has failed. These environmental factors, combined with a likely increase in the level of impacts from human and domestic animal activity should the development proceed, presents a probability of localised extinction.

The draft Planning Proposal request does not adequately demonstrate that it would provide for an active conservation outcome, as the proposed environmental benefit would be a frog re-colonisation project already committed to in 2003, which is failing. There is no additional benefit presented as required by the Illawarra Escarpment Strategic Management Plan. Further it is considered that the Community Title scheme does not provide any certainty there will be a secure conservation outcome as it relies on good will, sense of ownership, collaboration of likeminded landowners and voluntary participation of government stakeholders to secure the future of a threatened species listed under the Threatened Species Conservation Act and Environmental Protection

and Biodiversity Conservation Act. The maintenance program for the Green and Golden Bell Frogs also reduces biodiversity for other flora and fauna in the area. The draft Planning Proposal request does not adequately satisfy the compensatory frog habitat issue and alternate schemes for providing a future for the habitat, need to be considered. A legal instrument with a conservation objective, and specific intent and regulation for conservation outcomes would provide more certainty of an in-perpetuity conservation benefit.

Wollongong 2022

This report contributes to the delivery of Wollongong 2022 goal “We value and protect our natural environment”. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-2017	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
1.6.1 Our urban environment minimizes impacts on habitat and biodiversity and areas of high conservation value are protected.	1.6.1.1 Review planning controls for environmentally sensitive locations.	Continue to assess Planning Proposals against environmental strategies, including the Illawarra Biodiversity Strategy and the Illawarra Escarpment Strategic Management Plan.

Options

- 1 Resolve not to progress a draft Planning Proposal for the site. **RECOMMENDED.**
- 2 Resolve to prepare a draft Planning Proposal to rezone the site to permit the proposed six lots/dwelling houses. A suitable resolution would be:
 - a. A draft Planning Proposal be prepared for Lot 6500 DP 1083715, at Edgewood Estate, Woonona to rezone part of the land to E4 Environmental Living and with a minimum lot size of 1,000m² and a floor space ratio of 0.3:1 to permit six residential lots and associated dwelling-houses.
 - b. The draft Planning Proposal be referred to the NSW Department of Planning and Environment for a Gateway determination and if approved exhibited for a minimum period of 28 days, following the receipt of updated studies.
 - c. Council request authority for the General Manager to exercise plan making delegations in accordance with Council’s resolution of 26 November 2012.

FINANCIAL IMPLICATIONS

This report does not contain any direct financial implications for Council. Council does currently hold a \$500,000 bond in relation to the compensatory frog habitat. Should Council proceed with a draft Planning Proposal, the potential dedication of the Mountain Range Road would add to Council’s maintenance costs.

CONCLUSION

The draft Planning Proposal seeks to permit development of a density within an area of environmental sensitivity that has a number of land constraints, namely bushfire, environmentally sensitive and geotechnical.

The draft Planning Proposal seeks to rely on using the proposed development to provide funding for an existing maintenance program for frog habitat as justification for development within the Illawarra Escarpment. The draft Planning Proposal fails to demonstrate any additional conservation outcome, but a continuation of a conservation outcome agreed to over 10 years ago, as compensatory habitat for previous habitat lost to development. The future of the current conservation outcome appears bleak, in spite of over 10 years of work to recolonise the Green and Golden Bell Frog population. The draft Planning Proposal request does not demonstrate any improvement.

The nature of the development proposed would present potential impacts on the habitat for an endangered fauna species which is currently at a critical point in its ability to survive. The management of weeds and bushfire asset protection zones is already an obligation for landholders, in preserving the frog habitat.

Without a demonstrable benefit to the Green and Golden Bell Frog population, the draft Planning Proposal request fails to achieve the lasting environmental outcome as required by the Illawarra Escarpment Strategic Management Plan. Without this benefit, Council would not normally consider the smaller lot sizes proposed within sensitive E2 Environmental Conservation and E3 Environmental Management zones, which would also intensify development within an area of bushfire risk.

It is recommended that Council resolve not to progress this Planning Proposal request for a Gateway determination.

ITEM 3

WEST DAPTO SECTION 94 DEVELOPMENT CONTRIBUTIONS PLAN (2015) - INTERIM REVIEW - POST EXHIBITION

On 22 June 2015, Council resolved to exhibit the draft West Dapto Section 94 Development Contributions Plan (2015) for community comments.

The current Section 94 Plan was adopted on 12 December 2011. A major review of the Plan has commenced and will occur over the next two years. This interim review addresses a number of previous Council resolutions that affect the Plan.

The draft Plan was exhibited from 20 July to 21 August 2015. As a result of the exhibition, three submissions were received. It is recommended that the draft Wollongong Section 94A Development Contributions Plan (2015) be adopted.

RECOMMENDATION

- 1 The West Dapto Release Area - Section 94 Development Contributions Plan (2015) (Attachment 1) be adopted with the proposed amendments as outlined in the report.
- 2 The adoption of the Plan be notified in the local newspapers in accordance with the requirements of the Environmental Planning and Assessment Regulation 2000.
- 3 A further report on the West Dapto Section 94 Plan be presented to Council on 9 November 2015 which will form the basis of further application/s to IPART and the NSW Department of Planning and Environment for additional local infrastructure revenues.

ATTACHMENTS

West Dapto Release Area Section 94 Development Contributions Plan (2015)

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhoods

BACKGROUND

The West Dapto Release Area covers an area of approximately 4,700 hectares and is proposed to provide an additional 17,000 dwellings and 183 hectares of employment land when fully developed.

The Wollongong Local Environmental Plan (West Dapto) 2010 was notified on 5 May 2010 which permits urban development in Stages 1 and 2, allowing for the development of some 6,676 dwellings. On 6 June 2014, the West Dapto LEP was repealed and the provisions incorporated into the Wollongong LEP 2009.

To date, nine Neighbourhood Plans have been adopted enabling Development Applications for 2,812 residential lots and 75 hectares of industrial land to be lodged. Another draft Neighbourhood Plan has been exhibited for an additional 587 lots.

To date, 14 Development Applications for residential subdivisions have been approved within the release area with a total of 837 lots. Of these lots, 387 have been released and a further 726 lots are under construction. Another four Development Applications for a total of 398 lots are currently under assessment. Additionally, a number of pre-lodgement meetings are occurring for other planned subdivisions.

Section 94 Plan History

On 27 April 2010, Council endorsed a draft West Dapto Section 94 Development Contribution Plan for exhibition. It proposed a local infrastructure cost of \$756 million and a \$41,471 per lot/dwelling contribution and an employment land rate of \$43,399.

On 4 June 2010, the Minister for Planning issued a Direction requiring that Section 94 Plans be capped at \$20,000 per lot and on 31 August 2010 increased the cap to \$30,000 per lot in Greenfield areas.

On 26 October 2010, Council endorsed a further draft West Dapto Section 94 Development Contribution Plan for exhibition. It proposed a local infrastructure cost of \$580 million and a \$30,000 per lot/dwelling contribution and \$38,742 per hectare for employment land.

On 14 December 2010, Council adopted the West Dapto Release Area –Section 94 Development Contributions Plan (2010) with a residential rate of \$29,205 per lot/dwelling rate and an employment land rate of \$37,351 per hectare and requested that the (then) NSW Department of Planning and Infrastructure identify West Dapto as an urban release area to allow the \$30,000 Section 94 Greenfield cap to apply. On 4 March 2011 the West Dapto Release Area was granted Greenfield area status, for the \$30,000 cap to apply.

When the plan was indexed in 2011 the residential rate reached the \$30,000 cap and has remained at that value. The employment land is not capped and has increased to \$40,321 per hectare. The effect of the cap is discussed in the Financial Implications section of the report.

Council at its meeting on 12 December 2011 adopted the current West Dapto Release Area – Section 94 Development Contributions Plan (2011), following a minor review of the Plan which incorporated amendments to achieve compliance with the Independent Commission Against Corruption's 'Development Assessment Internal Audit Tool' (2010).

A Section 94 Plan is a key document that assists in the provision of local infrastructure for the future population and requires regular review. The West Dapto Section 94 Plan currently applies to Stages 1 and 2 of the West Dapto Release Area. The local infrastructure requirement for West Dapto as contained within the current adopted Plan was estimated to be \$565 million (2010 value).

An updated draft Plan was prepared to reflect a number of Council resolutions which affect the Plan, including:

- On 12 December 2011, Council resolved to include the Huntley development area in the Plan as part of the next review. To collect Section 94 contributions from this precinct, it needs to be included in the West Dapto Section 94 map and excluded from the Wollongong Section 94A Contributions Plan (2014) map.
- On 25 March 2013, Council resolved to progress the Princes Highway/ Fowlers Road – Fairwater Drive link, and on 24 March 2014 Council endorsed the inclusion of the link in the Wollongong DCP 2009 – Chapter D16 West Dapto Release Area master plan and road network plan. A similar amendment should be included in the West Dapto Section 94 Plan.
- On 27 May 2013, Council endorsed the Sheaffes Road North Neighbourhood Plan which amended proposed open space locations.
- On 24 March 2014, Council endorsed the Darkes Road South East Neighbourhood Plan which increased the size of a proposed open space area from 3 hectares to 10 hectares.
- On 24 November 2014, Council endorsed an amendment to the Wollongong Section 94A Development Contributions Plan to enable exemptions requests to be considered for ‘residential care facilities’ and ‘industrial training facilities’. A similar amendment could be included in the West Dapto Section 94 Plan.

In addition, the updated Plan proposed a reduction in Section 94 contributions for certain developments to encourage additional affordable housing.

A Councillor briefing on the proposed amendments occurred on 25 May 2015.

On 22 June 2015, Council resolved that:

- “1 *The following amendments be incorporated into the draft West Dapto Section 94 Development Contributions Plan (2015):*
- a *Figure 1.1 Land to which the Plan applies be amended to include Huntley – that was rezoned as part of Wollongong Local Environmental Plan 2009 (Amendment 12) on 6 July 2012.*
 - b *Figure 4.2.1 Existing and Proposed Open Space be amended by:*
 - i *Increasing the size of “Ridge Park” on Lot 202 DP 1192033 from 3 hectares to 10 hectares to reflect the adopted Darkes Road South West Neighbourhood Plan;*
 - ii *Amending the location of parks 3 and 4 to parks 3a, 3b and 4 on Lot 401 DP 1110562 and Lot 47 DP 751278 to reflect the adopted Sheaffes Road North Neighbourhood Plan;*
 - iii *Including the four reserves dedicated to Council as part of the Brooks Reach subdivision, as existing open space areas.*

- c *Figure 4.2.2 and 4.3.8 Proposed Cycleway network be updated to reflect the minor amendment made to the cycleway network as part of the adopted Darkes Road South West Neighbourhood Plan and to include the Princes Highway/Fowlers Road – Fairwater Drive link.*
- d *Figure 4.3.1 Existing Road network be amended to indicate that it reflects the road network as it was in 2010.*
- e *Figures 4.3.3 Proposed Road network, 4.3.4 Proposed Road Types, 4.3.7 Proposed intersection treatments, 4.3.9 Proposed roads to be funded through Section 94 and 4.3.10 Proposed Flood Access network be amended by:*
- i Including the Princes Highway/Fowlers Road – Fairwater Drive link;*
 - ii Amending the location of the collector road as adopted as part of the Darkes Road South West Neighbourhood Plan;*
 - iii Extending the colouring of Marshall Mount Road to Marshall Mount Creek.*
- f *Figure 4.3.5 Proposed Collector Road type Cross Section to include the updated road cross sections.*
- g *Table 4.3.6 New Road Requirements and Table 4.3.7 Works Program, include the Princes Highway/Fowlers Road – Fairwater Drive link.*
- h *Updating the list of possible exemptions in clause 2.2.1 to include Residential Care Facilities and Industrial Training Facilities and to reflect the Wollongong Section 94A Development Contributions Plan (2014).*
- i *To encourage additional affordable housing, introduce a reduced contribution rate for:*
- dual occupancy of \$20,000 for the additional dwelling (less than 125m²);*
 - multi-dwelling housing, residential flat buildings, seniors living, shop-top housing (residential component), of \$15,000 per dwelling (less than 125m²) for up to five additional dwellings and \$10,000 per dwelling (less than 125m²) for more than five additional dwellings;*
 - subdivisions of more than 50 lots levy at a rate of 13 lots per hectare (\$390,000) if 15 or more lots per hectare is approved, based on the net residential density of the land zoned for residential use;*
 - The reduced contribution rates be reviewed after two years, or as part of the completion of the West Dapto Review.*
- j *Other minor amendments as highlighted in the draft Plan.*
- 2 *A corresponding amendment be made to the Wollongong Section 94A Development Contributions Plan (2014) to remove Huntley (as identified in recommendation 1a), from 'Figure 1 Wollongong Section 94A Contribution Area'.*

- 3 *The draft West Dapto Section 94 Development Contributions Plan (2015) and draft Wollongong Section 94A Development Contributions Plan (2015) be exhibited for community input for a minimum period 28 days.*
- 4 *Following the exhibition period, a report on submissions be presented to Council."*

PROPOSAL

The purpose of this report is to highlight the submissions received during the exhibition period of the West Dapto Section 94 Development Contributions Plan (2015) and to seek Council's adoption of this interim plan (prior to the major review of the plan currently taking place).

No amendment to the draft Plan is proposed as a consequence of the submissions received.

CONSULTATION AND COMMUNICATION

The draft West Dapto Release Area Section 94 Development Contributions Plan (2015) was exhibited from 20 July to 21 August 2015. Notices were included in the local newspaper and on Council's website.

The local Neighbourhood Forum, peak industry associations (UDIA, Planning Institute of Australia, Property Council) and local planning consultants were advised of the exhibition.

The draft Plan was exhibited in Council's libraries at Wollongong and Dapto and on Council's website.

The draft planning document was viewed 58 times on Council website and was downloaded 67 times.

Following the exhibition period, three submissions were received. The submissions are summarised in the following table:

Submitter	Issues raised	Comment
Roads and Maritime Services	No objection to the draft plan. Any funding from RMS including the 50% RTA fund referred in the draft Plan Schedule will be subject to application and RMS approval. Any works on State roads or traffic signal require RMS approval.	Noted.
Sydney Water	Supports the changes to the Development Contributions Plans for Wollongong and West Dapto. Sydney Water will continue to actively	Noted.

Submitter	Issues raised	Comment
	work with Council in the delivery of critical water infrastructure to facilitate growth in the LGA.	
Sheargold Property Developments Pty Ltd	<p>Supports the changes in the draft West Dapto Development Contributions Plan 2015.</p> <p>Inclusion of new areas to the draft Plan creates significant uncertainty for developers in terms of required funding for the provision of the additional infrastructure needed for the newly included areas.</p> <p>The submission requested Council to prepare and exhibit a draft Plan that includes estimated yields and infrastructure costings for the newly included areas within the draft Plan to provide clarity and certainty for the development industry for investing in West Dapto.</p>	<p>Noted.</p> <p>The overall cost for providing planned community infrastructures and facilities in West Dapto release area was planned considering the total estimated yield in terms of lots/dwellings and the income that will be generated by this future development. Difference between income and expenditure was also identified in the report to Council.</p> <p>The difference between income and expenditures for West Dapto will be subject to a major review. This review process is currently underway to address the gap in the plan. The process will include all the stakeholders including the development industry as part of its consultation process and to advise the findings and proposed mitigation measures. The major review will take approximately two years to complete.</p>

Proposal from Shone Avenue/West Dapto Road Neighbourhood Plan

Figure 4.2.1 Existing and Proposed Open Space in the West Dapto Section 94 Plan shows a recreation facility in the centre of the Shone Avenue/West Dapto Road precinct.

On 24 August 2015, Council adopted the Neighbourhood Plan for land fronting Shone Avenue and West Dapto Road, Horsley. As a part of the development of the Neighbourhood Plan the location of the park was revised to include a local park and playing field in the north east corner.

As a result of this the proposed open space facilities in 'Figure 4.2.1 – Existing and Proposed Open Space Facilities' of the draft West Dapto Development Contributions Plan (2015) has been amended to properly identify the location of the proposed local park and playing field (recreation facility 8) on the map.

PLANNING AND POLICY IMPACT

Illawarra Regional Strategy and Draft Illawarra Regional Growth and Infrastructure Plan (2014)

The West Dapto Release Area is identified in the Illawarra Regional Strategy (2007) and the draft Illawarra Regional Growth and Infrastructure Plan (2014) as a regionally significant urban release area.

Wollongong 2022

This report contributes to a number of Wollongong 2022 objectives as the West Dapto Section 94 Plan is aligned with the Capital Works Program, which contributes to the funding required to meet the Delivery Program.

It specifically delivers on core business activities as detailed in the Land Use Planning Service Plan 2015-16.

FINANCIAL IMPLICATIONS

To date, development in the West Dapto Release Area has resulted in \$15.49 million worth of Section 94 income and interest, which includes \$13.89 million from residential development (463 lots) and \$90,932 from employment land.

Council has expended some \$9.2 million of Section 94 contributions, principally repaying the NSW Government \$26.05 million loan. Council has expended \$39.7 million on the Initial Access Strategy which has largely been funded from State and Federal loans and grants.

The local infrastructure costs have increased from \$565 million to \$817 million largely as a result of:

- Including the Princes Highway/Fowlers Road to Fairwater Drive link \$93.5 million;
- Wongawilli Road additional drainage and land acquisition requirements has increased the forecast cost to \$28 million;
- A larger open space area in the Darkes Road South West precinct now costed at \$5.16 million for land acquisition; and
- Indexing the 2010 costs by Consumer Price Index (CPI) to 2015 (some \$62 million). A further indexing has occurred since the June report. Future indexing will continue to increase the costs.

The increased costs create a gap in excess of \$200 million between the Section 94 costs and estimated Section 94 income. This gap would be closed if Council was able to increase the residential contribution above the \$30,000 cap. This issue is being reviewed by the major review and may lead to an IPART application. As a consequence of the increased costs, the employment land levy has increased from \$40,321 per hectare to \$42,848 per hectare.

The expenditure side or cost of local infrastructure is increasing by CPI; however the income side is limited by the cap. The price of land has also increased which increases the cost of land that Council is required to acquire, and increased the viability of development; and

The cap is contributing to a contribution deficit. A major review of the West Dapto Vision, Master Plan and Section 94 Development Contribution Plan is underway and will be reported separately. However, the current Plan needs to be updated now to reflect Council resolutions and current projects.

Council at its Ordinary Meeting of 14 September 2015 considered a report on the Yallah-Marshall Mount Planning Proposal and resolved that the matter lay on the table pending a detailed briefing with representatives from the NSW Department of Planning and Environment. However, should Council ultimately support the finalisation of the Yallah-Marshall Mount Planning Proposal then the West Dapto Section 94 Plan will need to be amended to include Yallah-Marshall Mount. This will be subject to a separate report to Council.

CONCLUSION

The West Dapto Release Area is complex due to its physical constraints and relatively low development yield. Significant road and drainage infrastructure is required to service the West Dapto Release Area.

The infrastructure costs will continue to be reviewed as updated road infrastructure cost rates are generated from current Initial Access Strategy public tendering and actual costs of current projects.

It is recommended that the West Dapto Release Area Section 94 Development Contributions Plan (2015) (Attachment 1) be adopted.

ITEM 4

WEST DAPTO URBAN RELEASE AREA - DRAFT NEIGHBOURHOOD PLAN AND PLANNING PROPOSAL FOR WEST DAPTO ROAD AND SHEAFFES ROAD, KEMBLA GRANGE - POST EXHIBITION

On 15 December 2014, Council resolved to exhibit the draft Neighbourhood Plan for West Dapto Road and Sheaffes Road, Kembla Grange for a minimum period of 28 days and to prepare a draft Planning Proposal to relocate the town centre to the north of West Dapto Road, identify a primary school site and amend the boundary of the R3 Medium Density Residential / E3 Environmental Management zones.

The draft Neighbourhood Plan was exhibited from 27 January 2015 to 27 February 2015. This report considers the submissions received during the exhibition period. It is recommended that an amended Neighbourhood Plan be adopted as part of the Wollongong Development Control Plan 2009 and an amended draft Planning Proposal be endorsed for exhibition.

RECOMMENDATION

- 1 The revised Neighbourhood Plan for West Dapto Road and Sheaffes Road, Kembla Grange be adopted as an amendment to Wollongong Development Control Plan 2009 Chapter D16 West Dapto Release Area.
- 2 A revised draft Planning Proposal be forwarded to NSW Department of Planning and Environment for a "Gateway" determination and if endorsed exhibited for a minimum period of 28 days.
- 3 The Department of Planning and Environment be advised that Council does not wish to exercise its plan making delegations, as Council is the major landowner in the neighbourhood.

ATTACHMENTS

- 1 Revised Neighbourhood Plan
- 2 Draft amended Zoning Map
- 3 Draft amended Lot Size Map
- 4 Draft amended Floor Space Ratio Map
- 5 Draft amended Height of Building Map
- 6 Updated Wollongong Development Control Plan 2009 – Chapter D16 West Dapto Release Area –incorporating Neighbourhood Plan 5.3.10 West Dapto Road and Sheaffes Road

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment - Future City and Neighbourhoods

BACKGROUND

Wollongong Development Control Plan 2009 - Chapter D16 West Dapto Release Area contains development controls to guide future development within the West Dapto Urban Release Area. The provisions of Wollongong Local Environmental Plan 2009 and Chapter D16 require that a Neighbourhood Plan is prepared and adopted by Council to guide development within a specific neighbourhood precinct.

The adoption of a Neighbourhood Plan is required to allow any development applications to comply with Clause 6.2 of Wollongong Local Environmental Plan 2009.

Sheaffes Road and West Dapto Neighbourhood Plan

The Sheaffes Road and West Dapto Neighbourhood precinct contains six separate land holdings as indicated in Table 1 and illustrated in Figure 1 below. Wollongong City Council is the major landowner within the precinct and has initiated the neighbourhood planning process.

Site	Property Details	Area	Owner	Zoning
1	Lot 47 DP 751278 – 79 Sheaffes Road, Kembla Grange	9.32ha	Private (Malbec)	R3 Medium Density Residential
2	Lot 1 DP 657171 – 340 West Dapto Road, Kembla Grange	42.78ha	Council	R3 Medium Density Residential, B2 Neighbourhood Centre, RE1 Public Recreation, and E3 Environmental Management
3	Part Lot 1 DP 1118463 – 414 West Dapto Road, Kembla Grange	9.84ha (15.88 ha entire lot)	Private	R3 Medium Density Residential, B2 Neighbourhood Centre, RE1 Public Recreation, and E3 Environmental Management
4	Lot 1 DP 195705 and Lot 1 DP 1008723 (closed road) – 290 West Dapto Road, Kembla Grange	8.67ha	Private	R3 Medium Density Residential, and E3 Environmental Management
5	Lot 1 DP 818199 and Lot 2 DP 1008723 (closed road) – Lot 1 West Dapto Road, Kembla Grange	0.88ha	Endeavour Energy	R3 Medium Density Residential
6	Lot 1 DP 607776 and Lot 1 DP 227382 – Lot 1 Sheaffes Road, Kembla Grange	0.04ha	Sydney Water	E3 Environmental Management

Table 1: Land ownership details

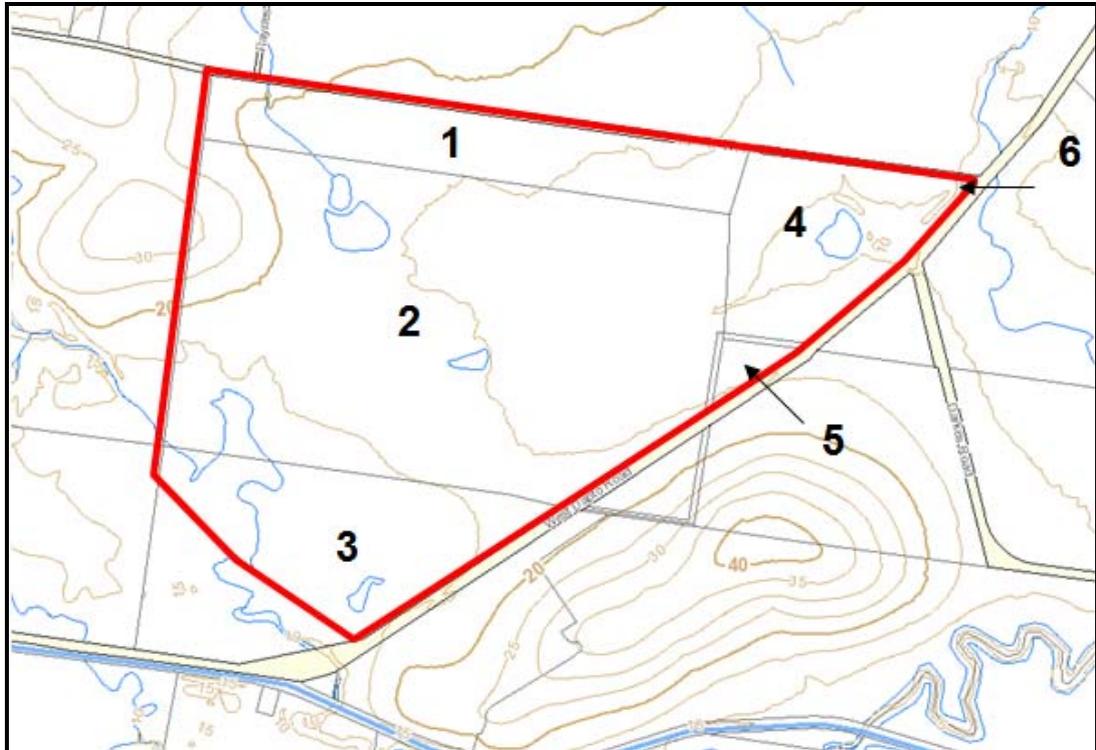


Figure 1: Land ownership pattern

The total potential developable site area, excluding the current RE1 Public Recreation and E3 Environmental Management zoned land is approximately 42.9 hectares. The breakdown of the existing zoning is shown in Table 2 below.

Zone	Area	Lot Size	FSR	Building Height
R3 Medium Density Residential	40.94 ha	300-449m ²	0.75:1 and 0.5:1	13m
E3 Environmental Management	18.38 ha	40ha	NA	9m
RE1 Public Recreation	10.2 ha	NA	NA	9m
B2 Neighbourhood Centre	1.99 ha	NA	2:1	20m

Table 2: Area breakdown by land use zone

The draft Neighbourhood Plan was developed by an external consultant (Watts Consulting) on behalf of Council in consultation with the other landholders. The draft Neighbourhood Plan was assessed by Council officers and an external consultant (SquareLink) which resulted in a revised draft Neighbourhood Plan.

The revised draft Neighbourhood Plan (see Attachment 1) provides for approximately 587 residential allotments, a 3.5 hectare town centre, a sports ground (2 cricket/AFL ovals) and a potential primary school site within the precinct.

On 15 December 2014, Council resolved to exhibit the revised draft Neighbourhood Plan for the West Dapto Road and Sheaffes Road precinct. Council also resolved to prepare a Planning Proposal to:

- relocate the town centre to the northern side of West Dapto Road;
- specify a site intended for a primary school; and
- alter the boundary between the R3 Medium Density Residential zone and the E3 Environmental Management zone.

The draft Planning Proposal was not approved by the Department of Planning and Environment for exhibition as it was inconsistent with Ministerial Direction 6.2 Reserving Land for Public Purposes, and Clause 10 of the Environmental Planning and Assessment Regulation 2000.

A letter was sent to the Department of Education seeking concurrence to allow the draft Planning Proposal to progress. The Department of Education advised that they did not support the proposed school site or being nominated as the acquisition authority.

Accordingly, the draft Planning Proposal needs to be amended and reconsidered by Council. The exhibition of the draft Neighbourhood Plan has identified other issues that could also be included in the revised draft Planning Proposal.

PROPOSAL

The draft Neighbourhood Plan was exhibited from 27 January 2015 to 27 February 2015. Submissions were received from two landowners, five State agencies and the Dapto Neighbourhood Forum. A summary of submissions is provided later in this report.

Representations from a consultant on behalf of / or of the other landowners questioned the independence of Council officers in the process. The draft Neighbourhood Plan was commissioned by the Property and Recreation Division representing Council as a land owner, and was assessed and reviewed by a consultant for the Environmental Strategy and Planning Division (regulator).

To provide transparency in the process, the key constraints and issues will be outlined in this report.

Flooding

Similar to the rest of West Dapto, the precinct is subject to flooding. A watercourse forms the southern boundary of the precinct and a minor watercourse flows through the northern part of the precinct from Paynes Road to West Dapto Road near the intersection with Darkes Road.

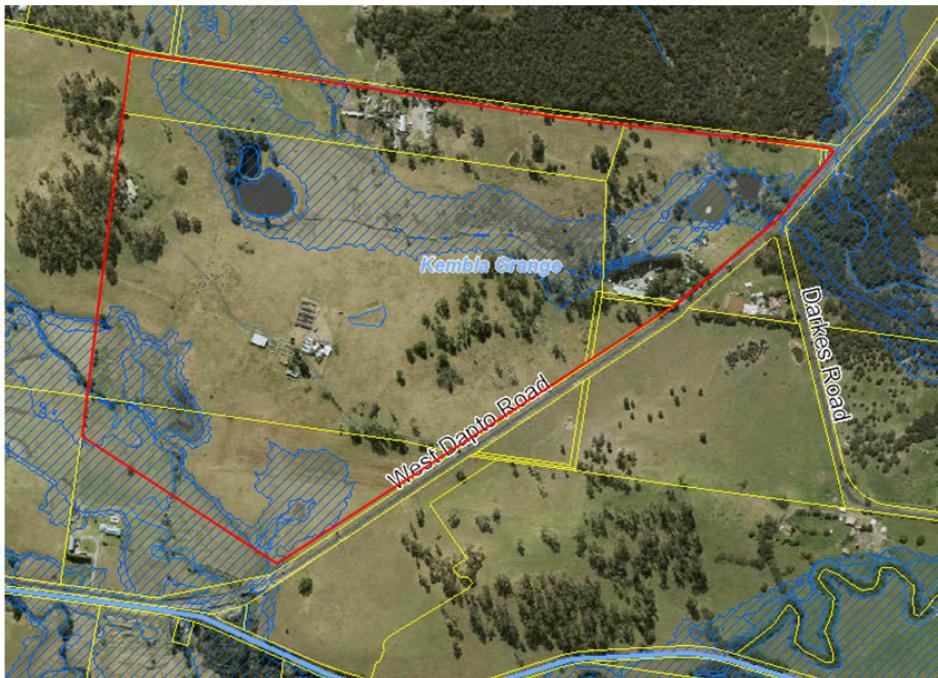
The current E3 Environmental Management zone reflects the extent of 1:100 flooding identified in Mullet Creek and Brooks Creek Flood plain Risk Management Study and Plan (2010). In 2011, it was subsequently discovered that for minor tributaries, the flood study did not consider the entire catchment.

Consultants were engaged to undertake the Mullet Creek Extension of Flood Model Study (2011). The extension model showed that flooding continued beyond the E3 Environmental Management zone, to Paynes Road and beyond. The report was

considered by Council on 12 March 2012 and exhibited in 2012 as part of the West Dapto Merger LEP Planning Proposal. No submissions were received. On 13 October 2014 as part of a draft Planning Proposal for the Stage 3 extension, the updated flood map was endorsed for exhibition.

An extract from the map for the precinct is shown below. The map shows the extent of the flood planning level (1:100 Annual Recurrence Interval) or the medium risk precinct. Residential development within this area is not encouraged, unless justified by a site specific flood study and compensatory excavation. The flood planning level has been used to set the revised boundary of residential/E3 Environmental Management zone.

Flooding insert



The draft Neighbourhood Plan and draft Planning Proposal proposed minor adjustments to the E3 Environmental Management/R3 Medium Density Residential zone boundary to better reflect the updated (2011) flood information.

The draft Neighbourhood Plan also proposed the partial channelisation of the western end of the northern creek, as the flows are shallow and incidental (rather than being in a defined watercourse); with a compensatory basin area however this was not accompanied by a flood study, which will need to be completed as part of the Development Application.

The submission on behalf of one of the other landowners has requested further expansion of the R3 Medium Density zone into the E3 Environmental Management zone. While some minor adjustments have merit, the extent of filling proposed is not supported unless it can be appropriately justified by a detailed flood study and balanced compensatory excavation.

The boundaries of the development area in both the Neighbourhood Plan and draft Planning Proposal have been updated to better reflect the extent of flooding. As a result the development yield has increased slightly.

Flora and Fauna

The precinct has largely been cleared by previous agricultural uses. The submitted flora report identified 2.45 hectares of vegetation on the 71.53 hectares precinct (3.5%). Two endangered ecological communities (EECs) were identified Swamp Sclerophyll Forest (1.04 ha) and Illawarra Lowlands Grassy Woodlands (1.41 ha). The draft Neighbourhood Plan suggested that the loss of vegetation on one property could be compensated by an increase (planting) on another property. This proposal was not supported and the revised draft Neighbourhood Plan and draft Planning Proposal boundaries were amended to conserve a greater area of EECs. The amended Plan retains 2.1 hectares of EECs.

Off-site compensation cannot occur unless there is an agreement between the owners or the West Dapto Biocertification Plan has been put in place which includes funding options for compensation of conservation areas.

No further amendment to the Neighbourhood Plan or draft Planning Proposal is proposed.

Bushfire

The large stand of Illawarra Lowlands Grassy Woodland vegetation on the northern side of Sheaffes Road presents a bushfire risk and is mapped as Bushfire Prone lands. An Asset Protection Zone (APZ) which includes Sheaffes Road needs to be provided. The clearing of the Endangered Ecological Community on the northern side of the Sheaffes Road to reduce the hazard to residential development on the southern side is not supported. An appropriate APZ or building design from the vegetation needs to be incorporated into the development through the Development Application process.

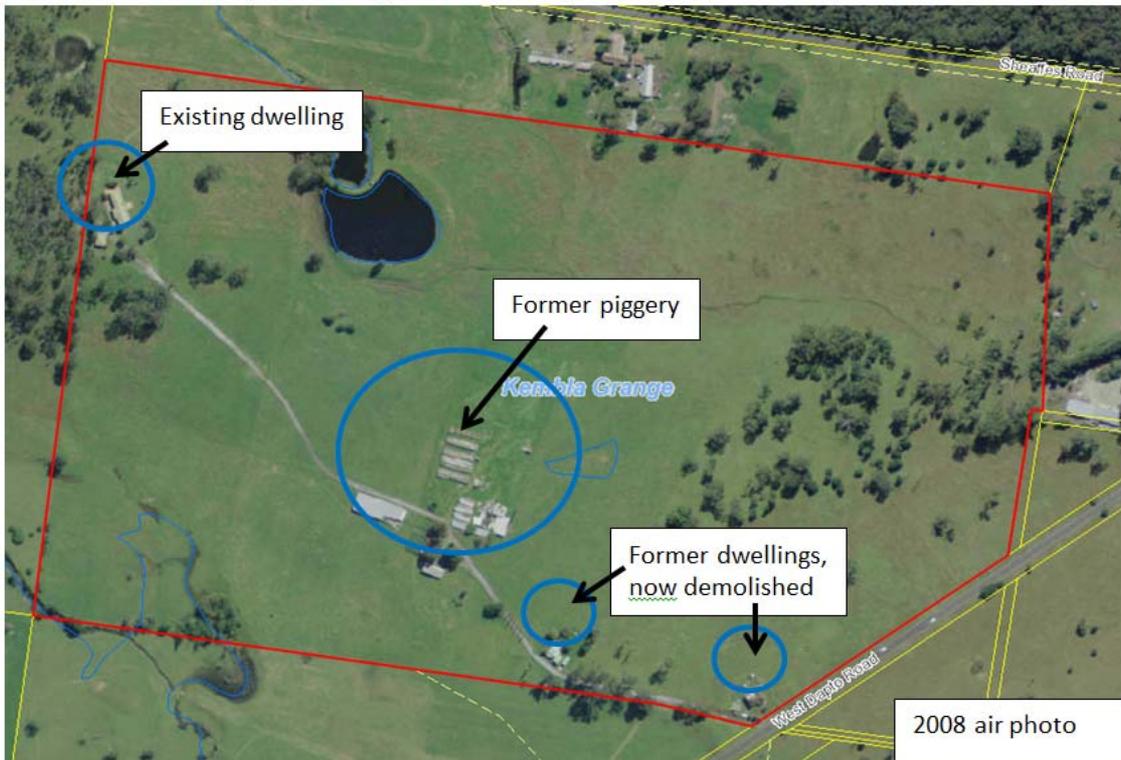
Infrastructure – Water Mains

Large water supply mains exist on both sides of Sheaffes Road within Sydney Water easements. The easements limit the opportunity to widen Sheaffes Road Reserve to approximately 18m (currently 10.06m), rather than the proposed 22.4m. The easements can be crossed by new roads, into the development area. An amended cross-section design for Sheaffes Road is being prepared.

Contamination

The Council owned land (Site 2 Lot 1 DP 657171) is identified as potentially contaminated. In 2007 and 2008, Council lodged Development Applications to demolish the piggery and two dwelling houses (which contained asbestos). The three applications were approved, and the two dwellings have been demolished and the asbestos removed. A third dwelling (now the only dwelling on-site) remains on the western part of the property. The asbestos was removed from the piggery, but the structure frame still exists.

A contamination assessment report in 2008 by Coffey Environments Pty Ltd confirms parts of the site are contaminated and recommends a range of remediation measures. A further contamination report will be required as part of the Development Application for subdivision and residential development, in order to address what remediation measures will be put in place for the site. The photo below shows the location of the piggery and the two demolished dwellings.



Heritage

No non-indigenous heritage items are within the precinct.

An Aboriginal Cultural Heritage Assessment Report was submitted with the draft Neighbourhood Plan. The report confirmed the existence of four sites on the Council land. Two of the sites contained single broken rock flakes, one site contained three flakes and the other site nine flakes.

The four sites appear to be in the development area and will require additional investigation. An Aboriginal Heritage Impact Permit (AHIP) will be required to remove the flakes as part of the Development Application process.

No amendment to the Neighbourhood Plan is required.

Town Centre

A key feature of the Neighbourhood is the “Darkes Road” Town Centre. As part of the revised draft Neighbourhood Plan and draft Planning Proposal the town centre location was amended to be fully on the western side of West Dapto Road (3.51 ha). On 24 March 2014 and 3 August 2015 Council resolved to rezone the land on the eastern side of West Dapto Road (in the Darkes Road South West precinct) from B2 Local Centre to R3 Medium Density Residential Development.

No further change to the town centre is proposed as part of the finalisation of the Neighbourhood Plan or the revised draft Planning Proposal.

Sports Park

Another feature of the neighbourhood is the Sports Park located on the southern boundary. The proposed park has an area of 10.2 hectares and is proposed to contain 2 AFL/cricket ovals, plus parking and amenities. The park could also contain a community centre, although this could also be located in the town centre.

The north-west part of the proposed park is in Council ownership (4.4 hectares) whereas the south east part (5.8 hectares) is identified for acquisition by Council. No change to the Sports Park is proposed as part of the finalisation of the Neighbourhood Plan or the revised draft Planning Proposal.

Education Facilities

The draft Neighbourhood Plan and draft Planning Proposal nominated a 3 hectare public school site within the precinct. The draft Planning Proposal identified the Department of Education as the acquisition authority. As the Department of Education and Communities had not agreed to the acquisition, the Department of Planning and Environment could not issue Gateway determination to allow the draft Planning Proposal to be exhibited.

The Department of Education and Communities advised that the nominated site for a school is not suitable and the Department does not agree to be the nominated acquisition authority. The Department advised that the site is not suitable as:

- there is an existing riparian corridor which runs through the site with unknown contamination risks and
- is mostly included in a flood corridor which is rated as having a medium risk.

The Department also noted that:

The land in this neighbourhood plan is within the catchment for Dapto Public School. New government schools will only be funded, built and operated where there is a demonstrated need for a new school. Prior to significant public funding being allocated to establish new schools, the Department needs to ensure existing schools have reached their full capacity to a point where further expansions or changes to school enrolment boundaries are no longer viable.

Due to the significant time between rezoning and funding of new school developments, the Department's experience is that land use plans will likely be altered and changed for a variety of reasons not yet known. Therefore the Department cannot provide guarantees of where and when new schools would be built until a new school is committed to in the State budget and land acquisitions have been made.

If Planning Authorities and land use developers want greater certainty of future school locations in new urban areas, land dedications for school sites via a Voluntary Planning Agreement or a Works-in-Kind agreement for State infrastructure contributions will be required.

It is noted that the Department of Education has not earmarked any new school sites in West Dapto. The current DCP identifies six new primary school sites and two high schools are required to serve the future West Dapto communities. The opportunities for a school site in Stages 1 and 2 are being reduced with the approval of each neighbourhood plan showing residential development.

It is considered that a school is still required in the precinct and an alternate 3 hectare site has been included in the final Neighbourhood Plan closer to the Sports Park. The draft Planning Proposal has been amended by reverting the school site to a residential zone and the Department of Education and Communities is not identified as the acquisition authority. The implication is that the land will be available for residential development or a private school, if not required by the Department of Education. The acquisition of the site could occur through the draft State Infrastructure Contribution and then transferred to the Department of Education.

Substation

Endeavour Energy have purchased the triangular shaped Lot 1 DP 818199 and the adjoining Lot 1 DP 1008723 (part of the former road)(landowner 4) which have a combined area of 0.88 hectares. The location and triangular shape of the site is not ideal for a substation or the surrounding residential development.

In a submission, Endeavour Energy suggested perimeter roads should be provided to allow for substation access. This is difficult to achieve due to the location of the site adjacent to the riparian corridor.

It would be preferable for the substation to be located in another location, as previously proposed, so that the land could be available for residential development to support the town centre. Endeavour Energy have previously suggested a willingness to consider other sites, at no cost to them. A land exchange may still be an option which could result in a better development outcome but would require the agreement of various owners.

No further change to the substation site is proposed as part of the finalisation of the Neighbourhood Plan.

Road Network

The draft and revised draft Neighbourhood Plan proposed the realignment of proposed road 2 (a minor connector) which will eventually extend to Smiths Lane, Wongawilli. The realignment keeps the road along the edge of the riparian corridor, rather than going over the small knoll and provides a better outcome. The cycleway will also be in this location.

The proposed road map and cycleway maps in the West Dapto chapter of the Wollongong DCP 2009 and the West Dapto 94 Plan are proposed to be updated to reflect this change.

The location of the intersections of the roads connecting with West Dapto Road align with the roads from the Darkes Road South West precinct opposite West Dapto Road.

No further change to the road and cycleway networks are proposed as part of the finalisation of the Neighbourhood Plan.

CONSULTATION AND COMMUNICATION

The draft Neighbourhood Plan was exhibited from 27 January 2015 to 27 February 2015. Submissions were received from two landholders, the Dapto Neighbourhood Forum, NSW Department of Education and Communities, NSW Rural Fire Service, Sydney Water, NSW Office of Environment and Heritage and Endeavour Energy. The issues raised are in the table below.

Summary of Submissions: Draft Neighbourhood Plan Sheaffes and West Dapto Roads

Name	Issues	Comments
Studio Colin Polworth Pty Ltd on behalf of Landowner 4	<p>Object to the quantity of open space and drainage land on their site and the inequity compared to other properties.</p> <p>Compensatory habitat on their site is unjust as it provides for removal of habitat and subsequent development opportunities on other properties.</p> <p>Object to the substation location and its impacts on the development opportunities on site.</p>	<p>The R3/E3 boundary has been reviewed and amended to better reflect the extent of flooding.</p> <p>Agreed. The revised draft Neighbourhood Plan removed this suggestion.</p> <p>Until the West Dapto Biocertification Plan is adopted each landowner will need to manage their own vegetation outcomes.</p> <p>The substation location was purchased by Endeavour Energy. Although the location is not ideal, the substation is needed to service the development of West Dapto.</p>

Name	Issues	Comments
	<p>Irregular land use zoning shapes and locations on their site limit development opportunities.</p> <p>The road layouts in the neighbourhood plan have fewer roads on site 4 and there may be access issues that limit future development.</p> <p>Bushfire and Asset Protection Zone requirements from the forested property on the northern side of Sheaffes Road will limit development opportunities.</p> <p>The plan omits information required under Clause 5.2 of Chapter D16 of the DCP, such as consideration of noise impacts, flooding, drainage management, and visual character.</p> <p>Have made a preliminary submission for a Planning Proposal to alter zoning boundaries.</p>	<p>The zone boundaries have been derived from the land constraints.</p> <p>The Neighbourhood Plan is not a subdivision plan, but does indicate how a neighbourhood could be developed. The road layout has been updated.</p> <p>The forested area and bushfire Asset Protection Zones are part of the constraints of the area.</p> <p>The neighbourhood Plan submitted by Watts Development Consultancy contained consideration of the matters outlined in Clause 5.2 of Chapter D16 of the Wollongong DCP 2009.</p> <p>The preliminary submission proposes a major revision of zone boundaries and would require background studies (such as a flood study) to progress. The suggested Planning Proposal request has not yet been lodged and would be assessed separately.</p>
<p>Dapto Neighbourhood Forum</p>	<p>Who is the independent consultant? They should be named for transparency. Does the independent consultant support the recommendations?</p> <p>Support the relocation of the substation away from the playing fields and public reserve.</p> <p>The town centre should only provide for immediate/small neighbourhood needs/facilities in order not to undermine</p>	<p>The consultant Watts Development Consultancy drafted the plan on behalf of Council (as landholder) and other landholders. Council staff and an external consultant – (SquareLink) assessed the proposed Neighbourhood Plan.</p> <p>Noted.</p> <p>The size and location of the town centre considers the hierarchy of the town centres</p>

Name	Issues	Comments
	<p>the viability of Dapto Town Centre.</p> <p>The relocation of the town centre to the north side of West Dapto Road is supported.</p>	<p>in the area, including Dapto's planned role as the major regional centre for the surrounding area.</p> <p>Noted.</p>
<p>Cardno on behalf of Malbec Properties (Landowner 1)</p>	<p>Sheaffes Road widening should reach a consensus between Council, Sydney Water and landowners.</p> <p>Seek asset protection zone to move further north of Sheaffes Rd to avoid sterilising Malbec land.</p> <p>Seek a reduction in minimum lot sizes from 450sqm to 300sqm on Malbec property to achieve 25 dwellings /hectare density.</p> <p>Seek a 0.75:1 floor space ratio for the R3 zone on the Malbec site.</p>	<p>Sydney Water has provided comments with regard to protection of the water supply assets within the road reserve.</p> <p>The bushfire Asset Protection Zone is due to the natural constraints of the land to the north. No change proposed.</p> <p>The proposed reduced minimum lot size has merit and could be extended to other areas within the neighbourhood. This has been incorporated into the draft Planning Proposal.</p> <p>The proposed 0.75:1 floor space ratio has merit and has been incorporated into the draft Planning Proposal.</p>
<p>Agency Submissions:</p>		
<p>NSW Department of Education and Communities</p>	<p>Require school sites to be a surrounding zone, not SP2.</p> <p>The nominated site is not suitable as it is part of an existing riparian corridor, is within a flood corridor with medium risk, has two large dams and has an unknown contamination risk.</p> <p>This area is within the catchment for Dapto Public School. No new schools will be agreed to unless there is a demonstrated need for a new school (e.g. existing schools have reached development and</p>	<p>Noted, the zone can stay residential. The SP2 zone has been removed from the Planning Proposal.</p> <p>The Department has not agreed to be an acquisition authority. The site is still nominated for a primary school in the Neighbourhood Plan, but should retain the R3 Medium Density zone. If an organisation wishes to establish a private school</p>

Name	Issues	Comments
	<p>enrolment capacity).</p> <p>If planners or developers want certainty, a school site could be dedicated.</p> <p>Discussions with DEC do not agree that DEC should be acquisition authority.</p>	<p>in the precinct, they can negotiate to buy land from the landowner. If no school is required, the site can be developed for residential purposes.</p>
<p>NSW Rural Fire Service</p>	<p>A resolution of the Sheaffes Road Asset Protection Zone needs to be made.</p> <p>The report with the plan assumes a higher standard of fire resistance than normally required.</p> <p>Asset Protection Zones within residential properties will need a sufficient lot size to accommodate the APZ.</p>	<p>The Sheaffes Road Asset Protection Zone will be measured from the northern property boundary of Sheaffes Road.</p> <p>Further assessment of individual development will be made at development application stage.</p> <p>Lots will need to allow for the 35m Asset Protection Zone.</p>
<p>Sydney Water (Landowner 6)</p>	<p>Sheaffes Road contains critical infrastructure that services the Illawarra. These assets and the protection of these assets should be included in the Neighbourhood Plan.</p> <p>Note: Large water mains are located on both sides of Sheaffes Road which limit road widening opportunities.</p>	<p>The design for Sheaffes Road has been amended to allow for an 18 metre road reservation, which will fit between the Sydney Water infrastructure lines.</p>
<p>NSW Office of Environment and Heritage</p>	<p>The proposed offset for clearing the Lowland Grassy Woodland EEC is inadequate.</p> <p>The Neighbourhood Plan should be consistent with flood planning policies and risk management.</p> <p>Aboriginal heritage values should be conserved where possible.</p> <p>Cannot comment on specific intended actions on Aboriginal heritage due to insufficient information.</p> <p>Aboriginal sites not listed in AHIMS should be notified.</p>	<p>Council is pursuing a Biocertification strategy for the West Dapto urban release area that will consider offsets.</p> <p>The Neighbourhood Plan considers flood risk management.</p> <p>The comments on Aboriginal heritage are noted. Additional information will be required as part of future Development Applications.</p> <p>Aboriginal sites are listed in the AHIMS and no additional sites have been found.</p>

Name	Issues	Comments
<p>Endeavour Energy (Landowner 5)</p>	<p>The proposed residential zoning surrounding the substation site is not supported by Endeavour Energy and also appears to compromise the surrounding proposed road layout for residential subdivision.</p> <p>West Dapto Road is indicated as requiring widening but no details are provided. Due to its triangular shape, the substation site has extremely limited capability to provide for any road widening.</p> <p>West Dapto Road is indicated as a 'Major Collector Road'. The substation requires heavy vehicle access from West Dapto Road and access cannot be denied.</p> <p>The substation requires at least two road frontages (preferably three) and a possible easement on the third side to provide the adequate spacing for the cable ducts and to prevent the current carrying capacity of underground cables de-rating from higher ambient temperature from increasing the depth and/or reducing the parallel spacing / separation of the cables.</p> <p>The substation is likely to be a 132/11 Kilovolt (kV) arrangement i.e. the incoming bulk supply / transmission feeders will be at 132 kV and pass through the substation transformers for distribution down to 11kV.</p> <p>A suitable 132kV corridor/easement to accommodate 2 x 132kV single pole overhead lines will be required between Endeavour Energy's zone substation (Lot 1 – DP818199, West Dapto Rd) and existing transmission line 980 located just west of the Draft Neighbourhood Plan - Kembla Grange. The minimum corridor/easement width needs to be 47m.</p>	<p>This site was purchased by Endeavour Energy.</p> <p>No widening of the road reserve is proposed in front of the Endeavour Energy site.</p> <p>Access is not proposed to be denied.</p> <p>If Endeavour Energy requires additional land, it can purchase from an adjoining owner, on a land swap agreement.</p> <p>Endeavour Energy will need to negotiate their easements with the surrounding landowners.</p> <p>The easement could follow roads and riparian corridors to minimise impacts on developable land.</p>

PLANNING AND POLICY IMPACT

This report relates to Wollongong 2022 objective “Residents have improved access to a range of affordable housing options” under the Community Goal “We are a healthy community in a liveable city” and the “objective “walking, cycling and public transport is an accessible and well-resourced means of transport, and the use of private cars is

reduced” under the Community Goal “We have sustainable, affordable and accessible transport”.

The submissions received have raised issues that have implications for the Planning Proposal that relates to this Neighbourhood Plan:

- removal of the proposed school zone and land acquisition provisions (see Attachment 2).
- altered lot size, floor space ratio, and Height of Buildings provisions for some areas within the R3 zone (see Attachments 3, 4 and 5).
- altered boundary for the R3 and E3 zone (see Attachment 2).

CONCLUSION

It is recommended that these changes be included in an amended Planning Proposal seeking a “gateway” determination, and that Council adopt the amended Neighbourhood Plan as an amendment of Chapter D16 of Wollongong Development Control Plan 2009 (see Attachment 6).

ITEM 5

PLANNING PROPOSAL: SHONE AVENUE AND WEST DAPTO ROAD,
HORSLEY - POST EXHIBITION

On 23 February 2015, Council resolved to prepare a draft Planning Proposal for land fronting Shone Avenue and West Dapto Road, Horsley. The purpose of the draft Planning Proposal is to make minor amendments to realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary to reflect updated flood information and facilitate a Neighbourhood Plan. Corresponding amendments to the Floor Space Ratio and Minimum Lot Size maps are also required. The draft Planning Proposal was exhibited from 29 July to 28 August 2015. Six submissions were received.

The purpose of this report is to provide feedback on the public exhibition of the draft Planning Proposal and to seek a Council resolution to submit a finalised Planning Proposal to the NSW Department of Planning and Environment for approval.

RECOMMENDATION

Council –

- 1 Proceed with the Planning Proposal relating to part Lot 1 DP 607456 and part Lot 1 DP 26069 to include amendments to the Wollongong Local Environmental Plan 2009 to realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary in order to facilitate the endorsed Neighbourhood Plan at Shone Avenue and West Dapto Road, Horsley (with corresponding amendments to the Minimum Lot Size and Floor Space Ratio Maps).
- 2 Refer the final Planning Proposal to the NSW Department of Planning and Environment for the making of arrangements for drafting to give effect to the final proposal.
- 3 Note that the General Manager will thereafter proceed to exercise his delegation issued by the NSW Department of Planning and Environment under Section 69 in relation to the final proposal.

ATTACHMENTS

- 1 Site Locality Map
- 2 Post Exhibition Amended Zoning, Floor Space Ratio and Minimum Lot Size Maps
- 3 Finalised Planning Proposal

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhoods

BACKGROUND

On 23 February 2015, Council resolved to exhibit a draft Neighbourhood Plan and also prepare a draft Planning Proposal for land fronting Shone Avenue and West Dapto Road, Horsley.

The total area of the precinct is approximately 46.16 hectares and contains eight separate privately owned land holdings. The southern and eastern boundaries of the neighbourhood are bordered by Robins Creek. A small tributary of this creek system also bisects the north-west corner of the precinct. The northern part of the neighbourhood is physically separated from West Dapto Road by an existing private railway line for the Wongawilli Colliery, which runs parallel and adjacent to this road (Attachment 1).

The endorsed Neighbourhood Plan for the precinct seeks to facilitate approximately 344 low density residential lots. The site is currently predominantly zoned R2 Low Density Residential, with an E3 Environmental Management zoning over riparian land.

The purpose of the draft Planning Proposal is to make minor amendments to realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary to reflect updated flood information and facilitate the Neighbourhood Plan. Corresponding amendments to the Floor Space Ratio and Minimum Lot Size maps are also required.

On 23 February 2015, Council resolved (in part) that:

- “3. *A draft Planning Proposal for the following lots in part be prepared for rezoning from E3 Environmental Management to R2 Low Density Residential with a corresponding Floor Space Ratio of 0.5:1 and Minimum Lot Size of 450m²:*
 - a. *Lot C DP 397366;*
 - b. *Lot 5 DP 26069;*
 - c. *Lot 19 DP 879647;*
 - d. *Lot 102 DP 1137454;*
 - e. *Lot 1012 DP 862178;*
 - f. *Lot 2 DP 26069;*
 - g. *Lot 1 DP 607456; and*
 - h. *Lot 1 DP 26069.*
4. *Further work be required as part of the Gateway determination to be undertaken to demonstrate how the cut and fill of flood affected land could be managed within the Neighbourhood Plan area and a flora and fauna report be prepared for the areas proposed to be rezoned and exhibited as part of the draft Planning Proposal.*
5. *The draft Planning Proposal be referred to the NSW Department of Planning and Environment for a Gateway determination and if approved be exhibited for a minimum period of 28 days.*
6. *Council request authority for the General Manger to exercise plan making delegations in accordance with Council’s resolution of 26 November 2012.”*

It should be noted that in response to the Office of Water and Office of Environment and Heritage public exhibition submissions, the Neighbourhood Plan was modified such that there is no encroachment into the E3 Environmental Management lands along Robins Creek and all residential lots and roads are not affected by the 1% AEP flood line. The revision included the removal of some proposed lots and realignment of roads and has now resulted in a reduction of the extent of rezoning required through the Planning Proposal. The amended Zoning and associated Floor Space Ratio and Minimum Lot Size Maps to reflect the revised adopted Neighbourhood Plan are included as Attachment 2.

PROPOSAL

To realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary, it is necessary to update the Land Zoning, Minimum Lot Size and Floor Space Ratio Maps of Wollongong Local Environmental Plan 2009.

A Gateway determination was received on 15 July 2015 and the draft Planning Proposal was placed on public exhibition from 29 July to 28 August 2015.

CONSULTATION AND COMMUNICATION

The draft Planning Proposal was exhibited from 29 July to 28 August 2015. The following NSW State Agencies were consulted as part of the exhibition period:

- NSW Rural Fire Service;
- Sydney Water;
- Roads and Maritime Services;
- NSW Department of Primary Industries – Office of Water; and
- NSW Office of Environment and Heritage.

The exhibition was advertised through Council's website and in the Illawarra Mercury and Advertiser newspapers. Copies of the suite of documents were available for viewing on Council's website, in Wollongong and Dapto libraries, and at Council's Customer Service Centre in the Administration Building, Wollongong. Adjoining property owners and Neighbourhood Forum 8 were notified of the public exhibition by mail. Relevant internal divisions were consulted.

As a result of the public exhibition the website page received 129 views and the draft Planning Proposal was downloaded 70 times. A total of six submissions were received from the following:

- NSW Rural Fire Service;
- Sydney Water;
- Roads and Maritime Services;
- NSW Department of Primary Industries – Office of Water;
- NSW Office of Environment and Heritage; and
- Resident.

The table below provides a summary of the issues raised as a result of the public exhibition of the draft Planning Proposal.

ISSUES RAISED IN REPORT AND REFERRALS		
	Issue Raised	How Issue was resolved
1	NSW Rural Fire Service: No objections to Planning Proposal.	Noted.
2	Sydney Water: No objections to Planning Proposal.	Noted.
3	Roads and Maritime Services: No objections to Planning Proposal.	Noted.
4	NSW Department of Primary Industries – Office of Water: Recommends that the rezoning of land proposed in the exhibited Planning Proposal be amended to reflect the revised Neighbourhood Plan.	Agreed – minor adjustments have been made to the zone boundaries which decrease the R2 Low Density Residential zone and increase the E3 Environmental Management zone to reflect the Neighbourhood Plan.
5	Office of Environment and Heritage: Note that the site is mostly cleared and potential biodiversity impacts are largely confined to the riparian corridors and isolated paddock trees. As such, small changes to the zone boundaries would have minimal ecological impact and, if they are located on cleared land, would not impact upon biodiversity certification credit calculations. Support a detailed flora and fauna assessment at subdivision stage. Further work is required to ascertain how cut and fill on flood affected lots can be managed as part of DA assessment.	Noted. A flora and fauna survey and assessment addressing threatened biodiversity listed under either the <i>Threatened Species Conservation Act 1995</i> or <i>Environment Protection and Biodiversity Conservation Act 1999</i> will be required for a future Development Application for subdivision, in accordance with standard Development Application requirements. Information has been provided in the form of a flood depth change plot, which indicates that the proposed filling does not increase the extent of flooding in the vicinity of the playing field and proposed residential lots (1% AEP event). The Neighbourhood Plan has been modified such that all residential lots and roads are not affected by the 1% AEP flood (the 1% AEP flood line shown on the Neighbourhood Plan is the flood line adopted by Council's Mullet Creek Flood Study and extension report 2011). The revision has included the removal of some proposed lots and realignment of roads. More detailed flood investigations

ISSUES RAISED IN REPORT AND REFERRALS

	Issue Raised	How Issue was resolved
	<p>Areas identified in the AHMS West Dapto Road Preliminary Aboriginal Heritage Assessment Report (2014) as having the potential for subsurface archaeological deposits should be investigated in accordance with relevant OEH guidelines as part of the DA.</p>	<p>(extending to neighbouring properties) may be required at the Development Application stage.</p> <p>Additional Aboriginal archaeological research in line with the recommendations from Council's Heritage Officer has commenced, and will be assessed at Development Application stage.</p>
6	<p>Resident:</p> <p>Requests a thorough fauna and flora assessment.</p> <p>Requests Council assess the potential impacts of the rezoning on conservation values and on the ecosystem provided by the riparian corridor vegetation. Planned vegetation should be optimal for the protection of Robins Creek and its tributaries i.e. control of water flow; reduction of bank and channel erosion; trapping of sediment, nutrients and other contaminants; and habitat diversity and connectivity.</p> <p>Requests observation of precautionary principle in justification of decisions.</p>	<p>A flora and fauna survey and assessment addressing threatened biodiversity listed under either the <i>Threatened Species Conservation Act 1995</i> or <i>Environment Protection and Biodiversity Conservation Act 1999</i> will be required for a future Development Application for subdivision, in accordance with standard Development Application requirements.</p> <p>The biodiversity constraints analysis concluded that the study area contains waterfront land and therefore the preparation of a Vegetation Management Plan for the rehabilitation and ongoing management of the riparian areas associated with Robins Creek is likely to be required at the Development Application stage.</p>

Satisfactory internal referrals were received in relation to geotechnical, traffic and access, drainage/flooding issues and biodiversity for consideration.

Flooding Issues

In accordance with the Council resolution that further work is required to demonstrate how any proposed cut and fill of flood affected land could be managed within the Neighbourhood Plan area, information was provided in the form of a flood depth change plot, which indicates that the proposed filling does not increase the extent of flooding in the vicinity of the playing field and proposed residential lots (1% AEP event). This information was considered satisfactory. More detailed flood investigations (extending to neighbouring properties) may be required at the Development Application stage to more fully understand the impacts of fill both on-site and offsite.

Flora and Fauna Issues

In resolving to exhibit the Neighbourhood Plan and draft Planning Proposal Council resolved that any Asset Protection Zone (APZ) associated with the proposed lot and road layout should be contained on private land or in public roads and not impact on any E3 Environmental Management land, and a flora and fauna report be prepared for the areas proposed to be rezoned.

The proponent provided a biodiversity constraints analysis to inform the preparation of the Neighbourhood Plan, which was included in the public exhibition of both the Neighbourhood Plan and Planning Proposal. The analysis concluded that the study area contains waterfront land and therefore the preparation of a Vegetation Management Plan is likely to be required at the DA stage. This constraints analysis was reviewed internally and was deemed to correctly identify low biodiversity constraints in the Neighbourhood Plan area, including the likely absence of Endangered Ecological Communities (EECs). The submission from OEH confirmed that the E3 Environmental Management zoning for the site is reflective of flooding extent and not biodiversity constraints, and as such small changes to the zone boundaries would have minimal ecological impact.

In response to Office of Water submission and internal comments that the draft Plan should seek to minimise non riparian uses within prescribed Vegetated Riparian Zones (VRZ), including locating infrastructure, bushfire asset protection and residential lots outside the VRZ or in accordance with the Guidelines for riparian corridors on waterfront land, the Neighbourhood Plan has been modified such that there is no encroachment into the E3 Environmental Management zoned lands along Robins Creek. The modifications included the removal of some proposed lots and road realignment.

A flora and fauna survey and assessment addressing threatened biodiversity listed under either the *Threatened Species Conservation Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* will be required for a future Development Application for subdivision, in accordance with standard Development Application requirements.

Finalised Planning Proposal

The draft Planning Proposal applied to the following lots:

- a. Lot C DP 397366;
- b. Lot 5 DP 26069;
- c. Lot 19 DP 879647;
- d. Lot 102 DP 1137454;
- e. Lot 1012 DP 862178;
- f. Lot 2 DP 26069;
- g. Lot 1 DP 607456; and
- h. Lot 1 DP 26069.

As a result of revisions to the Neighbourhood Plan, including the removal of some proposed lots and realignment of roads, the extent of rezoning required through the Planning Proposal has now been reduced. The finalised Planning Proposal contains the amended Zoning and associated Floor Space Ratio and Minimum Lot Size Maps to reflect the revised adopted Neighbourhood Plan (Attachment 3). The Planning Proposal now relates to part of the following two lots only:

- Lot 1 DP 607456; and
- Lot 1 DP 26069.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 objective “*Residents have improved access to a range of affordable housing options*” under the Community Goal “*We are a healthy community in a liveable city*” and the objective “*Walking, cycling and public transport is an accessible and well-resourced means of transport, and the use of private cars is reduced*” under the Community Goal “*We have sustainable, affordable and accessible transport*”.

It specifically addresses the Annual Plan 2015-16 Key Deliverable “*Continue to review and assess Neighbourhood Plans*” which forms part of the Five Year Action “*Implement the West Dapto Release Area Masterplan*” contained within the Revised Delivery Program 2012-17.

CONCLUSION

It is recommended that Council resolve that the revised Planning Proposal be finalised by the General Manager under delegation issued by the NSW Department of Planning and Environment to make minor amendments to realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary to facilitate the adopted Neighbourhood Plan for part Lot 1 DP 607456 and part Lot 1 DP 26069 Shone Avenue and West Dapto Road, Horsley.

ITEM 6

PROPOSED ALCOHOL PROHIBITED PARK, THE DRIVE, STANWELL PARK

In September 2014 Council endorsed the re-establishment of seven existing Alcohol Free Zones (AFZs) within the Wollongong Local Government Area (LGA). During this review Licensing Police from Wollongong Local Area Command recommended consideration be given for some areas within Stanwell Park to become alcohol prohibited.

RECOMMENDATION

The pocket park area opposite Kennett Homes Aged Care, 103 The Drive, Stanwell Park be established as an alcohol prohibited area between sunset and sunrise.

ATTACHMENTS

- 1 Proposed Alcohol Prohibited Areas in Stanwell Park – Aerial Image Initial Map 2014 (Z15/158699)
- 2 Summary of Objections and Support for Stanwell Park Proposed Alcohol Free Zones – July 2015 (Z15/158744)

REPORT AUTHORISATIONS

Report of: Kerry Hunt, Manager Community, Cultural and Economic Development
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Alcohol Free Zones (AFZs):

- exist for road and footpath areas only,
- have an expiration period of four years,
- are governed by the Ministerial Guidelines for Alcohol Free Zones, and
- require a Council resolution for establishment.

Alcohol Prohibited Areas (APAs):

- exist in parks, reserves and beaches,
- do not have an expiration date, and
- do not require a Council resolution for establishment.

Both AFZs and APAs require consultation with NSW Police prior to establishing. While AFZs are managed by Council, their enforcement is undertaken by NSW Police. Council seeks feedback from NSW Police regarding the appropriateness of AFZ and APA locations throughout the Wollongong LGA, and where any recommendations are put forward by NSW Police, are always seriously considered.

In September 2014 Council, with support from the NSW Police, endorsed the re-establishment of the existing seven AFZs in the Wollongong LGA. During this review Licensing Police from the Wollongong Local Area Command recommended consideration of some areas within Stanwell Park to establish alcohol prohibition areas.

During this review Council received comments regarding issues with groups of people congregating opposite Kennett Homes Aged Care, 103 The Drive, Stanwell Park during the festive season.

PROPOSAL

Council recommends the pocket park area on The Drive (opposite Kennett Home Aged Care, 103 The Drive, Stanwell Park), inclusive of one table and chair, become an alcohol prohibited park between sunset and sunrise.

Alcohol prohibited areas are managed by Recreation Services and this recommendation, if endorsed, would result in one additional sign being placed in this area. The sign would inform the public they are unable to consume alcohol in this area between sunset and sunrise. The sign will provide a consistent approach and enable the NSW Police to easily move people, should there be issues with the consumption of alcohol at night.

It is also recommended this area be monitored with regular communication with the NSW Police regarding the effectiveness of this strategy, particularly over the summer period.

CONSULTATION AND COMMUNICATION

In April 2015 letters were forwarded to all Stanwell Park residents with maps identifying the proposed areas to be considered for establishment of alcohol prohibition (see Attachment 1). Residents were invited to write to Council with representations and/or objections to the proposed areas within thirty days. A public notice placed in The Advertiser on 8 April 2015 informed the proposed Stanwell Park AFZ areas and invited written representation and/or objection to the zones within thirty days.

Feedback received from eleven Stanwell Park residents was mixed:

- five residents opposed stating there were no problems in this area to warrant the establishment of an AFZ or APA,
- four residents supported the idea but mentioned there are other areas in Stanwell Park where an AFZ may be more applicable,
- two residents supported creating AFZs but in other places than those proposed.

The area opposite Kennett Home Aged Care, 103 The Drive, Stanwell Park was mentioned five times as a place to consider alcohol prohibition and has previously been raised with Council regarding significant New Year celebrations causing disruption to the community. The café area was raised three times and the general store twice.

Feedback received from the public highlighted the proposed areas on Beach Road are not necessarily places causing problems in relation to public drinking.

Following the mixed responses Council met with the NSW Police who manage and respond to Stanwell Park from either the Helensburgh or Austinmer Police Stations to understand the current behaviour occurring in these areas.

Feedback received from the NSW Police informed there are currently no ongoing issues occurring in the proposed areas at the end of Beach Road, Stanwell Park to warrant the creation of an AFZ. Any issues that do arise throughout Stanwell Park are generally one off incidents.

It is understood the area opposite Kennett Home Aged Care can attract anti-social behaviour and public drinking predominantly during the festive season (December/January).

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 Goal 5 “*We are a healthy community in a liveable city*”. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-2017	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
5.4.2 Local crime continues to be prevented and levels of crime reduced	5.4.2.1 Council to liaise with Local Area Commands on key initiatives and crime reduction strategies	Monitor and maintain Alcohol Free Zones

FINANCIAL IMPLICATIONS

Establishing an Alcohol Prohibited Area in a park, reserve or beach has the associated cost of installing and maintaining public signs. This associated cost is generally a one-off as there is no expiration date and signs do not need to be replaced unless vandalised. The estimated cost of one sign is approximately \$1500 and Recreation Services has an allocated 2015-16 budget for this cost.

CONCLUSION

In September 2014 Council endorsed the re-establishment of seven existing AFZs within Wollongong LGA. During this AFZ review Licensing Police from Wollongong Local Area Command recommended consideration be given for some areas within Stanwell Park to become alcohol prohibited. Following further consultation it is recommended one area in Stanwell Park become a Alcohol Prohibited Park.

Regular communication occurs between the NSW Police and Council in relation to public drinking and with issues arising further addressed at the bi-monthly Community Safety Reference Group meetings. Council’s Alcohol Free Zones are reviewed every four years and are to be completed by September 2018, which will provide further opportunity for reassessment of this area.

ITEM 7 POLICY REVIEW: FRAUD AND CORRUPTION PREVENTION

This policy has been reviewed as part of Council's rolling policy review. The policy was last adopted on 11 June 2013 and no changes to the policy are required.

RECOMMENDATION

The existing Fraud and Corruption Prevention Policy be adopted without change.

ATTACHMENTS

Current Fraud and Corruption Prevention Policy

REPORT AUTHORISATIONS

Report of: Mark Loves, Professional Conduct Coordinator
 Authorised by: David Farmer, General Manager

BACKGROUND

The Fraud and Corruption Prevention Policy was reviewed by Executive Management Committee on 8 September 2015 with a recommendation that the policy be considered for adoption by Council.

PROPOSAL

It is proposed that the Fraud and Corruption Prevention Policy be adopted by Council.

CONSULTATION AND COMMUNICATION

Executive Management Committee.

PLANNING AND POLICY IMPACT

Community Strategic Plan		Delivery Program 2012-2017	Annual Plan 2015-16
Strategy		5 Year Action	Annual Deliverables
4.4.1	Positive leadership and governance, values and culture are built upon	4.4.1.3 Continue to build a professional, customer focussed quality organisation	Facilitate provision of training regarding Code of Conduct and fraud / corruption risk management
4.4.4	Policies and procedures are simplified to ensure transparency and efficiency	4.4.4.1 Ensure policies and procedures are regularly reviewed, updated and promoted	Ensure the implementation of mitigation strategies for all fraud/corruption risks identified with immediate focus on the very high/high rated risks.

RISK ASSESSMENT

The policy and procedures help mitigate the risks of individuals becoming involved in fraud or corrupt activity.

FINANCIAL IMPLICATIONS

It is anticipated that through this policy (and the Fraud and Corruption Control Plan) that financial benefit will accrue through improvements in process and procedural control and operational efficiencies.

CONCLUSION

This policy complements the Fraud and Corruption Control Plan and is consistent with guidelines set down by the NSW Auditor General and Ombudsman's Office.

ITEM 8 POLICY REVIEW - SUBDIVISION

The Subdivision Policy provides specifications for the design and construction of subdivisions in the Wollongong Local Government Area. The proposed changes will ensure:

- a) the Policy is up-to-date by amending all superseded Australian Standards and Design Guidelines to reflect the current standards,
- b) references to Council policies reflect current adopted policies and best practice.

RECOMMENDATION

- 1 The draft amended Subdivision Policy be placed on exhibition for a minimum period of 28 days and submissions be invited from the public.
- 2 A further report be submitted to Council following conclusion of the public exhibition period, along with a summary of any submissions received.

ATTACHMENTS

Draft Subdivision Policy

REPORT AUTHORISATIONS

Report of: Mark Riordan, Manager Development Assessment and Certification
Authorised by: Andrew Carfield, Director Planning and Environment Future City and Neighbourhoods

BACKGROUND/PROPOSAL

Council's Subdivision Policy (previously a 'Code') was adopted on 24 February 2003. The Policy provided specifications for the design and construction of Civil Infrastructure associated with new subdivisions. The Subdivision Policy structure is based on the AUSPEC Guidelines which provides the template for the creation of design and construction standards associated with various civil construction projects such as geometric road design, storm water drainage, earthworks, and pavement design.

During the review process it was identified that several standards listed in the current Policy have been repealed or have been updated. While there are many minor changes and updates, some of which include deleting elements that are repeated through several chapters, the broader amendments include:

- Updating of references to older AUSTRROADS design guides to reflect the current AUSTRROADS standards.
- Updating references to superseded documents to reflect current Policies, such as referencing Wollongong Development Control Plan 2009 – Chapter E14 – Storm water Management, and Chapter E6 – Landscaping.
- Updating various superseded Australian Standards.

- Reference to design life requirements for new assets such as bridges, drainage structures, roads and street furniture.

The amended Policy incorporates the updated standards in the various chapters, as well as minor process changes to reflect the requirements of current adopted Council Policies.

CONSULTATION AND COMMUNICATION

Council's Infrastructure, Works and Geotechnical Managers have been consulted as part of the drafting and review of the amended Policy. Key industry stakeholders have also been consulted during the review period.

In order to facilitate wider industry and community consultation it is recommended the draft amended Policy be placed on public exhibition.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 under the Community Goal 5 "We are a healthy community in a liveable city".

It supports achievement of Objective 5.3: "The public domain is maintained to a high standard".

It specifically addresses the Annual Plan 2015-16 Key Deliverables 1.6.3 Development is functional, attractive and sympathetic with the environment, and avoids unnecessary use of energy, water or other resources which forms part of the Five Year Action 1.6.3.2 Maximise sustainability principles in the design and construction of Wollongong's built form contained within the Revised Delivery Program 2012-17.

It specifically delivers on core business activities as detailed in the Development Assessment Service Plan 2015-16.

CONCLUSION

The proposed amendments to the Subdivision Policy ensures that the current Policy is up to date and reflects the latest changes in construction standards and Council's own policies and practices. It is now recommended the draft amended Policy be publicly exhibited and submissions invited from the development industry and wider community.

ITEM 9 POLICY REVIEW - ROAD NAMING

The Road Naming Policy provides guidelines for the naming of public roads in accordance with the requirements of the Geographic Names Board of New South Wales. The proposed changes ensure the policy is in accordance with latest policy changes by the Geographic Names Board of New South Wales.

RECOMMENDATION

The revised Road Naming Policy be adopted.

ATTACHMENTS

- 1 Draft amended Road Naming Policy (showing track changes)
- 2 Draft amended Road Naming Policy

REPORT AUTHORISATIONS

Report of: Mark Riordan, Manager Development Assessment and Certification
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhood

BACKGROUND/PROPOSAL

Council's Road Naming Policy was adopted in 2002, with a later review and adoption in 2007. The policy provided guidelines for the naming of public roads in accordance with the Roads (General) Regulations 2000, and the Geographical Names Board of New South Wales Guidelines for Naming Roads 2001.

During the review process it has been identified that several documents listed in the current policy have been repealed or updated. These include:

- The Roads (General) Regulations 2008;
- The Geographical Names Board of New South Wales – New South Wales Road Naming Policy (October 2013); and
- The Geographical Names Board of New South Wales – New South Wales Address Policy (October 2014).

The amended Policy now incorporates the above, and includes relevant minor process changes to reflect the requirements of the updated policies.

CONSULTATION AND COMMUNICATION

Corporate and Community Services – Property and Recreation Division

Infrastructure and Works - Infrastructure Strategy and Planning Division

Given the minor changes proposed to the Draft Policy, public exhibition is not proposed.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 under the Community Goal 1 “We value and protect our environment.”

It supports achievement of Objective 1.4: “Community awareness and appreciation of heritage is increased”.

It specifically addresses the Annual Plan 2014-15 Key Deliverables 1.6.3 - Development is functional, attractive and sympathetic with the environment, and avoids unnecessary use of energy, water or other resources which forms part of the Five Year Action. 1.6.3.2 Maximise sustainability principles in the design and construction of Wollongong’s built form contained within the Revised Delivery Program 2012-17.

CONCLUSION

The proposed amendments to the Road Naming Policy ensure the current policy is updated to reflect the latest changes by the Geographic Names Board of New South Wales.

ITEM 10

PROGRESS OF REVIEW OF ILLEGAL WASTE DUMPING
PREVENTION MOUNDS

Following the review undertaken by the Independent Audit Bureau (IAB) into the procedures and systems surrounding the construction of mound barriers, an 'IAB Review Rectification Plan' (Rectification Plan) was developed. The Rectification Plan lists the corrective actions and links them to recommendations in the review. The corrective actions from this program, and the progress of each rectification are at various stages of completion.

This report addresses Council's resolution from its meeting held on 3 August 2015, as follows:

Ongoing reporting be undertaken to the Corporate Governance Committee on the progress of rectifications, including the implementation of the "IAB Review Rectification Plan", and a report which includes timelines be submitted to the Council meeting on 19 October 2015.

Additionally, as part 5 of the resolution Council resolved:

The General Manager be directed to produce a report that explains how the findings of the IAB have been used to review practices in Council across all Divisions, with particular reference to recommendation 11.1 where the commentary (IAB report, pages 21-22) states that "...a focus on outcomes not processes, has resulted in Council procedures not being followed, increasing risk of regulatory non-compliances and work health and safety hazards to Council and community."

This report identifies the actions taken and planned to address this matter.

RECOMMENDATION

- 1 The report in response to Council's resolution of 3 August 2015 be noted.
- 2 The progress of the Rectification Plan be noted.

ATTACHMENT

IAB Review Rectification Plan

REPORT AUTHORISATIONS

Report of: David Farmer, General Manager

BACKGROUND

In August 2015 a project team was established to deliver the Rectification Plan. The Director Infrastructure and Works is responsible for providing oversight for the

implementation of the Rectification Plan. The project team consists of the following team leaders.

- Manager Environment Strategy and Planning;
- Manager City Works and Services;
- Manager Human Resources;
- Manager Project Delivery; and
- Manager Operations (Central).

Individual IAB recommendations have been distributed to the relevant Manager for action.

A Project Manager has been appointed to work with and lead the team to ensure the delivery of the project team tasks in accordance with the rectification program.

The project team is meeting on a fortnightly basis to discuss progress and resolve any issues arising.

The Rectification Plan incorporates all of the IAB recommendations in 10 key objectives as per the General Manager's report of 3 August 2015. To date approximately 70% of the Rectification Plan is complete. The time frame of some of the objectives of the Rectification Plan has been reviewed to take into account the complexities and lead times required to complete implementation of certain IAB recommendations. The remaining 30% of the Rectification Plan is now scheduled to be completed prior to 1 April 2016.

It is anticipated the project team will continue to function until May 2016.

A number of the IAB report recommendations address part 5 of the recommendation. Consequently these are addressed as part of the attached rectification plan progress report. These include:

- Reviewing and updating REF documentation and training of staff tasked with implementation.
- Improvements in the hand over and monitoring of Environment impact assessments.
- The development of a best practice unexpected finds procedure.
- The development of an organisation wide project management framework (including a risk assessment) and improvements in the management and control of minor and operational projects.
- Linked to this upgrading the skills of staff in environmental and project management.
- Closer supervision of Civil projects.

In addition to the rectification plan, work is underway on the development of a coordinated organisational transformation program which will transition the organisation's focus from the financial sustainability journey we have been on for the past seven or eight years. With financial sustainability soon to move into a stabilisation phase, the opportunity arises to focus on a range of areas to improve the organisation's performance, improve service to the community and minimise risk.

There are a range of initiatives currently being developed (at various stages of maturity), including leadership development, organisational cultural improvement, a new customer service system, field based technology development, standardized project management framework, new ICT strategy and standardized process improvement methodologies. Scoping is being undertaken at the moment into the packaging of these and other similar initiatives into an overall program. A branded program creates an opportunity for alignment of staff through change. Additionally, effective coordination and curation will ensure the best possible outcomes and minimize the dysfunction risk flowing from multiple improvement projects. Progress on the development of this program will be discussed as part of the annual planning process which gets underway next month.

The successful deployment of this program will minimise the likelihood of outcomes focused “wildcat” activity creating unacceptable risks for the organisation.

This matter was reported to the Corporate Governance Committee on 11 August. It has reviewed this Council report out of session and endorsed it for consideration by Council.

CONSULTATION AND COMMUNICATION

The IAB Rectification Plan has been developed and implemented in consultation with the following:

- Planning and Environment Department;
- Infrastructure and Works Department; and
- Human Resources Division.

PLANNING AND POLICY IMPACT

This report links to the goal in Wollongong 2022 of:

We value and protect our natural environment.

RISK ASSESSMENT

A Risk and Issues Plan has been developed as part of the IAB Rectification Plan.

FINANCIAL IMPLICATIONS

The costs associated with the implementation of the IAB Rectification Plan to date are as follows:

- Waste Classification and Awareness Training for 350 staff - \$38,600 Ex GST
- Further costs incurred with the implementation of the IAB Rectification Plan are costs that are part of the business of Council in achieving ongoing compliance.

ITEM 11

WOLLONGONG SECTION 94A DEVELOPMENT CONTRIBUTIONS PLAN (2015) - POST EXHIBITION

On 22 June 2015, Council endorsed the draft Wollongong Section 94A Development Contributions Plan (2015) for exhibition. The Section 94A Plan is linked to the Wollongong 2022 Community Strategic Plan. The Works Schedule included in the Section 94A Plan is a subset of the works program expressed in the adopted Capital Budget Delivery Program 2012-2017. As a consequence of the annual update of the Delivery Program, it is necessary to update the Section 94A Plan for consistency.

As a result of the exhibition, five submissions were received.

It is recommended that the amended Wollongong Section 94A Development Contributions Plan (2015) be adopted.

RECOMMENDATION

- 1 The Wollongong Section 94A Development Contributions Plan (2015) be adopted.
- 2 The adoption of the Plan be notified in the local newspapers in accordance with the requirements of the Environmental Planning and Assessment Regulation 2000.

ATTACHMENTS

Wollongong Section 94A Development Contributions Plan 2015

REPORT AUTHORISATIONS

Report of: Renee Campbell, Manager Environment Strategy and Planning
Authorised by: Andrew Carfield, Director Planning and Environment – Future City and Neighbourhoods

BACKGROUND

Section 94A of the Environmental Planning and Assessment Act 1979 enables Council to apply a percentage levy on the cost of development within a specific area. These funds are then applied to new or augmented works within the collection area. A plan of works to expend these funds must be publicly exhibited and adopted. Section 94A Plans are generally used in developed areas where increased development creates a general increase in demand for services and facilities.

The City-Wide Section 94A Contribution Plan came into force on 14 June 2006. This Section 94A Plan repealed the previous 12 Section 94 Plans. In January 2007 it was amended to include an additional levy for the Wollongong City Centre and renamed, 'Combined City Wide and City Centre Section 94A Development Contributions Plan'. In July 2009 it was amended by further combining Part A – City Wide and Part B – City Centre and renamed 'Wollongong Section 94A Development Contributions Plan'. The current Section 94A Plan applies to the whole LGA, except stages 1 and 2 of the West

Dapto Release Area, where the West Dapto Section 94 Development Contribution Plan applies.

The Section 94A Plan requires the payment of contributions based on the value of development as follows:

- Up to \$100,000 – Nil;
- 0.5% for developments with a cost of between \$100,001 to \$200,000;
- 1% for developments with a cost of more than \$200,000; and
- 2% for developments within the B3 Commercial Core zone in the City Centre with a cost of more than \$250,000 and that increases the gross floor area.

The Section 94A Plan is linked to the Wollongong 2022 Community Strategic Plan, in particular the five year Delivery Program, so that there is a single process and a single works schedule that governs Council's infrastructure provision and activities. The Delivery Program is the document which provides the community with an overview of the major projects and activities proposed by Council for the next five years, including the capital budget. The Delivery Program is reviewed on an annual basis and the major capital projects and activities are reviewed and amended accordingly. The Section 94A Plan needs to be updated annually to remain consistent with the Capital Delivery Program.

Council endorsed the current Wollongong Section 94A Development Contribution Plan (2014) on 24 November 2014. On 22 June 2015, Council adopted the 2015-16 Annual Plan and the detailed Capital Budget Delivery Program for 2015-16.

On 22 June 2015, Council resolved that:

- 1 *The draft Wollongong Section 94A Development Contributions Plan (2015) incorporate the following amendments:*
 - a *Remove Huntley from "Figure 1: Wollongong Section 94A Contributions Plan" for inclusion in the West Dapto Section 94 Contribution Plan;*
 - b *Update of the Works Program and maps to reflect the 2015-16 Capital Budget Delivery Program; and*
 - c *Include other minor changes as listed in this report.*
- 2 *The draft Wollongong Section 94A Development Contributions Plan (2015) (Attachment 1 of the report) be exhibited for a minimum period of 28 days when the Schedule and Maps are updated to reflect the adopted Program.*

Prior to the exhibition period, the Schedule and Maps of the draft Contributions Plan were updated to reflect the adopted 2015-16 Capital Budget Delivery Program.

PROPOSAL

The purpose of this report is to highlight the submissions received during the public exhibition of the draft Section 94A Development Contributions Plan (2015) and to seek Council's adoption of the Plan.

CONSULTATION AND COMMUNICATION

The draft Wollongong Section 94A Development Contributions Plan (2015) was exhibited from 20 July to 21 August 2015.

The draft Plan was exhibited in Council libraries and on Council's website.

Notices were also included in the local newspapers and on Council's website. Neighbourhood Forums, local peak industry associates (UDIA, Planning Institute of Australia, Property Council) and local planning consultants were advised of the exhibition.

The draft planning document was viewed 52 times on Council's website and was downloaded 62 times.

During the public exhibition of the draft Plan, five submissions were received. The five submissions are summarised in the following table:

Submitter	Issues raised	Comment
Roads and Maritime Services	No objection to the draft plan. Any funding from RMS including the 50% RTA fund referred in the draft Plan Schedule will be subject to application and approval. Any works on State roads or traffic signal will require RMS approval.	Noted.
Sydney Water	Supports the changes to the Development Contributions Plans for Wollongong and West Dapto. Sydney Water will continue to actively work with Wollongong City Council in the delivery of critical water infrastructure to facilitate growth in the LGA.	Noted.
Resident of Corrimal	Opposed to S94A contributions on developments that are replacing old development.	For minor redevelopment of an existing house, the contributions may not be applicable as per Schedule 1 of the Contributions

Submitter	Issues raised	Comment
	<p>Proposed to exempt the development which are replacing old homes and only impose contributions for residential developments where there would be a net gain in dwellings. By increasing the S94A contributions on such developments Council can make up the loss in the exemptions on old home redevelopment.</p>	<p>Plan, which states:</p> <ul style="list-style-type: none"> • Nil contributions for a total development cost up to \$100,000. • 0.5% for development cost \$100,001 to \$200,000. • 1% for more than \$200,000. • If the Section 94 development contribution was paid for the existing development (e.g. during the subdivision of the property) then the redevelopment of the same property will not incur any Section 94A contributions under the Ministerial Direction dated 10 November 2006. <p>No change recommended to the existing provisions of the Plan.</p>
<p>Resident of Wollongong</p>	<p>Money mostly collected from Ward 3 is spent in other wards. This has decreased the transparency of collections and expenditure of the development contributions.</p> <p>Currently no open space in the area bounded by Flinders, Bourke, Corrimal and Smith Streets.</p> <p>No local park for Smith Hill area despite large Section 94 funds being collected from the area.</p> <p>The need for a local park was identified in the suite of four documents Vision, Draft LEP, draft DCP and Draft Civic Improvements Plan in 2006.</p> <p>The public domain framework page 51 clearly shows a park in the area bounded by Bourke, Corrimal, Smith and Flinders Streets.</p> <p>Similarly in the Special City Centre Projects page 59 shows a park in the Smith Hill area bounded by the four streets.</p>	<ul style="list-style-type: none"> • The current Section 94A Plan involves the collection of development contributions from the entire city area (except West Dapto). The expenditure of development contributions is identified through Councils planning and infrastructure studies and then prioritised in the capital works program. • The City Centre Revitalisation Vision document previously prepared by the NSW Department of Planning and Environment incorrectly showed the location of a local park in one of the maps of this vision document. • It is anticipated that Stuart Park and the foreshore areas located near the referred location will continue to serve the open space and recreational need of the residents of the locality. However Council reviews the need for open space, recreation and other community facilities one time and should the need for these facilities be identified through this planning

Submitter	Issues raised	Comment
	<p>Stuart Park/ Blue Mile is not a local park nor is it providing more public open space area to serve the increasing densities of Smith Hill over the last 15 years nor for the next 10 years.</p>	<p>process, Section 94 funds could be used.</p>
<p>Neighbourhood Committee No 4</p>	<p>Developments in the Forum 4 area be directed to the short and long term strategies identified by the Corrimal Town Centre draft Plan.</p> <p>Development Contributions collected under different DA's within the forum area is utilised to resolve the severe parking shortage created by these developments.</p>	<ul style="list-style-type: none"> • The draft Corrimal Town Centre Plan will be considered as part of future Annual Plan and budget allocations. • The current Section 94A Plan plans the collection of development contributions from the entire city area (except West Dapto). Expenditures on community facilities and services in different parts of the City are identified and prioritised through Councils planning and infrastructure studies and then incorporated into the capital works program. The prioritisation of funding also applies to the funding towards additional car parking areas. • It is noted that there is limited development currently occurring in Corrimal, which would limit the available funding.

PLANNING AND POLICY IMPACT

Wollongong 2022

This report contributes to a number of Wollongong 2022 objectives as the Section 94A Plan is aligned with the Capital Works Program, and contributes to the funding required to meet the Delivery Program.

It specifically delivers on core business activities as detailed in the *Land Use Planning Service Business Plan 2015-16*.

Proposed Policy option for Education Facilities

Under the Wollongong Section 94A Development Contributions Plan 2014 (the Plan), Clause 13(a) to 13(h) sets out exemptions specified in Directions issued by the Minister for Planning under Section 94E of the Environmental Planning and Assessment

Act 1979. Section 94A Development Contributions cannot be imposed on development that meets these criteria.

In addition Council may grant a full or partial exemption for other forms of development outlined in clause 13(i) to (t). One of these forms of development is education facilities/universities.

Under the exemption provision, Council has exempted the University of Wollongong (UOW) developments from paying development contributions on consideration that the proposed developments are part or ancillary to this educational institution.

As part of the assessment of recent Development Applications for the University, the contribution exemptions were raised as a matter for further consideration. It was suggested that Council adopt a policy for developments with a building value of \$5 million or more that seek a Section 94A exemption or reduction that a detailed case be made to Council for the exemption request.

A review of the exemption provisions is under way by Council staff. If the review recommends changes to the exemption provisions, then a separate report to Council will be made seeking Council's support for re-exhibition of the Section 94A Contributions Plan.

FINANCIAL IMPLICATIONS

The forecast Section 94A income for 2015-16 is approximately \$1.23 million.

The proposed Works Schedule for 2015-16 has an estimated value of \$74.01 million (excluding West Dapto) of which \$3.286 million will be funded from Section 94A funds.

Most of the Section 94A available funds for 2015-16 will be utilised in this year if all 2015-16 proposed projects are to be completed and the actual income matches forecast income. This will be monitored as the delivery program is finalised and projects are scheduled to commence.

The 2015-19 forecast capital works will continue to be reviewed in future years, in order to match available Section 94A funding.

CONCLUSION

The Wollongong Section 94A Plan is an important mechanism to assist with funding community infrastructure within the City.

It is recommended that the Wollongong Section 94A Development Contributions Plan (2015) (Attachment 1) be adopted.

The Wollongong Section 94A Development Contribution Plan (2015) is also recommended to be re-exhibited (following adoption) in order to enable community input with respect to the proposed change to the exemption provisions applying to educational facilities.

ITEM 12

PROPOSED ACQUISITION OF PORTIONS OF PROPERTIES IN
MURRAY ROAD, EAST CORRIMAL FOR ROAD WIDENING

Council reconstructed Murray Road, East Corrimal in the 1960s and 70s which resulted in the footpath area on the southern side of the road being reduced to about one metre wide. Council then resolved to widen the footpath by acquiring portions of privately owned land for road widening purposes.

Agreement has now been reached with the landowners of Nos 35, 43 and 45 Murray Road, East Corrimal to acquire the strips of their land fronting Murray Road, being Lots 102, 103 and 107 DP 240922. This report seeks approval to the acquisitions.

RECOMMENDATION

- 1 Council acquire Lots 102, 103 and 107 DP 240922 for road widening, being the portions of Lot 921 DP 880913 No 35 and Lots 46 and 47 DP 9943 Nos 43 and 45 Murray Road, East Corrimal, shown on Attachment 1, on the following conditions:
 - a Compensation be paid in the amounts of:
 - \$32,000 (GST exc) – No 35 Murray Road;
 - \$19,000 (GST exc) – No 43 Murray Road; and,
 - \$19,000 (GST exc) – No 45 Murray Road.
 - b Council be responsible for all costs in the matter including transfer, legal and fence relocation/water meter relocation costs.
- 2 Upon acquisition, the land be dedicated as public road under the provisions of Section 10 of the Roads Act 1993.
- 3 Authority be granted to affix the Common Seal of Council to the transfer documents and any other documentation required to give effect to this resolution.

ATTACHMENTS

- 1 Plan of portions of Lot 921 DP 880913 and Lots 46 and 47 DP 9943 Nos 35, 43 and 45 Murray Road, East Corrimal proposed to be acquired for road widening
- 2 Plan of portions of road widening in Murray Road still to be acquired

REPORT AUTHORISATIONS

Report of: Peter Coyte, Manager Property and Recreation
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Following reconstruction of Murray Road, East Corrimal between Pioneer Road and Cawley Street in the 1960s and 70s, a narrow footpath reserve was created on the southern side of the road. Council subsequently resolved to widen the footpath to approximately 2.5m which necessitated the acquisition of portions of privately owned land as road widening.

In 1971, DP 240922 was prepared and registered at the NSW Land Titles Office defining all the land to be acquired. Three properties affected by the road widening are:

- Lot 921 DP 880913 No 35 Murray Road
- Lot 47 DP 9943 No 43 Murray Road
- Lot 46 DP 9943 No 45 Murray Road

The portions of land to be acquired from these properties are Lots 102, 103 and 107 DP 240922, which each have an area of 25.3 sq m and are shown on Attachment 1. With eight lots remaining, the purchase of these three will leave five lots to be acquired, as shown on Attachment 2. Council has already acquired 21 lots along Murray Road relating to the road widening scheme.

In order to plan for footpath improvement works in the future, Council approached the owners of Nos 35, 41, 43 and 45 Murray Road seeking interest in the sale of the affected portions of their land. The owners of Nos 35, 43 and 45 responded expressing interest in the proposal. There has been no response received from the owner of No 41 Murray Road.

Valuations were undertaken by Walsh and Monaghan Valuers and based on these reports, agreement has been reached with the landowners for compensation to be paid for the land in the amounts of:

- \$32,000 (GST exc) for No 35 Murray Road
- \$19,000 (GST exc) for No 43 Murray Road and
- \$19,000 (GST exc) for No 45 Murray Road

The greater amount for No 35 is due to the smaller lot size and therefore subsequent greater effect of the acquisition upon the property.

Council will be responsible for all costs in the matter including the relocation of the front fence and/or water meter, legal and transfer costs.

Funds are available for this matter from the adopted capital budget.

PROPOSAL

Council acquire for road widening Lots 102, 103 and 107 DP 240922 being parts of Lot 921 DP 880913 and Lots 46 and 47 DP 9943 Nos 35, 43 and 45 Murray Road, East Corrimal, as shown on Attachment 1.

CONSULTATION AND COMMUNICATION

Owners of Lot 921 DP 880913 and Lots 102 and 103 DP 9943 Nos 35, 43 and 45 Murray Road, East Corrimal.

Infrastructure Strategy Manager – in favour of the acquisitions.

Walsh and Monaghan, Valuers.

PLANNING AND POLICY IMPACT

This item is in accordance with Council's policy 'Land and Easement Acquisition and Disposal'.

Wollongong 2022 Community Goal and Objective – This report contributes to the Wollongong 2022 Objective 'The long term needs of the community, including our people and our places, are effectively planned for' under the Community Goal 'We are a healthy community in a liveable city'.

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2014-15.

FINANCIAL IMPLICATIONS

The amounts of \$32,000 (GST exc) for No 35, \$19,000 (GST exc) for No 43 and \$19,000 (GST exc) for No 45 are considered to be fair and reasonable and are consistent with the advice provided by Council's consultant valuer from Walsh and Monaghan Valuers. The greater amount for No 35 is due to the smaller lot size and subsequent greater effect of the acquisition upon the property.

Council's Infrastructure Strategy Manager has advised that funds for the acquisitions and associated works are available from the adopted capital budget.

CONCLUSION

As these acquisitions are part of an adopted road widening scheme, it is recommended Council approve the acquisitions of the subject land as outlined in this report.

ITEM 13

PROPOSED COMPULSORY ACQUISITION AND LAND EXCHANGE -
CORDEAUX ROAD, MOUNT KEMBLA FOR ROAD REALIGNMENT

South32 has approached Council to request the closure and sale to them of a portion of road reserve at the entrance to their Dendrobium Mine in Cordeaux Road, Mount Kembla in exchange for an equivalent sized portion of their land on the southern side of Cordeaux Road.

This report seeks approval to the compulsory acquisition of the subject portion of road and land in order to undertake the land exchange with South32.

RECOMMENDATION

- 1 Pursuant to Section 177 of the Roads Act 1993, Council make application to the Minister for Local Government and the Governor for the compulsory acquisition from Council of the portion of Cordeaux Road, Mount Kembla, as shown hatched red on the attachment to this report.
- 2 Pursuant to Section 177 of the Roads Act 1993, Council make application to the Minister for Local Government and the Governor for the compulsory acquisition of that portion of Lot 1 DP 1103781 Cordeaux Road, Mount Kembla, as shown shaded orange on the attachment to this report.
- 3 Council accept the payment from South32 Illawarra Coal of \$1.00 (GST exc) in compensation if demanded, as agreed between the parties for the sale of the subject portion of Cordeaux Road, Mount Kembla.
- 4 Council authorise the payment to South32 Illawarra Coal of \$1.00 (GST exc) in compensation if demanded, as agreed between the parties for the acquisition of the subject portion of Lot 1 DP 1103781 Cordeaux Road, Mount Kembla.
- 5 Upon the acquisition of the subject portion of Lot 1 DP 1103781 being finalised, the land be dedicated as public road under Section 10 of the Roads Act 1993.
- 6 Authority be granted to affix the Common Seal of Council to the compulsory acquisition documents and any other documentation required to give effect to this resolution.

ATTACHMENT

Plan showing portion of Cordeaux Road, Mount Kembla proposed to be compulsorily acquired and transferred to South32 in exchange for the portion of Lot 1 DP 1103781 proposed to be compulsorily acquired from South32.

REPORT AUTHORISATIONS

Report of: Peter Coyte, Manager Property and Recreation
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

The carpark servicing the South32 Dendrobium Mine in Cordeaux Road, Mount Kembla is currently occupying a portion of the road reserve at the entrance to the mine. In addition, South32 wish to upgrade the surface power supply to the mine by the installation of a transformer and power poles on the subject portion of road reserve and they have requested Council close and sell to them the affected portion of road reserve, as shown hatched in red on the attachment to this report. In exchange, they have offered to transfer to Council an equivalent sized portion of their land on the southern side of Cordeaux Road, as shown shaded orange on the attachment.

The land exchange will re-align the road reserve at the entrance to the mine, thereby centering the carriageway within the road reserve and formalising South32's occupation of the road by their carpark and proposed electrical infrastructure. There will be no physical works undertaken to the carriageway of Cordeaux Road itself in this proposal.

Upon investigation of the request to exchange the land, it has been determined that Council has the ability to undertake a compulsory acquisition of the subject portion of road reserve from itself under the Land Acquisition (Just Terms Compensation) Act 1991. Section 41 of the Roads Act 1993 states that a public road which is compulsorily acquired then ceases to be a public road. Therefore, compulsory acquisition is considered to be a more expedient process than undertaking a road closure under the Roads Act 1993.

According to the "Guidelines for the Compulsory Acquisition of Land by Councils" prepared by the Department of Local Government, compulsory acquisition must not be regarded as an alternative method to close a road, but in limited circumstances Council may use this method. An example of such limited circumstances is where a council proposes to alter the position of a public road so as to exchange the unneeded part of that road in compensation for other land acquired for road purposes. The situation at the Dendrobium Mine entrance is considered to be such a circumstance.

From a probity perspective, similarly to Council, South32 has anti-corruption protocols in place and cannot sell their land direct to Council. They have therefore requested that Council undertake the acquisition of the subject portion of Lot 1 DP 1103781 using compulsory process by agreement.

This agreement with South32 includes that the portions of land be exchanged for \$1.00 (GST exc) each, if demanded and South32 will be responsible for all costs in the compulsory acquisitions and land exchange.

PROPOSAL

It is proposed that Council compulsorily acquire the portion of Cordeaux Road shown hatched red on the attachment to this report and transfer it to South32 in exchange for the compulsory acquisition from South32 of a portion of Lot 1 DP 1103781 shown shaded orange on the attachment, which will then be dedicated as public road.

CONSULTATION AND COMMUNICATION

South32

Council's Divisions have no objection to the proposed land exchange.

Legal Services Section has provided advice on the proposed method of exchange of the land.

PLANNING AND POLICY IMPACT

This report is in accordance with Council's policy "Land and Easement Acquisition and Disposal".

This report contributes to the delivery of Wollongong 2022 goal "We are a healthy community in a liveable city".

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2015-16.

FINANCIAL IMPLICATIONS

Agreement has been reached with South32 that the portions of land be exchanged for \$1.00 (GST exc) each, if demanded. South32 will be responsible for all costs in the compulsory acquisitions and transfers of the land.

A road closure application fee of \$1,230.00 (GST inc) has been paid by South32 which will cover the costs of the Statutory Property Officer's work in this matter.

CONCLUSION

As the proposed compulsory acquisitions and transfers will re-align Cordeaux Road at the entrance to the Dendrobium Mine and formalise South32's occupation of the road reserve, it is recommended the proposal be approved as set out in this report.

ITEM 14

PROPOSED ACQUISITION OF LAND FOR ROAD PURPOSES -
PAYNES ROAD, DOMBARTON

At its meeting on 13 May 2015, Council resolved to acquire four portions of land in Paynes Road, Dombarton for road purposes.

Two of those acquisitions have settled, but the other two have not yet been completed due to changed circumstances.

This report seeks approval to the acquisition of one of those remaining portions of land.

RECOMMENDATION

- 1 Council acquire the part of Lot 231 DP 630024 No 322 Paynes Road, Dombarton, known as Lot 226 DP 1194212, as shown hatched on Attachment 2, on the following conditions:
 - a Council pay \$31,500 (GST exc).
 - b Council be responsible for all costs in the matter.
- 2 Upon the acquisition being finalised, the land be dedicated as public road under the provisions of Section 10 of the Roads Act 1993.

ATTACHMENTS

- 1 Location plan
- 2 Plan showing portion of Lot 231 DP 630024 No 322 Paynes Road, Dombarton proposed to be acquired

REPORT AUTHORISATIONS

Report of: Peter Coyte, Manager Property and Recreation
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

At its meeting on 13 May 2015, Council resolved to acquire four portions of land in Paynes Road, Dombarton for road purposes, as shown on Attachment 1.

The acquisition from Nos 248 and 338 Paynes Road have settled, but the other two have not yet been completed. Negotiations with the owners of No 234 Paynes Road stalled due to an amendment to the amount of land required by Council. A further report will be submitted for approval upon the conclusion of those negotiations.

Regarding the acquisition from No 322 Paynes Road, upon the lodgement of the transfer document with NSW Land and Property Information, they identified that what was thought to be a portion of Crown Road had never been dedicated and therefore, Council needed to acquire more land from the landowner than previously thought, as

shown on Attachment 2. The area of land has increased from 6,884m² to 7,868m². Under the Land Acquisition (Just Terms Compensation) Act 1991, landowners must be fairly compensated for the acquisition of their land and therefore, due to the increase in the amount of land required, the amount of compensation payable by Council to the landowner had to be re-assessed. Agreement has been reached with the landowner based on the amended report.

PROPOSAL

It is proposed Council acquire the portion of land shown hatched on Attachment 2 from Lot 231 DP 630024 No 322 Paynes Road, Dombarton, known as Lot 226 DP 1194212, for \$31,500 (GST exc), with Council to be responsible for all costs in the matter.

Upon completion of the acquisition, the land will be dedicated as public road under Section 10 of the Roads Act 1993.

CONSULTATION AND COMMUNICATION

Owner of Lot 231 DP 630024 No 322 Paynes Road, Dombarton.

Surveyor from KFW.

Walsh and Monaghan, Valuers.

Manager Infrastructure Strategy and Planning – is in favour of the acquisition.

PLANNING AND POLICY IMPACT

This report is in accordance with Council's policy "Land and Easement Acquisition and Disposal".

This report contributes to the delivery of Wollongong 2022 goal "We are a healthy community in a liveable city".

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2015-16.

FINANCIAL IMPLICATIONS

Agreement has been reached with the landowner for the acquisition of the portion of Lot 231 DP 630024 No 322 Paynes Road, Dombarton, shown hatched on Attachment 2, for \$31,500 (GST exc), with Council to be responsible for all costs in the matter.

CONCLUSION

As Council previously resolved to acquire this land and the transaction will formalise current usage of the land, it is recommended the acquisition be approved as set out in this report.

ITEM 15

PROPOSED GRANT OF EASEMENT FOR UNDERGROUND CABLES
OVER LOT 238 DP 1048602 ARAGAN CIRCUIT, BULLI

Endeavour Energy is proposing to upgrade the electricity supply to their substation located on Sydney Water land known as Lot 1 DP 588060 at Sandon Point, Bulli which also supplies electricity to the Sydney Water sewage pumping station on that lot.

Endeavour Energy is proposing a new underground high voltage cable be run from Aragan Circuit, through Council's land known as Lot 238 DP 1048602, to the substation. To protect the cable, Endeavour Energy is proposing to acquire an Easement for Underground Cables over Lot 238 DP 1048602.

This report seeks approval to the grant of the easement.

RECOMMENDATION

- 1 Council authorise the grant of an Easement for Underground Cables 3 wide in favour of Endeavour Energy over Lot 238 DP 1048602 Aragan Circuit, Bulli, as shown by black dashed line on Attachment 1.
- 2 Council accept the payment of \$8,625.00 (+ GST) from Endeavour Energy as compensation for the grant of the easement.
- 3 Approval be granted to affix the Common Seal of Council to the Transfer Granting Easement document and any other documentation required to give effect to this resolution.

ATTACHMENTS

- 1 Plan of Proposed Easement for Underground Cables over Lot 238 DP 1048602 Aragan Circuit, Bulli
- 2 Location plan

REPORT AUTHORISATIONS

Report of: Peter Coyte, Manager Property and Recreation
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Endeavour Energy is proposing to upgrade the supply of electricity to their substation located on Sydney Water land known as Lot 1 DP 588060 at Sandon Point, Bulli.

The substation, which supplies electricity to the Sydney Water sewage pumping station, is currently supplied by one overhead high voltage feeder from Corbett Avenue, Thirroul, as shown on Attachment 2. Should a fault or problem occur with this feeder, the pumping station would be without power until the fault is repaired.

Endeavour Energy is proposing a new underground high voltage cable be run from the existing electricity network located in Aragan Circuit to the substation which will complete a loop in the electricity network and provide another means of ensuring a reliable supply of electricity to the pumping station.

The route of the underground cable is proposed to pass through Council's land known as Lot 238 DP 1048602 and to protect the cable, Endeavour Energy is proposing to acquire an Easement for Underground Cables over Lot 238 DP 1048602. The easement is proposed to be 3m wide and approximately 80m long, as shown by black dashed line on Attachment 1.

Endeavour Energy has offered \$8,625.00 (+ GST) to Council as compensation for the grant of the easement which is considered to be a fair and reasonable amount, based on valuation advice received by Council from Martin Morris and Jones, Valuers.

Lot 238 DP 1048602 is classified as Community land and under Section 46 of the Local Government Act 1993, an easement for public utilities can be granted over Community land. The underground cable will have minimal impact on the Council land as it will be installed close to the boundary, as shown on Attachment 1.

PROPOSAL

It is proposed Council approve the granting of an Easement for Underground Cables 3 wide over the high voltage underground cable in favour of Endeavour Energy over Lot 238 DP 1048602 Aragan Circuit, Bulli, as shown on Attachment 1.

CONSULTATION AND COMMUNICATION

Council's Divisions have no objection to the proposal.

Endeavour Energy – has undertaken all consultation required with the Aboriginal community, including obtaining an Aboriginal Heritage Impact Permit from the Office of Environment and Heritage.

Martin Morris and Jones, Valuers

218 letters were sent to local residents, a sign was placed on the land and a notice published in the Wollongong Advertiser dated 29 July 2015 giving 28 days for comment. No submissions were received.

PLANNING AND POLICY IMPACT

This report is in accordance with Council policy "Land and Easement Acquisition and Disposal".

This report contributes to the delivery of Wollongong 2022 goal "We are a healthy community in a liveable city".

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2015-16.

FINANCIAL IMPLICATIONS

Council will receive \$8,625.00 (+ GST) in compensation for the grant of the easement, which is considered to be a fair and reasonable amount. Endeavour Energy will be responsible for all costs in creating the easement.

CONCLUSION

As the installation of the underground cable will complete a loop in the electricity network and provide another means of ensuring a reliable supply of electricity to the sewage pumping station on Lot 1 DP 588060, it is recommended the easement be granted over the cable in favour of Endeavour Energy.

ITEM 16

PROPOSED ACQUISITION OF EASEMENT FOR DRAINAGE AT KEIRAVILLE

In December 2015, a drainage easement through No 12 Dallas Street, Keiraville blocked and caused stormwater flooding issues within the adjoining property at No 9 Binda Street.

It was determined that the easement had been created in favour of Roads and Maritime Services (RMS) through Nos 9, 11, 12 and 13 Dallas Street and No 16 Binda Street, whereas the section of the easement through No 9 Binda Street had been created in favour of Council.

In order to provide consistency of maintenance, RMS have requested the easement be transferred wholly into Council's name. This report seeks approval to the acquisition of the easement.

RECOMMENDATION

- 1 Council approve the acquisition of the Easement for Drainage 3.05 wide over Lots 101, 102, 103, 112 and 114 DP 234188 Nos 9, 11, 12 and 13 Dallas Street and No 16 Binda Street, Keiraville, as shown shaded dark grey on the attachment to this report.
- 2 Authority be granted to affix the Common Seal of Council to the Transfer Granting Easement documents and any other documents required to give effect to this resolution.

ATTACHMENT

Plan of drainage easement proposed to be acquired by Council

REPORT AUTHORISATIONS

Report of: Peter Coyte, Manager Property and Recreation
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

In December 2015, the pipe within the drainage easement through No 12 Dallas Street, Keiraville became blocked with tree roots and other debris and caused stormwater flooding issues within the adjoining property at No 9 Binda Street.

An investigation revealed that the easement had been created in the 1960s in favour of Roads and Maritime Services (RMS) through Nos 9, 11, 12 and 13 Dallas Street and No 16 Binda Street, whereas the section of the easement through No 9 Binda Street had been created in favour of Council.

In order to provide consistency of maintenance of the pipe, RMS have requested that the easement be transferred wholly into Council's name. In order to assist Council, RMS have paid Council the amount of \$35,191 (GST exc) to repair the drainage line and they have also agreed to pay all costs in the transfer of the easement.

PROPOSAL

Council acquire the Easement for Drainage 3.05 wide over Lots 101, 102, 103, 112 and 114 DP 234188 Nos 9, 11, 12 and 13 Dallas Street and No 16 Binda Street, Keiraville, with RMS to be responsible for all costs in the matter.

CONSULTATION AND COMMUNICATION

Roads and Maritime Services

Infrastructure Strategy and Planning – are in favour of the transfer of the easement to Council. Council's Floodplain Management Engineer has advised that the majority of this easement drains the residential area around the location of the easement and only about 30% of the drainage is attributable to the water draining off Mount Ousley Road, which is an RMS asset. RMS are continuing to upgrade their drainage assets further up the catchment by placing detention basins and sediment traps within the catchment and diverting flows to a more northerly catchment than the one containing this easement.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal "We are a healthy community in a liveable city".

It specifically delivers on core business activities as detailed in the Property Services Service Plan 2015-16.

FINANCIAL IMPLICATIONS

Roads and Maritime Services have paid \$35,191 (GST exc) to Council to assist with the repair of the pipe and have also agreed to be responsible for all costs in the transfer of the easement.

CONCLUSION

In order to provide consistency of maintenance of the pipe within the easement, it is recommended Council accept the transfer of the easement from RMS, as set out in this report.

ITEM 17

TENDER T14/27 - PROVISION OF CONSTRUCTION MATERIALS PANEL

This report recommends acceptance of tenders for the Construction Materials Panel in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005. This action was pursued with three of the four members of the Illawarra Pilot Joint Organisation (Kiama, Shellharbour and Wollongong – Shoalhaven declined the opportunity to participate). Eleven tenders were received and the report recommends Council accept the successful tenders submitted as outlined in the tables provided in this report.

This joint tender is a collaboration between Wollongong City Council, Shellharbour City Council and Kiama Municipal Council. The ranking tables forming part of this report apply only to Wollongong City Council.

RECOMMENDATION

- 1 In accordance with the Local Government (General) Regulation 2005, Clause 178 (1) (a), Council accept the tenders of listed tables provided for a Joint Construction Materials Panel, in the sum of an accumulative amount of services of \$1,330,000.00, excluding GST over the term of the tender contract of three years, plus two options to extend for a further duration of one year each with the exception of the supply of concrete (as per Recommendation 5 below).
- 2 Council delegate to the General Manager the authority to finalise and execute the contracts and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contracts and any other documentation, should it be required to give effect to this resolution.
- 4 Council delegate to the General Manager the authority to approve any adjustments to the ranking of all services when a Joint Construction Materials Provider amends rates in accordance with the specifications of this tender.
- 5 Council reject the tender responses relating to the supply of concrete as the number of conforming tender submissions did not justify the allocation of business and would place Council at a non-competitive market disadvantage.
- 6 Council grant authority to proceed to open joint negotiations with the suppliers of concrete.
- 7 Council delegate to the General Manager the authority to finalise and execute the contracts and any other documentation required to give effect to the outcomes of the joint market negotiations for the supply of concrete.

ATTACHMENTS

There are no attachments for this report.

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Manager Finance
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Tenders were invited by a Joint Tender Assessment Panel consisting of personnel from Wollongong City Council, Shellharbour City Council and Kiama Municipal Council by the open tender method with a close of tenders of 10.00 am, 17 June 2015.

Eleven tenders were received, all complying by the close of tenders and all tenders have been scrutinised and assessed by a Joint Tender Assessment Panel comprising representatives of the Wollongong City Council's Legal, City Works, Human Resources and Finance Divisions as well as Kiama Municipal Council's Supply and Engineering Divisions and Shellharbour City Council's Supply and Works Divisions.

The Joint Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria as set out in the formal tender documents.

Mandatory Criteria

Current Referees
Financial Assessment

Assessable Criteria and Weightings

Cost to Council	60%
Demonstrated strengthening of local economic capacity	5%
Demonstrated experience and satisfactory performance in undertaking projects of similar size and scope	15%
Demonstrated Quality Management System incorporating WH & S Management System and Environmental management policies and procedures	15%
Demonstrated Social Value and/or Social Procurement Initiatives	5%

The Joint Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical raw score out of five in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account the pre-determined weightings for each of the assessment criteria which provides for a total score expressed as a percentage for each tender. The tender with the highest total percentage score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. The tables below summarise the results of the tender assessment and the ranking of tenders. The number of successfully ranked tenderers in each of the Construction Materials categories was then awarded based on the total assessment score of each category.

During the evaluation process, a decision was taken by the Joint Tender Assessment Panel to not proceed with the Concrete category, as the volume of responses was not sufficient to allow for an objective assessment. Of the three tender responses received, only one tender response met the Mandatory Assessment Criteria.

After further assessment and evaluation, the Joint Tender Assessment Panel agreed that the complying tender response for concrete could not satisfy the total needs of Wollongong City Council and did not submit pricing for either Shellharbour City Council or Kiama Municipal Council.

After further discussion, the Joint Tender Assessment Panel agreed to recommend that authorisation sought to open joint negotiations with concrete suppliers in order to secure both a stronger competitive market position and sufficient suppliers of concrete to meet the needs of each of the three Councils. It was also agreed that this will be completed independently of this tender process.

Subsequent to the assessment of tender responses, one tenderer requested to withdraw their offer, which was accepted by the Joint Tender Assessment Panel and had no effect on the ability of other tenderers to fulfil Council requirements.

**Table 1 – Summary of Tender Assessment
Concrete – RECOMMENDED TO NOT PROCEED**

Tenderer	Ranking
Baines Concrete (satisfied mandatory criteria)	N/A
Hy Tec Concrete (did not satisfy mandatory criteria)	N/A
Hanson Concrete (did not satisfy mandatory criteria)	N/A

**Table 2 – Summary of Tender Assessment
Road Base**

Tenderer	Ranking
Cleary Bros. Bombo	1
Resources NSW	2
Dunmore Resources & Recycling	3
Australian Steel Mill Services	4
SCE Recycling	5

**Table 3 – Summary of Tender Assessment
Sand & Aggregate – Granule Filling & Bedding Material**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 4 – Summary of Tender Assessment
Sand & Aggregate – A Grade Sand**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 5 – Summary of Tender Assessment
Sand & Aggregate – River Sand**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 6 – Summary of Tender Assessment
Sand & Aggregate – Washed Beach Sand**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 7 – Summary of Tender Assessment
Sand & Aggregate – Brickies Sand Mix**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 8 – Summary of Tender Assessment
Sand & Aggregates - Scalpings**

Tenderer	Ranking
SCE Recycling	1
Cleary Bros. Bombo	2
Dunmore Resources & Recycling	3

**Table 9 – Summary of Tender Assessment
Soils & Garden Materials – Top Dressing Soil**

Tenderer	Ranking
Soilco	1
Cleary Bros. Bombo	2
Dunmore Resources & Recycling	3

**Table 10 – Summary of Tender Assessment
Soils & Garden Materials – Garden Mix**

Tenderer	Ranking
Cleary Bros. Bombo	1
Soilco	2
Dunmore Resources & Recycling	3

**Table 11 – Summary of Tender Assessment
Soils & Garden Materials - Bark**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2
Soilco	3

**Table 12 – Summary of Tender Assessment
Soils & Garden Materials - Mulch**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

**Table 13 – Summary of Tender Assessment
Soils & Garden Materials – Decomposed Granite**

Tenderer	Ranking
Cleary Bros. Bombo	1
Dunmore Resources & Recycling	2

PROPOSAL

Council should authorise the engagement of the listed Construction Materials providers to carry out the specified supply of Construction Materials in accordance with the technical specifications developed for the joint tender.

The recommended tenderers have satisfied the Joint Tender Assessment Panel that they are capable of undertaking the specified services to Council's standards and in accordance with the technical specifications, as defined.

Referees that have been contacted have expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Joint Tender Assessment Panel consisting of representatives from:
 Wollongong City Council’s Legal, City Works, Human Resources and Finance Divisions
 Kiama Municipal Council’s Supply and Engineering Divisions
 Shellharbour City Council’s Supply and Works Divisions
- 2 Wollongong City Council’s Technical Laboratories.
- 3 Nominated Referees

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal ‘*We are a connected and engaged community*’. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
4.4.5 Finances are managed effectively to ensure long term financial sustainability	4.4.5.11 Improve the efficiency of supply management in order to achieve operational efficiencies.	Continue to progress the Supply Action Plan to achieve long term savings and business improvement

RISK ASSESSMENT

The risk in accepting the recommendations of this report is considered low based on the following:

- This tender process has fully complied with Council’s tendering procedures and the Local Government Act 1993.
- The recommended tenderers, listed in the tables, have successfully completed a number of projects of similar size and scope.

FINANCIAL IMPLICATIONS

It is proposed that the supply of construction materials be funded from the operational budgets as identified in the Management Plan.

CONCLUSION

Tenderers listed have submitted an acceptable tender to carry out the Construction Materials Panel requirements. Council should endorse the recommendations of this report.

ITEM 18

TENDER T15/17 - SUBLIME POINT WATER TREATMENT FACILITY -
PERMANENT WORKS

This report recommends acceptance of a tender for provision of Sublime Point Water Treatment Facility Permanent Works to Council in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005. The existing tanks are in poor condition thus requiring upgrade to relevant standards.

Five tenders were received and the report recommends Council accept the tender submitted by SAS Water Solutions Pty Ltd.

RECOMMENDATION

- 1 In accordance with the Local Government (General) Regulation 2005, Clause 178 (1) (a), Council accept the tender of SAS Water Solutions Pty Ltd for provision of Sublime Point Water Treatment Facility Permanent Works to Council, in the sum of \$900,307.83, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

ATTACHMENT

Location Plan

REPORT AUTHORISATIONS

Report of: Glenn Whittaker, Manager Project Delivery
Authorised by: Mike Hyde, Director Infrastructure and Works – Connectivity, Assets and Liveable City

BACKGROUND

Council operates a water treatment plant and tank storage located at Sublime Point, Maddens Plain which services the various properties along the escarpment such as Sublime Point, Panorama House, Hopetoun Park and the Gateway at Bulli Tops. The Sublime Point Water Treatment Plant facility tanks have reached the end of their serviceable life having been repaired over many years. Recently one of the tanks was taken off line and temporary emergency facilities were installed to maintain services.

The scope of work provides for the replacement of the tanks, the provision of an additional tank at Hopetoun Park, construction of access tracks, fencing and replacement of associated controls. The tanks and controls are designed to upgrade the existing storage facility to meet the current and future needs of the local customers including supporting firefighting requirements.

An expression of interest (EOI) selection process was undertaken in accordance with Council's Procurement Policies and Procedures. Council conducted this additional step to ensure tenderers demonstrated significant experience working with water authorities due to the specialist nature of the works and the prevailing site conditions.

Tenders were then invited from the selected contractors with a close of tenders of 10.00 am on Thursday, 27 August 2015.

Five tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Project Delivery, Governance and Information, Finance and City Works and Services Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

- 1 Cost to Council - 45%
- 2 Appreciation of scope of works and construction methodology - 15%
- 3 Staff qualifications and experience - 5%
- 4 Proposed sub-contractors - 5%
- 5 Demonstrated strengthening of local economic capacity - 5%
- 6 Project Schedule - 15%
- 7 EOI score carried forward - 5%
- 8 Workplace Health and Safety Documentation - 5%

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.

TABLE 1 – SUMMARY OF TENDER ASSESSMENT

Tenderer	Ranking
SAS Water Solutions Pty Ltd	1
Enviropacific Services Pty Ltd	2
Abergeldie Contractors Pty Ltd	3
Process Engineering Technologies Pty Ltd	4
Zinfra Pty Ltd	5

PROPOSAL

Council should authorise the engagement of SAS Water Solutions Pty Ltd to carry out the Sublime Point Water Treatment Facility Permanent Works in accordance with the scope of works and technical specifications developed for the project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council’s standards and in accordance with the technical specification.

Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal “We are a healthy community in a liveable city”. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-2017	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
5.3.3 Well maintained assets that meet the needs of current and future communities are provided	5.3.3.1 Manage and maintain community infrastructure portfolio with a focus on asset renewal	Deliver 85% of Council's capital investment into our asset renewal program

RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works or services is considered medium based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

FINANCIAL IMPLICATIONS

It is proposed that the total project be funded from the following source/s as identified in the Management Plan –

2015/2016 Capital Budget

CONCLUSION

SAS Water Solutions Pty Ltd has submitted an acceptable tender and Council should endorse the recommendations of this report.

ITEM 19

TENDER T15/07 - DEBRIS CONTROL STRUCTURE FOR COLLEGE PLACE, GWYNNEVILLE

This report recommends acceptance of a tender for the provision of a debris control structure within a tributary of Fairy Creek at College Place, Gwynneville in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005. The purpose of the construction of the debris control structure at College Place, Gwynneville is to allow for convenient removal of large debris that has the potential to block the downstream culvert in large flood events.

Five tenders were received and the report recommends Council accept the tender submitted by Brefni Excavation and Earthmoving Pty Ltd.

RECOMMENDATION

- 1 In accordance with the Local Government (General) Regulation 2005, Clause 178 (1) (a), Council accept the tender of Brefni Excavation and Earthmoving Pty Ltd for the provision of a Debris Control Structure for College Place, Gwynneville in the sum of \$148,194.00, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required to give effect to this resolution.

ATTACHMENT

Location Plan

REPORT AUTHORISATIONS

Report of: Glenn Whittaker, Manager Project Delivery
Authorised by: Mike Hyde, Director Infrastructure and Works – Connectivity, Assets and Liveable City

BACKGROUND

In December 2010, Council prepared a Floodplain Risk Management Study and Plan for the Fairy and Cabbage Tree Creeks catchment. In response to major flood events, such as the August 1998 flood where culvert blockage had a significant impact on damage to both public and private property, it was recommended that 15 debris control structures be designed and constructed in the catchment to mitigate this risk. College Place Gwynneville, as a tributary of Fairy Creek was part of that recommendation.

The scope of work includes the construction of a debris structure upstream of the culvert entrance including an access track to enabling clearing of debris when required.

Tenders were invited by the open tender method with a close of tenders of 10.00 am on Tuesday, 22 September 2015.

Five tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Project Delivery, Governance and Information, Finance and Human Resources Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

- 1 Cost to Council – 40%
- 2 Appreciation of scope of works and construction methodology – 25%
- 3 Demonstrated experience and satisfactory performance in undertaking projects of similar size and scope – 15%
- 4 Demonstrated strengthening of local economic capacity – 5%
- 5 Project Schedule – 5%
- 6 Workplace Health and Safety Documentation – 5%
- 7 Environmental management documentation – 5%

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.

TABLE 1 – SUMMARY OF TENDER ASSESSMENT

Tenderer	Ranking
Brefni Excavation & Earthmoving Pty Ltd	1
Kenpass Pty Ltd	2
Malsave Pty Ltd	3
GC Civil Pty Ltd	4
Advanced Constructions Pty Ltd	Non-conforming

PROPOSAL

Council should authorise the engagement of Brefni Excavation & Earthmoving Pty Ltd to carry out the construction of the debris control structure and adjacent access path in accordance with the scope of works and technical specifications developed for the project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council's standards and in accordance with the technical specification.

Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

Adjoining owners were notified of this project in August 2015.

During the tender process the following groups were involved:

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees
- 3 External Consultants – Cardno (NSW / ACT) Pty Ltd

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal "We value and protect our natural environment". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-2017	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
1.1.3 The potential impacts of natural disasters, such as those related to bushfires, flood and landslips are managed and risks are reduced to protect life, property and the environment.	1.1.3.2 Implement a coordinated approach to floodplain and stormwater management.	Implement Council's Floodplain Risk Management Plans

RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works or services is considered medium based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

FINANCIAL IMPLICATIONS

It is proposed that the total project be funded from the following source/s as identified in the Management Plan –

Capital Program 2015 / 2016

CONCLUSION

Council should endorse the recommendations of this report.

ITEM 20

COLEDALE COMMUNITY HALL - PROPOSED FEES AND CHARGES -
2015-2016

This report provides advice on the outcome of the exhibition of Fees and Charges for the hire of Coledale Community Hall and seeks Council approval to adopt these for the 2015/2016 financial year.

RECOMMENDATION

Council adopt the Coledale Community Hall Fees and Charges 2015/2016.

ATTACHMENT

Coledale Community Hall Fees and Charges 2015/2016

REPORT AUTHORISATIONS

Report of: Jenny Thompson, Manager Library and Community Services
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Wollongong City Council has a policy for the allocation of community facilities to community groups or organisations. The aim of this policy is to ensure fair and equitable access for the occupation and management of these facilities. Holding the licence to a community centre requires community groups to manage and operate the building on behalf of Council. It entitles them to use the facility to deliver their own programs and services, while enabling access to the facility for other groups and individuals through hire arrangements.

In accordance with Council's 'Allocation of Community Facilities to Community Groups Policy', the licence for the Coledale Community Hall was advertised in February 2015 and expressions of interest to take on the licence for the centre were sought from not-for-profit community groups, including the current licensees.

Community groups that submitted expressions of interest were assessed, as per the policy, by a panel comprising Council staff and independent community representatives. Puka Puka Community of Wollongong Inc., which had held the licence for Coledale Community Hall since 2009, made application for both Coledale and Russell Vale Community Halls, with Russell Vale Community Hall as their first preference. The group's rationale was that there is a large Cook Islands community in the Bellambi area and Puka Puka Community of Wollongong Inc. currently utilises both Bellambi Neighbourhood Centre and Bellambi Public School to provide services to the community. Holding the licence for Russell Vale Community Hall will allow the group to expand the services it provides to the community.

The Allocation Panel recommended Puka Puka Community of Wollongong Inc. should be granted a licence to manage Russell Vale Community Hall based on the information provided. The existing licensee, Russell Vale School P&C Association, did not submit an application to continue to hold the licence, as the school now has its own hall.

No other groups expressed interest in taking on the licence for Coledale Community Hall and the hall is valued as a community asset by the local community. Therefore, responsibility for direct management of this facility will return to Council's Community Facilities team.

The attached proposed fees have been benchmarked against other, similarly sized rooms across Council community facilities.

The proposed fees were placed on public exhibition for a period of 28 days concluding on 28 August 2015. No submissions were received during the exhibition period.

PROPOSAL

Council adopt the scheduled Fees and Charges for hire of the Coledale Community Hall for the 2015/2016 financial year.

CONSULTATION AND COMMUNICATION

Finance Division regarding the process for adoption of Fees and Charges.
Legal Services Unit regarding implementing fees immediately to enable room hire to continue and placing 2015/2016 fees on exhibition.

Existing hirers of Coledale Community Hall

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 under Objective 4.3 *Residents have easy and equitable access to information resources and services* and Community Goal 4 - *We are a connected and engaged community*.

It specifically delivers on core business activities as detailed in the Community Facilities Service Plan 2015/2016.

FINANCIAL IMPLICATIONS

Adoption of the proposed fees and charges for hire of Coledale Community Hall will provide income to Council which will assist in defraying the operating costs of the facility.

CONCLUSION

The proposed fees and charges have been on public exhibition for a period of 28 days. As no comments or feedback have been received, it is recommended that Council adopt these fees and charges for the 2015/2016 financial year.

ITEM 21

CORPORATE GOVERNANCE COMMITTEE MEMBERSHIP AND
CHAIRPERSON

Due to the expiry on 31 October 2015 of a second term on the Corporate Governance Committee of Independent Chairperson Ms Kylie McRae, a need to fill this forthcoming vacancy was identified by Committee members.

In accordance with the Committee Charter, Expressions of Interest were invited to fill the vacancy and this report details the outcome of the recruitment process and the recommendation of the Assessment Panel for endorsement by Council.

In addition, the expiry of Ms McRae's term creates the need for a Chairperson to be appointed by the Council from the independent members.

RECOMMENDATION

- 1 Council endorse the appointment of Ms Catherine Hudson as an Independent Member of the Corporate Governance Committee for a three year period, expiring November 2018.
- 2 Mr Terry Clout be appointed Chairperson of the Corporate Governance Committee.
- 3 Council formally thank Ms Kylie McRae and acknowledge her contribution and commitment to the Corporate Governance Committee during the past seven years as an Independent Member and Chairperson.

ATTACHMENTS

There are no attachments for this report.

REPORT AUTHORISATIONS

Report of: Kylee Cowgill, Manager Governance and Information
Authorised by: Greg Doyle, Director Corporate and Community Services, Creative Engaged and Innovative City

BACKGROUND

Advertisements inviting Expressions of Interest to fill the vacancy on the Corporate Governance Committee were placed in the Illawarra Mercury, Wollongong Advertiser and the Australian Institute of Company Directors website.

Applications were assessed against the following criteria:

- 1 Relevant qualifications;
- 2 Recent and relevant management experience in local government or a large complex organisation;

- 3 Commitment to the local area and building trust in Wollongong City Council; and
- 4 Obvious conflicts of interest.

The Corporate Governance Committee Assessment Panel members consisted of:

- Ms Kylie McRae, Independent Member and Chairperson of the Corporate Governance Committee;
- Councillor Chris Connor; Councillor delegate to the Corporate Governance Committee;
- Ms Kerry Hunt, Manager Community, Cultural and Economic Development;
- Ms Deborah Arney, Governance Officer and Executive Officer to the Corporate Governance Committee.

As a result of interviews being conducted with shortlisted applicants and reference checks being undertaken on the preferred applicant, the Assessment Panel members have recommended the appointment of Ms Catherine Hudson.

CONSULTATION AND COMMUNICATION

The reference checks undertaken confirmed Ms Hudson's strengths, experience and expertise in the area of corporate governance.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal "We are a connected and engaged community". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-2016
Strategy	5 Year Action	Annual Deliverables
4.4.4 Policies and procedures are simplified to ensure transparency and efficiency	4.4.4.1 Ensure policies and procedures are regularly reviewed, updated and promoted	Support the effective operation of the Audit and Corporate Governance Committees

CONCLUSION

Ms Hudson possesses the relevant qualifications (Bachelor of Economics) and is a Graduate of the Australian Institute of Company Directors (GAICD). She demonstrated extensive experience in corporate governance within a complex government organisation and the Assessment Panel's recommendation is supported.

ITEM 22 POLICY REVIEW: INVESTMENT

Council's Investment Policy currently requires a review every three years. The Policy has been reviewed in conjunction with Council's investment consultants, Laminar Group Pty Ltd, to ensure it currently reflects the investment requirements from a legislative and risk management perspective. A primary consideration throughout the development of the Policy has been whether Ethical, Social and Governance (ESG) principles could be successfully integrated into Council's Investment Policy. An overview of the issues and options considered in relation to the inclusion of ESG principles is also covered.

RECOMMENDATION

Council adopt the revised Investment Policy.

ATTACHMENTS

- 1 Draft Investment Policy
- 2 Ministerial Order
- 3 Councillor Briefing Presentation – 10 August 2015

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Manager Finance
Authorised by: Greg Doyle, Director Corporate and Community Services, Creative, Engaged and Innovative City

BACKGROUND

At the Council meeting held on 9 June 2015, the Investment Policy was reviewed and presented to Council. Council's Investment Policy has been formulated to meet current legislative requirements and provide a risk management framework. The Investment Policy provides a basis for the credit quality, institutional diversification and maturity constraints that Council's portfolio can be exposed to. In addition, the Policy presents the current investment framework which limits Council to making investments within the Ministerial Order and making investments in Australian Authorised deposit taking institutions – which are defined as a corporation under the Banking Act 1959, building societies and credit unions.

The issue of responsible and social investments was considered at the time of the Policy review and it was proposed that further changes were not required to the Investment Policy to allow for investments that are socially and ethically responsible.

Council's investment options are very limited under the Ministerial Order, thus minimising the risk of investments that are not considered socially responsible. Council's investment options are limited to low risk financial instruments from Authorised Deposit-taking Institutions (ADI's) and TCorp Managed Funds. Council is not able to invest directly in companies or subordinated debt that would generally give rise to

questions about socially or ethically responsible investment. It was considered that the overhead of administering the requirements to meet an appropriate standard of governance such as the UN Principles on Responsible Investment would be greater than any potential benefit derived from establishing this in our procedures. An extract of the UN Responsible Investment principles was attached to the Council Policy which outlined the practices expected to manage the process.

Council deferred the Investment Policy on 9 June 2015 and requested a Councillor Briefing for more information on social, environmental and corporate governance principles for investment. A briefing was given to Councillors on 10 August 2015 and the following replicates the key issues and options that were presented.

Investment Framework:

Council’s investment framework is guided by the Ministerial Order (attached) which limits Council to invest primarily in Authorised Deposit Taking Institutions (ADI’s). ADI’s are defined as a corporation under the Banking Act 1959 that is authorised to take deposits from customers. This includes banks, building societies and credit unions. In order to demonstrate these limitations, a case study is provided that uses the Local Government Super (LGS) conservative fund as a comparison. This fund is readily available to retail investors.

Case Study 1: LGS Investment Options Compared To Council:

Diagram 1

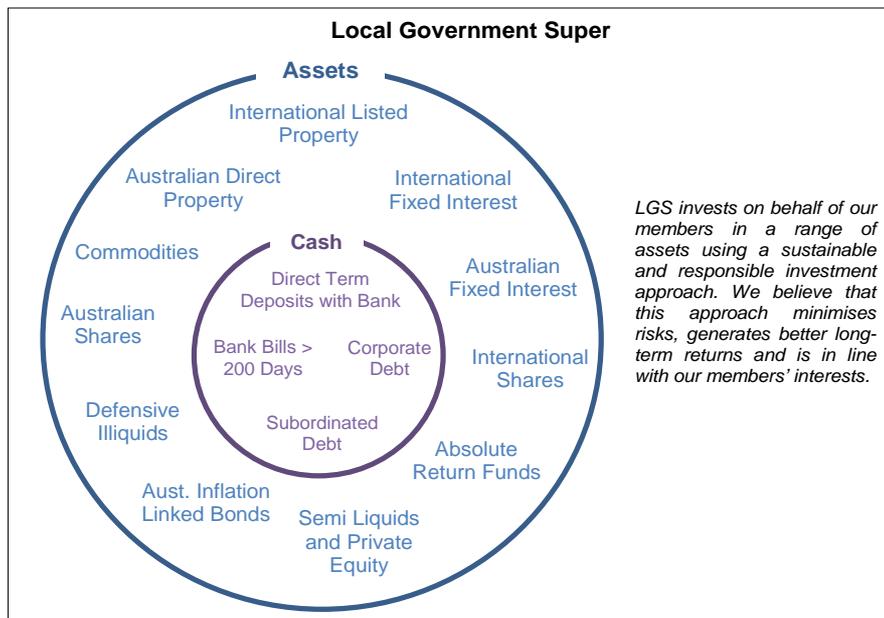
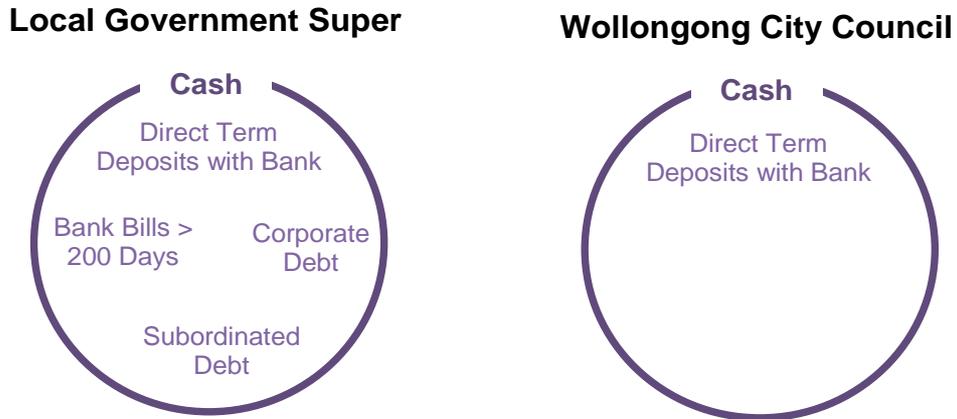


Diagram 1 illustrates the various assets that LGS utilise in meeting the objectives of this fund as outlined to the right of the diagram. This includes Australian Shares, International Shares and Property for example.

In comparison, Council is unable to invest in any of these asset types listed directly (refer to diagram 2 below). When investing directly, Council is limited to cash investments, however, even within this limitation, Council is unable to invest in

subordinated debt, corporate debt and bank bills >200 days. In other words, it must be direct with the ADI or bank. The limited access of Council to significant asset classes does not allow Council to achieve the longer term investment objective or strategy as outlined by LGS.

Diagram 2



Initial view on the inclusion of ESG principles in Council’s Investment Policy:

Throughout the Policy development process the primary consideration has been whether Ethical, Social and Governance (ESG) principles can be successfully integrated into Council’s Investment Policy in a way that provides value and within a manageable governance framework.

To be successful it was considered that there would need to be processes and procedures for each investment purchase and outcomes that are measurable with consequence. There was also consideration given to the potential cost to Council in the short term due to the difficulty sourcing short term investments that meet ESG principles.

Additional Information on United Nation (UN) Principles for Responsible Investment:

At the meeting held on 9 June 2015, Council requested more information on the UN principles for investment. UN defines responsible investing as the process of assessing Ethical, Social and Governance (ESG) risks in addition to financial risks in a systematic manner.

The UN principles for responsible investment were developed by an international group of institutional investors and reflect the increasing relevance of ESG issues to investment practices. An example of a socially responsible investment in practice is demonstrated by the following definition.

“A socially responsible investment strategy is one that aims to maximise returns whilst also investing towards socially and environmentally beneficial outcomes. The strategy usually involves a negative screen as well as a positive screen, which weights investment away from environmentally or socially detrimental industries and towards socially

or environmentally beneficial investments. Such an investment strategy is values based.”

Positive screening is the process of seeking out positive investments that support people, quality and sustainability and is a proactive approach. In contrast, negative screening involves avoiding investments that harm people, animals, society and the environment.

Approach of Other Councils:

Research has also been undertaken into what other councils are doing to reflect ESG as part of their investment policies.

Of the councils reviewed, some have adopted a broad statement with little or no implication on practice. One has undertaken a negative screening process which effectively excludes the four big banks from their investment portfolio. Sydney City Council has adopted a structured approach that includes a committee that oversees each investment and is coordinated by the sustainability manager. Tweed Shire Council has moved to highlight investments assessed as ethical in their portfolio. This approach is demonstrated in the second case study below.

Case Study 2: Tweed Shire Council

Tweed Shire Council has also investigated options available to incorporate ESG investment principles into their investment policy. Following this review, Tweed Shire Council chose to highlight those investments acknowledged as ethical by the Australian Ethical Fund in the monthly Statement of Investments. Australian Ethical Fund is one source of such information but it is noted that they are a signatory to the UN's Principles of Responsible Investments. It is also noted that Tweed Shire Council do not exclude investments not acknowledged as ethical by the Australian Ethical Fund. The following provides an example of Wollongong City Council's portfolio as at 30 June 2015 using the Tweed Shire Council example noting that the Australian Ethical Fund is not the only provider of such information but are used here as an example. It is further noted that using this process, three of the four big banks would not be assessed as ethical.

An extension to this approach was considered that involved giving preference to those institutions acknowledged as ethical by the Australian Ethical Fund (or similar) where the quoted interest rate was the same. It was also discussed that preference may also be given within a cost range of ten basis points where the quoted rate was lower for the acknowledged institution. This approach allowed the potential cost to be capped and was calculated at approximately \$140K per year based on the Council's current holdings.

Wollongong City Council Portfolio under the Tweed Model

WOLLONGONG CITY COUNCIL extract of STATEMENT OF INVESTMENTS 30 June 2015						
DIRECT INVESTMENTS						
Investment Body	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupon Rate	
NAB Professional Maximiser	19,405,468	11m	31/08/2013	31/08/2015	2.25%	
* Bank of Queensland	2,000,000	7/Deposit	18/08/2013	18/08/2015	1.10%	
* Bendigo Bank	5,000,000	7/Deposit	19/08/2013	19/08/2015	1.50%	
* Bank of Queensland	2,000,000	7/Deposit	26/01/2013	26/01/2015	1.65%	
ANZ	3,000,000	7/Deposit	26/08/2014	26/08/2015	1.74%	
* Bendigo Bank	3,000,000	7/Deposit	26/08/2013	26/08/2015	1.68%	
* IMB	2,000,000	7/Deposit	31/01/2013	31/01/2015	1.10%	
* IMB	5,000,000	7/Deposit	1/09/2013	31/08/2015	2.65%	
ANZ	2,500,000	7/Deposit	6/06/2013	6/06/2015	4.05%	
NAB	2,000,000	7/Deposit	27/02/2014	27/02/2015	1.54%	
* Bank of Queensland	3,000,000	7/Deposit	26/11/2014	26/08/2015	1.97%	
ING Australia	5,000,000	7/Deposit	29/06/2013	31/05/2015	4.15%	
ING Australia	4,000,000	7/Deposit	29/06/2013	31/05/2015	4.15%	
NAB	1,500,000	7/Deposit	29/06/2013	31/05/2015	4.21%	
* Bank of Queensland	3,000,000	7/Deposit	16/02/2013	16/02/2015	1.10%	
NAB	2,000,000	7/Deposit	16/02/2013	16/02/2015	1.16%	
* Members Equity Bank	2,500,000	7/Deposit	24/04/2013	21/09/2015	2.93%	
* Bank of Queensland	3,000,000	7/Deposit	26/03/2013	23/03/2015	1.10%	
* Bendigo Bank	2,000,000	7/Deposit	26/03/2013	26/03/2015	1.00%	
ANZ	2,000,000	7/Deposit	29/06/2014	29/06/2015	1.74%	
* Bendigo Bank	2,000,000	7/Deposit	29/06/2013	29/06/2015	1.00%	
* Bank of Queensland	2,000,000	7/Deposit	7/01/2013	7/10/2015	1.50%	
* Commonwealth Bank	3,000,000	7/Deposit	8/10/2013	8/10/2015	1.10%	
* Bendigo Bank	1,500,000	7/Deposit	24/04/2013	20/10/2015	1.60%	
* Members Equity Bank	1,000,000	7/Deposit	1/04/2013	26/10/2015	2.93%	
ANZ	2,000,000	7/Deposit	29/06/2014	29/10/2015	1.74%	
* IMB	2,000,000	7/Deposit	16/09/2013	16/11/2015	1.60%	
* Members Equity Bank	3,000,000	7/Deposit	26/03/2013	24/11/2015	1.69%	
ANZ	2,000,000	7/Deposit	29/06/2014	29/11/2015	1.74%	
NAB	2,000,000	7/Deposit	26/11/2014	30/11/2015	1.81%	
* IMB	2,000,000	7/Deposit	17/12/2014	17/12/2015	1.10%	
NAB	1,030,000	7/Deposit	17/12/2014	17/12/2015	1.50%	
* Bendigo Bank	3,000,000	7/Deposit	29/09/2013	4/01/2016	1.69%	
* Bank of Queensland	2,000,000	7/Deposit	26/03/2013	4/01/2016	1.00%	
* Members Equity Bank	3,000,000	7/Deposit	16/02/2013	16/01/2016	1.10%	
* Commonwealth Bank	5,000,000	7/Deposit	27/02/2013	27/01/2016	1.06%	
* Bank of Queensland	2,000,000	7/Deposit	27/02/2014	26/02/2016	4.05%	
NAB	4,000,000	7/Deposit	27/02/2014	26/02/2016	4.13%	
* Members Equity Bank	2,000,000	7/Deposit	16/02/2013	16/03/2016	1.10%	
* Commonwealth Bank	3,000,000	7/Deposit	26/03/2013	24/03/2016	2.93%	
* IMB	2,000,000	7/Deposit	26/03/2013	26/04/2016	1.60%	
* Westpac	1,011,360	RM	30/01/2012	3/09/2016	1.17%	
NAB	2,500,000	7/Deposit	6/06/2014	6/06/2016	1.74%	
Commonwealth Bank	2,000,000	7/Deposit	27/02/2013	22/06/2016	1.06%	
* Members Equity Bank	2,500,000	7/Deposit	27/02/2013	22/06/2016	1.60%	
* Westpac	2,000,000	7/Deposit	24/04/2013	19/10/2016	2.90%	
Commonwealth Bank Australia zero coupon bond with a \$4M face value	3,578,000	GOVD	21/01/2006	22/01/2016		
NAB	2,994,570	RM	24/06/2013	3/08/2020	1.93%	
EMERALD A Mortgage Backed Security *	581,039	M/BAC	17/07/2002	22/06/2022	2.96%	
EMERALD B Mortgage Backed Security *	1,346,320	M/BAC	17/07/2002	22/06/2022	4.89%	

Ethical Investments

* Ethical Financial Institutions highlighted which represents \$ 65,511,960.00 46% of the total portfolio

Recommendation:

It is recommended that Council adopt the Policy as proposed at the Council meeting held on 9 June 2015 based on the following observations.

- LGS are able to achieve better long term returns using sustainable responsible investment strategies but achieve these by investing in asset classes not currently available to Council under the Ministerial Order.
- The adoption of negative screening ESG policies require value judgements that may lead to a result considered not impartial and unfavourable to some individuals (exclusion of four big banks).
- The adoption of a structured approach similar to Sydney City Council would not appear to provide a cost effective solution based on the inability of Council access to asset classes that would have an impact.

Alternatives considered:

- 1 Council highlights within the monthly investment report those investments (similar to Tweed) that are assessed as worthy ethical investments based on publically available and accredited list such as that provided by the Australian Ethical Fund.
- 2 As above and Council gives preference to those investments assessed as ethical where the rate of return quoted is the same.
- 3 As above but preference given within a cost range, say up to a discrepancy in rate of ten basis points, noting the potential cost is capped at approximately \$140K per year based on the Council’s current holdings.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal ‘*We are a connected and engaged community*’. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
4.4.5 Finances are managed effectively to ensure long term financial sustainability	4.4.5.1 Effective and transparent financial management systems are in place	Provide accurate and timely financial reports monthly, quarterly and via the annual financial statement
		Continuous Budget Management is in place, controlled and reported
		Manage and further develop compliance program
		Monitor and review achievement of Financial Strategy

ITEM 23 STATEMENT OF INVESTMENTS - AUGUST 2015

This report provides an overview of Council's investment portfolio performance for the month of August 2015.

Council's average weighted return for August 2015 was 1.92% which was below the benchmark return of 2.16%. The lower result was primarily due to negative marked to market valuation of the Emerald mortgage backed securities, Westpac FRN and the NSW Treasury Corp, and these were offset by the solid returns received on term deposits. The remainder of Council's portfolio continues to provide a high level of consistency in income and a high degree of credit quality and liquidity.

RECOMMENDATION

Council receive the Statement of Investments for August 2015.

ATTACHMENTS

- 1 Statement of Investments – August 2015
- 2 Investment Income Compared to Budget 2015-16

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Manager Finance
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Council is required to invest its surplus funds in accordance with the Ministerial Investment Order and Division of Local Government guidelines. The Order reflects a conservative approach and restricts the investment types available to Council. In compliance with the Order and Division of Local Government guidelines, Council adopted an Investment Policy on 9 June 2015. The Investment Policy provides a framework for the credit quality, institutional diversification and maturity constraints that Council's portfolio can be exposed to. Council's investment portfolio was controlled by Council's Finance Division during the period to ensure compliance with the Investment Policy. Council's Governance Committee's role of overseer provides for the review of the Council's Investment Policy and Management Investment Strategy.

Council's Responsible Accounting Officer is required to sign the complying Statements of Investments contained within the report, certifying that all investments were made in accordance with the Local Government Act 1993 and the Local Government Regulation 2005.

Council's investment holdings as at 28 August 2015 were \$152,585,005 (Statement of Investments attached) [29 August 2014 \$114,414,887].

During August, Council posted a weighted average return of 1.92% (annualised) compared to the benchmark return of 2.16% (annualised Bloomberg Bank Bill Index). The lower result was primarily due to negative marked to market valuation of the Emerald mortgage backed securities, Westpac FRN and the NSW Treasury Corp, and these were offset by the solid returns received on term deposits. The remainder of Council's portfolio continues to provide a high level of consistency in income and a high degree of credit quality and liquidity.

At 28 August 2015, year to date interest and investment revenue of \$740,722 was recognised compared to the year to date budget of \$597,185.

Council's CBA Zero Coupon Bond remained consistent with the valuation provided in July as the investment is valued at calendar month-end only. The valuation methodology used by Laminar (Council's investment consultants), discounts the bond using a margin for a straight four year CBA obligation but also considers the illiquidity premium, this being a restructured deal and there being limited bids on the security. As this bond gradually nears maturity, movements in interest rates and liquidity will have less of an impact on the securities valuation. While there will be short term fluctuations along the way, the investments valuation will gradually increase to its \$4M maturity value. During the month Council purchased a 5 year \$2M Bendigo Bank floating rate note. Council's three floating rate notes had a net decrease in value of \$6,290 for August.

Council holds two Mortgaged Backed Securities (MBS) that recorded a decrease in value of \$30,953 for August. These investments continue to pay higher than normal variable rates. While the maturity dates are outside Council's control, the investment advisors had previously indicated that capital is not at risk at that stage and recommended a hold strategy due to the illiquid nature of the investment.

The NSW T-Corp Long-Term Growth Facility recorded a decrease in value of \$69,172 in August. The fluctuation is a reflection of the current share market volatility both domestically and internationally.

During the September 2015 RBA meeting, the official cash rate remained unchanged at 2.00%. The RBA has advised that it would continue to assess the outlook and adjust policy as needed to foster sustainable growth in demand and inflation outcomes consistent with the inflation target over time. The current inflation rate is consistent with the 2 to 3% target.

This report complies with Council's Investment Policy which was endorsed by Council on 9 June 2015. Council's Responsible Accounting Officer has signed the complying Statements of Investments contained within the report, certifying that all investments were made in accordance with the Local Government Act 1993 and the Local Government Regulation 2005.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal '*We are a connected and engaged community*'. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
4.4.5 Finances are managed effectively to ensure long term financial sustainability	4.4.5.1 Effective and transparent financial management systems are in place	Provide accurate and timely financial reports monthly, quarterly and via the annual financial statement
		Continuous Budget Management is in place, controlled and reported
		Manage and further develop compliance program
		Monitor and review achievement of Financial Strategy

ITEM 24 AUGUST 2015 FINANCIALS

The result for the month of August is favourable compared to phased budget over some indicators. The Operating Result (pre capital) is favourable by \$0.5M while the Funds Result shows a favourable variance compared to the phased budget of \$1.4M.

The favourable variance is largely due to 2014-15 pay rates being applied to the current year payroll until finalisation of the 2016-2018 Enterprise Agreement, while the corresponding budget includes an indexation.

The Cash Flow Statement at the end of the period indicates that there is sufficient cash to support external restrictions.

Council has expended \$7.6M on its capital works program representing 9% of the annual budget. The year to date budget for the same period was \$11.4M.

RECOMMENDATION

- 1 The report be received and noted.
- 2 Proposed changes in the Capital Works Program be approved.

ATTACHMENTS

- 1 Income, Expense and Funding Statement – August 2015
- 2 Capital Project Report – August 2015
- 3 Balance Sheet – August 2015
- 4 Cash Flow Statement – August 2015

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Manager Finance
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

This report presents the Income and Expense Statement, Balance Sheet and Cash Flow Statement for August 2015. Council's current budget has a Net Funding (cash) deficit of \$3.1M, an Operating Deficit [Pre Capital] of \$6.4M and a capital expenditure of \$88.7M. At the end of August, Council remains on target to the operational components of this result.

The following table provides a summary view of the organisation's overall financial results for the year to date.

FORECAST POSITION		Original Budget	Revised Budget	YTD Forecast	YTD Actual	Variation
KEY MOVEMENTS		1-Jul	28-Aug	28-Aug	28-Aug	
Operating Revenue	\$M	249.5	249.5	40.2	40.6	0.4
Operating Costs	\$M	(255.9)	(255.9)	(41.4)	(41.3)	0.1
Operating Result [Pre Capital]	\$M	(6.4)	(6.4)	(1.2)	(0.7)	0.5
Capital Grants & Contributions	\$M	14.5	14.5	2.2	2.4	0.2
Operating Result	\$M	8.1	8.1	1.0	1.7	0.7
Operational Funds Available for Capital	\$M	48.2	48.2	8.3	7.2	(1.1)
Capital Works		86.3	88.7	11.4	7.6	3.8
Contributed Assets		-	-	-	-	-
Transfer to Restricted Cash		-	-	-	-	-
Funded from:						
- Operational Funds	\$M	48.2	48.2	8.3	7.2	(1.1)
- Other Funding	\$M	34.9	34.9	4.3	3.1	(1.2)
Total Funds Surplus/(Deficit)	\$M	(3.1)	(3.1)	1.2	2.6	1.4

Financial Performance

The August 2015 Operating Result [pre capital] shows a positive variance compared to budget of \$0.5M.

Funds Result

The Total Funds result as at 28 August 2015 shows a positive variance of \$1.4M. The positive variation in the operating result has been added to by the lower than budgeted expenditure on Council funded capital works.

Capital Budget

As at 28 August 2015, Council had expended \$7.6M or 9% of the approved annual capital budget of \$88.7M. Further detail regarding the capital spend is outlined in the capital report in Attachment 2.

Liquidity

Council's cash and investments increased during August 2015 to holdings of \$158.7M compared to \$141.9M at the end of July 2015. This reflects normal trends for this time of the year as Council received the first rate instalment in August.

Council's cash, investments and available funds positions for the reporting period are as follows:

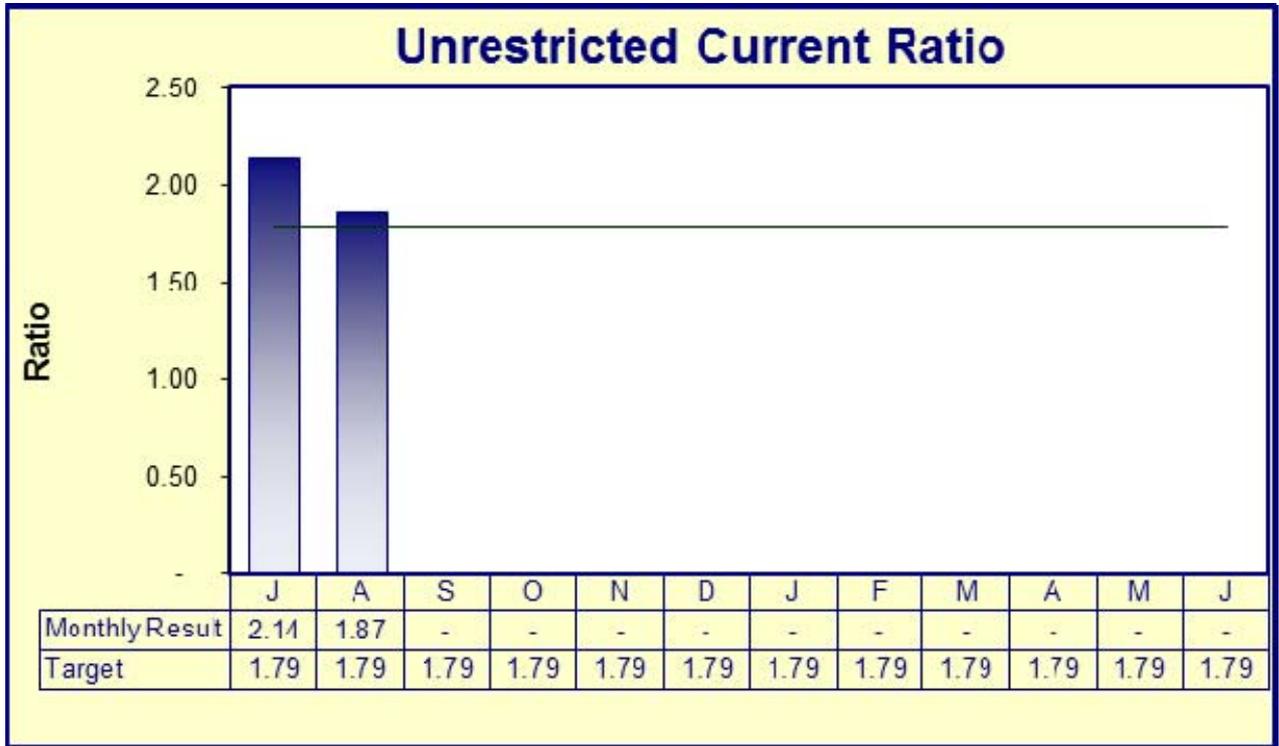
CASH, INVESTMENTS & AVAILABLE FUNDS			
	Actual 2014/15	Original Budget 2015/16	Actual Ytd 28 August 2015
	\$M	\$M	\$M
Total Cash and Investments	144.7	118.8	158.7
Less Restrictions:			
External	77.7	62.6	74.5
Internal	42.0	43.5	47.1
Total Restrictions	119.7	106.1	121.6
Available Cash	25.0	12.7	37.1
Adjusted for :			
Current payables	(29.9)	(23.0)	(41.2)
Receivables	26.4	29.5	28.4
Net Payables & Receivables	(3.4)	6.5	(12.8)
Available Funds	21.6	19.2	24.3
*Original budget adjusted for pre audit 2014/15 result			

The available funds position excludes restricted cash. External restrictions are funds that must be spent for a specific purpose and cannot be used by Council for general operations. Internal restrictions are funds that Council has determined will be used for a specific future purpose.

Based on the end of year results for 2014-15, the adjusted Available Funds forecast is now above Council's Financial Strategy target of 3.5% to 5.5% of Operational Revenue [pre capital]. Based on the Adopted 2015-16 Annual Plan, the target Available Funds is between \$8.7M and \$13.7M for year ending 30 June 2015. The actual Available Funds at 28 August 2015 are above that level due to the favourable 2014-15 financial result.

The Available Funds position, together with additional funds held as restricted cash, offer opportunity to review delivery programs or projects in the short to medium term through the strategic management cycle.

The Unrestricted Current Ratio measures the cash/liquidity position of an organisation. This ratio is intended to disclose the ability of an organisation to satisfy payment obligations in the short term from the unrestricted activities of Council. Council's current ratio is above the Local Government Benchmark of >2:1, however, the strategy is to maximise the use of available funds for asset renewal by targeting a lean unrestricted current ratio.



Receivables

Receivables are the amount of money owed to Council or funds that Council has paid in advance. Non-current rates debtors are included in this amount to measure Available Funds. At August 2015, receivables totalled \$28.4M, compared to receivables of \$21.6M at August 2014. Fluctuations relate to the timing of rates payments which are accrued before the actual payments are due, and a high level of prepayments (shown as 'Other' on the Balance Sheet) reflecting payments made in advance.

Payables

Payables (the amount of money owed to suppliers) of \$41.2M were owed at August 2015 compared to payables of \$24.3M in August 2014. The difference in payables relate to goods and services and capital projects delivered but not yet paid for, rating income received in advance and timing of the Financial Assistance Grant payments. The first two quarterly instalments of the Financial Assistance Grant (\$7.2M) were paid in advance in July.

Debt

Council continues to have financial strength in its low level of borrowing. The industry measure of debt commitment is the Debt Service Ratio that measures the proportion of revenues that is required to meet annual loan repayments.

Council's Financial Strategy includes provision for additional borrowing in the future and Council will consider borrowing opportunities from time to time to bring forward the completion of capital projects where immediate funding is not available. In 2009-10, Council borrowed \$26M interest free to assist in the delivery of the West Dapto Access

Plan. Council has also been successful in securing loan funds under the Local Government Infrastructure Renewal Scheme of \$20M in 2012-13 and \$4.3M in 2013-14 that will be used over a five year period to accelerate the Citywide Footpaths and Shared Path Renewal and Missing Links Construction Program and building refurbishment works for Berkeley Community Centre, Corrimal Library and Community Centre and Thirroul Pavilion and Kiosk respectively. A further \$15M has been drawn down during February under Round Three of this program that provides a subsidy of 3%. The additional loan funds will be used to support the West Dapto Access – Fowler’s Road to Fairwater Drive project. Council’s Debt Service Ratio forecast for 2015-16 is approximately 1.9% which is still below Council’s target of 4% and remains low in comparison to the Local Government’s benchmark ratio of <10%.

It is noted that non-cash interest expense relating to the amortisation of the income recognised on the West Dapto Access Plan Loan is not included when calculating the Debt Service Ratio.

Assets

The Balance Sheet shows that \$2.4B of assets are controlled and managed by Council for the community as at 28 August 2015. The 2015-16 capital works program includes projects such as the Cordeaux Road shared path, Berkeley Community Centre upgrade, civil asset renewals including roads, car parks and buildings and purchase of library books. At the end of August, capital expenditure amounted to \$7.6M.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal ‘*We are a connected and engaged community*’. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2012-17	Annual Plan 2015-16
Strategy	5 Year Action	Annual Deliverables
4.4.5 Finances are managed effectively to ensure long term financial sustainability	4.4.5.1 Effective and transparent financial management systems are in place	Provide accurate and timely financial reports monthly, quarterly and via the annual financial statement
		Continuous Budget Management is in place, controlled and reported
		Manage and further develop compliance program
		Monitor and review achievement of Financial Strategy

CONCLUSION

The results for August 2015 are generally within projections over a range of financial indicators and it is expected that Council will achieve the forecast annual results.

ITEM 25

LEAVE OF ABSENCE - COUNCILLOR COLACINO - 23 NOVEMBER TO
18 DECEMBER 2015

Councillor Colacino has requested leave of absence from 23 November to 18 December 2015 inclusive, due to annual leave commitments.

RECOMMENDATION

Councillor Colacino be granted leave of absence for the period 23 November to 18 December 2015 inclusive.

ATTACHMENTS

There are no attachments for this report.

REPORT AUTHORISATIONS

Report of: Kylee Cowgill, Manager Governance and Information
Authorised by: Greg Doyle, Director Corporate and Community Services - Creative Engaged and Innovative City

ITEM 26

ANNUAL TABLING OF RETURNS OF DISCLOSURES OF INTEREST AND OTHER MATTERS

The Local Government Act 1993 requires the General Manager to table all Annual Returns of Disclosures of Interests and Other Matters lodged by the prescribed due date of 30 September 2015 at the first Council meeting after that date. This report is submitted in addition to the bi-monthly report which tables the returns of new and departing designated persons.

RECOMMENDATION

- 1 Council note the tabling of the Returns of Disclosures of Interests and Other Matters as required by Section 450A of the Local Government Act 1993.
- 2 The Office of Local Government be advised of the failure of two employees to lodge their Annual Return by the due date and the applicable circumstances in each case.

ATTACHMENTS

Returns of Disclosures of Interests and Other Matters (to be tabled)

REPORT AUTHORISATIONS

Report of: Kylee Cowgill, Manager Governance and Information
Authorised by: Greg Doyle, Director Corporate and Community Services – Creative, Engaged and Innovative City

BACKGROUND

Council is advised that the Returns of all Councillors, Designated Persons and Committee Members were lodged prior to the close of business on 30 September 2015 with the exception of two employees; one employee has been on long term leave and is scheduled to return to work on 12 October 2015, and the other employee has been on long-term workers' compensation.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 under the objective *our local Council has the trust of the community* (Community Goal) *we are a connected and engaged community*.

It specifically delivers on core business activities as detailed in the Governance and Administration Service Plan 2015-16.

ITEM 27

CITY OF WOLLONGONG TRAFFIC COMMITTEE - MINUTES OF MEETING HELD 16 SEPTEMBER 2015

A meeting of the City of Wollongong Traffic Committee was held on 16 September 2015.

Items 1 – 3 and Items 9 – 15 have been adopted by Council through delegated authority.

Items 4 – 8 of the meeting must be determined by Council and are recommended to Council for approval for the temporary regulation of traffic on public roads for works or events by independent parties.

RECOMMENDATION

In accordance with the powers delegated to Council, the minutes and recommendations of the City of Wollongong Traffic Committee Meeting held on 16 September 2015 in relation to Regulation of Traffic be adopted.

ATTACHMENTS

- 1 Council's Standard Conditions for Road Closures
- 2 Council's Standard Conditions for Street Parties
- 3 Traffic Management Plan – Camp Quality Convoy
- 4 Traffic Management Plan – Tri the Gong Festival
- 5 Traffic Management Plan – Port Kembla Billy Cart Derby

REPORT AUTHORISATIONS

Report of: Tim Cornford, Manager – Infrastructure Strategy and Planning (Acting)

Authorised by: Mike Hyde, Director Infrastructure and Works – Connectivity, Assets and Liveable City

BACKGROUND

REGULATION OF TRAFFIC

1 HELENSBURGH TO WINDANG Camp Quality Convoy – Sunday, 15 November 2015

Background

The Camp Quality Convoy generally follows NSW State Roads, namely the Appin Road and the M1. One of the starting points is on the Old Princes Highway, Darkes Forest, which is a local road; in the interests of reducing delays and congestion at the main start point on the Appin Road. These arrangements are similar to previous years and the use of the Old Princes Highway was effective in making the flow of vehicles in the Convoy easy to manage.

The organisers have indicated that residents and visitors to golf courses and other destinations in the vicinity of Darkes Forest will be permitted to access the area with regard to safety at the time. All other traffic is to be diverted via Lawrence Hargrave Drive and the M1. The road closure of the Princes Highway between Bulli Tops and Darkes Road is proposed for 5 am to 11 am on the day.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure of the Old Princes Highway between Bulli Tops and Darkes Forest be approved subject to the submitted Traffic Management Plan (Attachment 3) and Council's Standard Conditions for Road Closures (Attachment 1).

2 BULLI

Owen Street – Street Party – 5 December 2015

Background

Council has received a request from residents in Owen Street for a street party to be held Saturday, 5 December, 2015 from 2 pm to 7 pm. The request is for a partial road closure of Owen Street between Franklin Avenue and Waterloo Street. Diversion of traffic around the closure is expected to have minimal inconvenience upon drivers.

Residents in the affected area have indicated their support of the road closure via signed consent which was submitted with the Application for Road Closure.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure be approved subject to Council's Standard Conditions for Street Parties (Attachment 2).

3 WOONONA

Watergum Way – Two major concrete pours for Aged Care Development

Background

Subsequent to the meeting, the building contractor for the aged care development at Watergum Way, Woonona has requested a variation to the road closure approvals provided in May 2015 which allow regular road closures on Watergum Way and Red Ash Drive for the purposes of pouring concrete.

The original approval was for the hours of 7 am to 5.30 pm. Two concrete pours to be carried out in mid-November and December 2015 are expected to take from 5 am to 7.30 pm and will necessitate the closure of Watergum Way at Hickory Street.

The building contractor has also advised that the period for regular road closures will need to be extended beyond the end of December 2015 until the end of February 2016.

Details of this variation have been circulated to NSW Police and Roads and Maritime Services, and have been supported by both organisations.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed variation to the road closures of Watergum Way, to allow two closures at the intersection with Hickory Street for the extended hours of 5 am to 7pm in mid-November and December 2015; and the extension of twice weekly closures previously approved until the end of February 2015, be approved subject to Council's Standard Conditions (Attachment 1).

4 WEST WOLLONGONG

Lexburn Avenue – Street Party – 18 December 2015

Background

Council has received a request from residents in Lexburn Avenue for a street party to be held Friday, 18 December 2015 from 5 pm to midnight. Lexburn Avenue is one block long and located between Yellagong and Eureka Streets, where the proposed closure is at each intersection. Diversion of traffic around the closure is expected to have minimal inconvenience upon drivers.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closure be approved subject to Council's Standard Conditions for Street Parties (Attachment 2).

5 WOLLONGONG

Harbour Street, Crown Street, Marine Drive – Tri the Gong

Background

The 'Tri the Gong' Triathlon Festival is being held on Saturday and Sunday, 5 and 6 March 2016 with the same road closures as in previous years.

The event is divided into two separate competition days as follows:

- 1 Saturday, 5 March** – These events are centred around Endeavour Drive and Wollongong Harbour.

The road closures will take effect between 5.30am and 2pm for events extending from Endeavour Drive via Marine Drive to the roundabout at the eastern end of Crown Street.

The road closures will take effect 2 pm until 4 pm for the events extending from Endeavour Drive southwards to Crown Street and then back along Marine Drive and Cliff Road to the eastern end of Bourke Street, finishing at Endeavour Drive. During the Saturday events the Bus Terminus will be closed in Marine Drive and buses will have alternative bus zones and rest facilities in Harbour Street.

- 2 Sunday, 6 March** – These events will extend from Wollongong Harbour to Elliotts Road, Fairy Meadow for the support events and involve road closures of Cliff Road, the eastern end of Bourke Street, Kembla Street between George Hanley Drive and Bourke Street, George Hanley Drive and Squires Way for the period 6.45 am to 4 pm.

The main Olympic standard event extends from Wollongong Harbour via Cliff Road, the eastern end of Bourke Street, Kembla Street between George Hanley Drive and Bourke Street, George Hanley Drive and Squires Way, Carters Lane and Pioneer Road to a point immediately south of Rothery Street.

Road closures for Carters Lane and Pioneer Road between Elliott's Road and Rothery Street will be in effect from 6.30 am to 11 am.

The Sunday events will prevent access to all side streets along the route, and the section of Towradgi Road east of Pioneer Road and the adjoining streets will be isolated by the closures. The event organisers have agreed to have control points at the major cross streets of Elliott's Road, Carters Lane, Towradgi Road and Murray Road to allow access across Pioneer Road/Carters Lane.

As in previous years, residents will be provided with a letter box drop and a hotline contact phone number to allow enquiries directly with the organisers.

The proposed closures involve a number of traffic signals and therefore require specific approval from NSW Roads and Maritime Services. As the events involve cycling races on public roads, all such activities also require approval from the NSW Police. Discussions have been held with Transport for NSW to coordinate the diversion of buses, particularly during the Sunday events.

PROPOSAL SUPPORTED UNANIMOUSLY

The proposed road closures be approved subject to:

- a The submitted traffic management plans (Attachment 4)
- b The applicant obtaining approval from NSW Roads & Maritime Services
- c The applicant obtaining approval from NSW Police
- d Council's Standard Conditions for Road Closures (Attachment 1)

5 PORT KEMBLA

Wentworth Street – Billy Cart Derby – 28 November 2015

Background

The organisers of this event have submitted similar Traffic Management Plans to those used in previous years and involve the closure of:

- Darcy Road between Military Lane and Wentworth Lane
- Wentworth Street between Darcy Road and Church Street
- Allan Street between Kembla Street and Military Road

The event will be held on Saturday 28 November 2015 from 6 am to 8 pm, however the setting up and removal of the barriers will also require these street closures at the following times:

- Thursday 26 November 2015 from 7:30 am to 3 pm and from 5:30 pm to 8:45 pm
- Friday 27 November 2015 from 7:30 am to 3 pm and from 5:30 pm to 8:45 pm
- Monday 30 November 2015 from 6 am to 10 am

PROPOSAL SUPPORTED UNANIMOUSLY

The road closure Saturday 28 November 2015 be approved in accordance with the submitted Traffic Management Plans and Council's Standard Conditions for road closures (Attachment 1), Billy Cart Derby Route and Traffic Management Plan (Attachment 5).

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal under the objective Community Goal 6 – We have sustainable, affordable and accessible transport.

It specifically delivers on core business activities as detailed in the Transport Services Plan 2015–16.



MINUTES

ORDINARY MEETING OF COUNCIL

at 6.00 pm

Monday 14 September 2015

Present

Lord Mayor – Councillor Bradbery OAM (in the Chair), Councillors Kershaw (from 6.12 pm to 8.11 pm), Connor, Brown, Takacs, Martin, Merrin, Blicavs, Dorahy, Colacino, Crasnich, Curran and Petty

In Attendance

General Manager – D Farmer, Director Corporate and Community Services – Creative, Engaged and Innovative City – G Doyle, Director Infrastructure and Works – Connectivity, Assets and Liveable City – M Hyde, Director Planning and Environment – Future, City and Neighbourhoods – A Carfield, Manager Governance and Information – K Cowgill, Manager Finance – B Jenkins, Manager Property and Recreation – P Coyte, Manager Environmental Strategy and Planning – R Campbell, Manager Human Resources – T Tyrpenou, Manager Community Cultural and Economic Development – K Hunt, Manager Infrastructure Strategy and Planning – M Dowd, Manager Project Delivery – G Whittaker, Manager City Works and Services (Acting) – T Subotic and Manager Development Assessment and Certification – M Riordan

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DISCLOSURE OF INTERESTS

Councillor Martin declared a non-significant, non-pecuniary conflict of interest in Items 6 and 7 insofar as she is employed by the Department of Planning and Environment. However, Councillor Martin advised that she does not work on Wollongong-based matters.

NATIONAL ECONOMIC DEVELOPMENT AWARDS

Councillor Blicavs advised that on 8 September 2015 she attended the National Economic Development Conference where Council was a finalist in three Award categories. Council was a finalist for its Marketing Strategy and also in the category of Community Economic Development for the Façade Program and the Night-Time Economic Strategy.

Council was a winner in the Economic Innovation Category and Councillor Blicavs extended her congratulations to all staff involved in these achievements.

LOCAL GOVERNMENT YOUTH WEEK AWARDS

Councillor Connor attended the Local Government Youth Week Awards and advised that Council was a finalist for the most innovative Youth Week Program for 2015. He extended his congratulations and, in particular, acknowledged the work of staff in engaging our youth.

AUSTRALIAN INNOVATION EXCELLENCE 2015 AWARDS

The Lord Mayor tabled an Award received by Council in the New Australian Innovation Excellence 2015 Awards for Utilisation of ePathway and Pathway products. Council's use of these products impressed judges in respect to out-of-the-box processes.

CERTIFICATE OF RECOGNITION – ILLAWARRA ACADEMY OF SPORT

The Lord Mayor presented a Certificate of Recognition received from the Illawarra Academy of Sport acknowledging Council's longstanding contribution to the Academy and for Council's continued support in 2015.

CONFIRMATION OF MINUTES OF ORDINARY MEETING OF COUNCIL HELD ON MONDAY, 24 AUGUST 2015

122 **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Colacino that the Minutes of the Ordinary Meeting of Council held on Monday, 24 August 2015 (a copy having been circulated to Councillors) be taken as read and confirmed.

ATTENDANCE OF COUNCILLOR

During the address by Mr B McClelland, Councillor Kershaw attended the meeting, the time being 6.12 pm.

PUBLIC ACCESS FORUM - MOTORHOME STOP-OVER FACILITIES

On behalf of the Illawarra Yacht Club, Mr Matt O'Hara asked Councillors to consider the need for increased tourism in the Warrawong area. He said that the local economic situation had not been enough to sustain the Illawarra Yacht Club prior to its amalgamation with the Oak Flats Bowling Club, two years ago. Club records show that a good proportion of customers are local tourists (outside 5 kms).

In conclusion, Mr O'Hara said that increased tourism could make the Club financially viable, resulting in increased economic activity in the local area. This would in turn increase employment opportunities for local residents. Currently, the majority of employees are working mothers and 18-30 year old males and females who are entry level hospitality workers. Both these groups seek employment in the hospitality due to the flexible work arrangements and opportunities for low skilled workers.

Mr B McClelland, on behalf of the Campervan and Motorhome Club of Australia (CMCA), said that there was a need for Council to work with CMCA to investigate the establishment of recreational vehicle (RV) stopover facilities. CMCA is currently working with all levels of government in formulating policy in relation to RV travel throughout Australia.

With a new RV stop-over park in this region, advertised by the CMCA monthly magazine and eventually becoming known generally, Mr McClelland felt it would provide a service to existing members and an estimated 100,000 other qualifying self-contained vehicle owners, many of whom currently do not see enough of a benefit in stopping in our great City. In conclusion, Mr McClelland said that he supported the motion which aims to expand tourism in the Wollongong region and which covers a tourist sector not adequately catered for in our City.

DEPARTURE OF COUNCILLOR

Following the address by Mr N Fredericks, Councillor Colacino departed and returned to the meeting, the time being from 6.26 pm to 6.28 pm.

PUBLIC ACCESS FORUM - WEST DAPTO URBAN RELEASE AREA – YALLAH-MARSHALL MOUNT PRECINCT – INFRASTRUCTURE COSTS

Mr N Fredericks advised he was speaking on behalf of three landowners at Yallah-Marshall Mount. Mr Fredericks recognised that the report outlined concerns in advancing the rezoning of land due to the risk to Council's budget, but encouraged Council to progress the rezoning. He said that there was the opportunity for Voluntary Planning Agreements (VPAs), which are legally binding. The landowners he represents are prepared to engage with Council to enter into VPAs to meet the cost of road frontages to their land. Also, in relation to creek parklands, these owners are prepared to transfer these to Council at no cost to Council.

Mr Fredericks also advised that the owners support a revisit of the main roads, particularly the local access by-pass between Marshall Mount Road and Yallah Road, which has major cost implications, whereas a shorter bypass around the village may be possible. Mr Fredericks indicated that Government grants are available to also assist in funding infrastructure. In conclusion, Mr Fredericks said that there needed to be serious work undertaken in order to ensure equity in the proposal.

PUBLIC ACCESS FORUM - PUBLIC SAFETY AND SECURITY ISSUES ARISING FROM DELAY IN MAINTAINING AND UPGRADING THE LAKE ILLAWARRA FORESHORE

On behalf of the Oaklands Village Residents' Committee, Dr P Smith advised that on 28 November 2014, the Lord Mayor, Councillor Curran and Council's Manager of Infrastructure Strategy and Planning, M Dowd, attended an onsite meeting with K Fowler from Crown Lands and three residents from Oaklands Village, Windang. Security and safety issues were acknowledged and a commitment to fence off free flow public access between Boronia Park and Judbooley Parade was given by K Fowler and M Dowd. Nine months on from this commitment, the promise to fence off free flow public access to this public safety and security hazard has not been delivered, nor has any repair or maintenance work been undertaken. Dr Smith requested that urgent action be taken by Council to rectify this hazard.

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Dr Smith asked that before the end of this calendar year, Council inform residents of Ward 3 of the proposed foreshore upgrade works, the proposed start and completion dates for this work, as well as details of proposed arrangements for maintaining the upgraded foreshore. In conclusion, Dr Smith said that Oaklands Village residents share the concerns of other Ward 3 residents in relation to the need to upgrade and maintain all of the Lake Illawarra foreshore and to improve the Lake's water quality and water flow.

DEPARTURE OF COUNCILLOR

During the address by Ms M Caine, Councillor Crasnich departed and returned to the meeting, the time being from 6.36 pm to 6.37 pm.

PUBLIC ACCESS FORUM – DRAINAGE AND FLOODING ISSUES – CROSS STREET, CORRIMAL

Ms M Caine advised that the matter of flooding in the Towradgi Creek Floodplain had been widely documented following the major flooding event on 17 August 1998. Sometime after this event, the Illawarra Coke Company constructed an earth mound on their property at the rear of residences at 79-85 Cross Street, Corrimal. The construction of this mound has placed these residences in danger of inundation by floodwaters, by restricting the natural flow of water from Cross Street and the properties to the area immediately behind the mound.

Ms Caine said that Council had indicated that the flooding issue is essentially a private matter between residents and the Illawarra Coke Company, however, Council did agree that there are issues in the area. In conclusion, Ms Caine asked Council to approach the Illawarra Coke Company to address the issues highlighted above and to take their responsibility seriously. She also requested Council to expedite action in getting this section of Cross Street, Corrimal, completed with kerb and guttering, and that associated drainage issues be addressed.

123 COUNCIL'S RESOLUTION – RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Colacino that all speakers be thanked for their presentation and invited to table their notes.

Minute No.

CALL OF THE AGENDA

- 124** **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Connor that the staff recommendations for Items 2, 7, 11 to 13, and 15 to 22 inclusive, be adopted as a block.

MATTER OF GREAT URGENCY - PUBLIC SAFETY AND WINDANG FORESHORE EROSION

Councillor Curran advised that she wished to put forward a motion which she considered to be urgent and related to public safety and erosion of the Windang Foreshore.

The Lord Mayor ruled Councillor Curran's request not to be of great urgency.

Councillor Petty MOVED a MOTION OF DISSENT on the Lord Mayor's ruling and on a show of hands, the Lord Mayor's ruling was upheld.

DEPARTURE OF COUNCILLOR

During debate and prior to voting on Item A, Councillor Connor departed and returned to the meeting, the time being from 6.57 pm to 6.58 pm.

ITEM A – NOTICE OF MOTION - COUNCILLOR MARTIN - MOTORHOME STOP-OVER FACILITIES - APPROPRIATE PUBLIC PARKS

- 125** **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Martin seconded Councillor Connor that Council work alongside Destination Wollongong, the Campervan and Motorhome Club of Australia (CMCA), and other appropriate organisations, towards investigating the establishment of short-term stopover facilities or dump site and cost implications for Wollongong City Council of motorhome stop-over facilities at locations, including Fred Finch Park, 'Yachties' on Lake Illawarra, Port Kembla, Council Caravan Parks and other appropriate sites in the Wollongong Local Government Area.

Variations The following variations were accepted by the mover and seconder –

- Councillor Brown to amend the words 'Council and Destination Wollongong work alongside' to 'Council work alongside Destination Wollongong;*

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- *Councillor Bradbery: the addition of the words ‘and cost implications for Wollongong City Council’;*
- *Councillor Colacino: the addition of the words ‘short-term stopover facilities’; and,*
- *Councillor Petty: the addition of the words ‘or dump site’ and ‘Council Caravan Parks’.*

DEPARTURE OF COUNCILLORS

During the debate and prior to voting on Item B, Councillors Blicavs and Kershaw departed and returned to the meeting, the times being from 7.25 pm to 7.27 pm, and 7.30 pm to 7.34 pm, respectively.

ITEM B – NOTICE OF MOTION - COUNCILLOR PETTY - REVIEW OF CONDUIT BLOCKAGE POLICY

MOVED by Councillor Petty seconded Councillor Curran that –

- 1 Council write to WMAwater, Consultants currently undertaking a review of Council’s Conduit Blockage Policy, authorising a variation to their contract to consider, review and comment on the following in their final report:
 - a the technical paper by Anthony Barthelmess and Paul Nichols, to be presented at the 36th Hydrology and Water Resources Symposium in Hobart in December 2015, showing the current Blockage Policy significantly over-predicts the hydraulic blockages that occurred in 1998 based on Council’s own flood studies for Hewitts and Towradgi Creeks;
 - b the Allans Creek report titled ‘Flooding in Figtree - American Creek at the M1 Princes Motorway Culverts – Submission to Wollongong City Council, December 2014’ prepared by Residents’ Group NEFRAG;
 - c any evidence the proponent wishes to tender as supporting arguments in regards to the Land and Environment Court case Percy -v- Wollongong City Council, including information subsequently obtained by GIPA request that Council advised the court did not exist;

- d whether the statement in Council's Specification for the Review of the Blockage Policy that '*application of the current blockage policy has enabled good calibration of flood models with observed flood behaviour in many locations*' is correct, noting this is contrary to the findings of the Barthelmeß and Nichols paper;
 - e whether the statement in Council's Specification for the Review of the Blockage Policy that 'blockage policy has been applied to all Floodplain Risk Management Studies and Plans prepared by Council' is correct, noting that such studies have been based on improbable worst combinations of blocked and clear culverts, which is not part of the methodology stated in Section 10.3.2 of Wollongong Development Control Plan, Chapter E14; and
 - f the two-CD set of documents, photos, email, correspondence etc provided to Councillor Petty as information held by Council in respect of the 1998 flood.
- 2 Staff investigate the option to incorporate within the budget a capital works/maintenance item to address the frequent flooding of properties in Lachlan Street, Thirroul, as predicted in the August 2015 BMT WBM flood study report (which shows these properties to be flood prone even for the one in five year flood), as further highlighted in the recent wet weather event of 23-25 August 2015, and for which Council's anti-blockage works have yet to improve.

Councillor Petty's motion on being PUT to the VOTE was LOST.

In favour Councillors Curran and Petty

Against Councillors Kershaw, Connor, Brown, Martin, Takacs, Merrin, Blicavs, Dorahy, Colacino, Crasnich and Bradbery

ITEM 1 - ELECTION OF DEPUTY LORD MAYOR

126 **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Crasnich that -

- 1 Council elect a Deputy Lord Mayor for a term of one year.
- 2 The method of election be by open voting.

The General Manager advised that nominations for Deputy Lord Mayor had been received for Councillors Dorahy, Merrin, Curran and Connor.

At this point, the General Manager delegated the role of Returning Officer to Manager Governance and Information, Mrs K Cowgill.

Mrs Cowgill proceeded to conduct the election of Deputy Lord Mayor.

On a show of hands, the following votes were recorded:

- Councillor Dorahy: Councillors Blicavs, Dorahy, Colacino, Crasnich and Bradbery
- Councillor Merrin: Councillors Merrin and Takacs
- Councillor Curran: Councillors Curran and Petty
- Councillor Connor: Councillors Kershaw, Connor, Brown and Martin

Votes for Councillors Curran and Merrin were tied and following a draw by lot, Councillor Curran was excluded.

On a second show of hands, the following votes were recorded:

- Councillor Dorahy: Councillors Blicavs, Dorahy, Colacino, Crasnich and Bradbery
- Councillor Merrin: Councillors Merrin, Takacs, Curran and Petty
- Councillor Connor: Councillors Kershaw, Connor, Brown and Martin

Votes for Councillors Merrin and Connor were tied and following a draw by lot, Councillor Connor was excluded.

On a third show of hands, the following votes were recorded (*Councillor Brown abstained from voting*):

- Councillor Dorahy: Councillors Kershaw, Blicavs, Dorahy, Colacino, Crasnich and Bradbery
- Councillor Merrin: Councillors Connor, Martin, Merrin, Takacs, Curran and Petty

The meeting was advised that as there were two remaining candidates and votes for Councillors Dorahy and Merrin were tied, that the Councillor drawn by lot would be elected as Deputy Lord Mayor. Following the draw by lot, Councillor Dorahy was subsequently declared elected as Deputy Lord Mayor.

The Lord Mayor extended his congratulations to Councillor Dorahy. The Lord Mayor also acknowledged the hard work, quality, standard and devotion of former Deputy Lord Mayor, Councillor Connor, over the past two terms.

ITEM 2 - DRAFT NEW POLICY: APPOINTMENT OF COUNCILLOR DELEGATES TO COMMITTEES

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – The Appointment of Councillor Delegates to Committees Policy be adopted.

ITEM 3 - ELECTION OF COUNCILLOR DELEGATES TO VARIOUS COMMITTEES AND EXTERNAL ORGANISATIONS

127 **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Blicavs that -

- 1 Councillors nominating for those committees and organisations listed in the attachment be declared elected for one year where the nomination is uncontested.
- 2 Contested positions be chosen by open voting.
- 3 Councillors be invited to nominate for any remaining vacant positions.

In accordance with Part 1 of the resolution, the following Councillors were elected -

- Corporate Governance Committee: Councillors Connor and Dorahy;
- Performance Review Committee: Councillors Bradbery, Dorahy and Blicavs;
- Australia Day Committee: Councillors Bradbery and Connor;
- Sports and Facilities Reference Group: Councillors Kershaw, Curran and Blicavs;
- Association of Mining Related Councils: Councillor Bradbery and Connor;
- Committee of Illawarra Sports Stadium Limited: Councillor Curran;
- Destination Wollongong: Councillor Colacino;
- Floodplain Management Association: Councillors Dorahy and Merrin;
- Healthy Cities Illawarra Board: Councillor Takacs;
- Illawarra Bushfire Management Committee: Councillor Connor;

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- Illawarra District Noxious Weeds Authority: Councillor Merrin;
- Illawarra ITEC Limited Board: Councillor Takacs;
- Illawarra Performing Arts Centre (IPAC) Board: Councillors Bradbery and Colacino;
- Illawarra Regional Information Service (IRIS) Board: Councillors Brown and Martin;
- Illawarra Zone Liaison Committee – Rural Fire Service: Councillor Connor (Delegate) and Councillor Blicavs (Alternate Delegate);
- Public Libraries NSW – Country: Councillor Connor;
- Southern Councils Group – Pilot Joint Organisation: Councillor Bradbery (Delegate) and Councillor Connor (Alternate Delegate);
- United Independent and Westpool Boards: Councillor Bradbery (Delegate) and Councillor Blicavs (Alternate).

Elections were undertaken for the following vacancies -

Audit Committee (*two Councillor Delegates to be elected*):

Nominations were received for Councillors Blicavs, Petty and Kershaw and on a show of hands, the following votes were recorded:

Councillor Blicavs: Councillors Blicavs, Dorahy, Colacino and Crasnich
Councillor Petty: Councillors Takacs, Merrin, Curran and Petty
Councillor Kershaw: Councillors Kershaw, Connor, Brown, Martin and Bradbery

Councillor Kershaw, with the highest number of votes was elected.

Councillors Blicavs and Petty's votes were tied and following a draw by lot, Councillor Blicavs was excluded.

Councillors Kershaw and Petty were elected. Note: Councillor Kershaw subsequently resigned from her appointment – refer below for re-election.

Joint Regional Planning Panel (*one Delegate and one Alternate Delegate to be elected*):

Nominations were received for Councillors Dorahy and Curran for Delegate, and Councillor Merrin for Alternate Delegate and on a show of hands, the following votes were recorded:

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Councillor Dorahy: Councillors Blicavs, Dorahy, Colacino, Crasnich and Bradbery

Councillor Curran: Councillors Curran, Petty, Connor, Brown, Martin, Merrin and Takacs

Councillor Curran, with the highest number of votes was elected as Delegate and Councillor Merrin elected as the Alternate Delegate.

Vacancy on Audit Committee (Councillor Kershaw, earlier on, was appointed as a member of the Audit Committee. She subsequently withdrew from this position and the vacancy was put to the vote):

Nominations were received for Councillors Blicavs and Merrin, and on a show of hands, the following votes were recorded:

Councillor Blicavs: Councillors Kershaw, Connor, Brown, Martin, Blicavs, Dorahy, Colacino, Crasnich and Bradbery

Councillor Merrin: Councillors Merrin, Takacs, Curran and Petty

Councillor Blicavs, with the highest number of votes was elected as a member of the Audit Committee, along with Councillor Petty who was elected earlier in the meeting.

128 **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Kershaw seconded Councillor Blicavs that Councillor Curran be elected as Chair of the Sports and Facilities Reference Group.

ITEM 4 - APPOINTMENT OF VOTING DELEGATES TO LOCAL GOVERNMENT NSW ANNUAL CONFERENCE

129 **COUNCIL'S RESOLUTION** - RESOLVED on the motion of Councillor Brown seconded Councillor Curran that Council delegate (by show of hands) voting rights for the election of Office Bearers and the Board and voting on motions to seven Councillors, including the Lord Mayor and Deputy Lord Mayor, from Councillors previously authorised to attend the 2015 Local Government NSW Annual Conference.

Deputy Lord Mayor, Councillor Dorahy advised that he would not be able to attend the Conference and this left vacancies for six Councillors to be elected to vote for the election of Office Bearers and the Board, as well as vote on motions at the Local Government Conference.

Six nominations were subsequently received from Councillors Kershaw, Connor, Martin, Blicavs, Crasnich and Curran and these Councillors, along with the Lord Mayor, were delegated voting rights at the Conference.

DEPARTURE OF COUNCILLOR

Prior to voting on Item 5, Councillor Kershaw departed the meeting, the time being 8.11 pm.

During debate and prior to voting, Councillor Dorahy departed and returned to the meeting, the time being 8.17 pm to 8.19 pm.

ITEM 5 - 2016 COUNCIL MEETING STRUCTURE AND CYCLE

130 COUNCIL'S RESOLUTION - RESOLVED on the motion of Councillor Brown seconded Councillor Colacino that –

- 1 Council adopt Option 1 as its meeting cycle and structure for 2016.
- 2 Councillor attendance at Ordinary and Extraordinary Council meetings, Section 355 Committees, as well as Councillor Briefing Sessions, be recorded and reported in the Annual Report.

Option 1: Retain the existing three-weekly meeting cycle (14 meetings / 26 briefings) –

- Ordinary Council meetings held on a rolling three weekly cycle on a Monday commencing at 6.00 pm. First meeting to be held on Monday, 1 February 2016.
- Councillor Briefing Sessions be held on the second and third Monday of the cycle commencing at 5.00 pm.
- No Ordinary Council meetings or Councillor Briefing Sessions be held during a public school holiday period. This would normally be with the exception of January however in 2016 the last possible Monday, 25 January, is both during school holidays and immediately prior to a public holiday (Australia Day).
- Additional Councillor Briefing Sessions being scheduled for Thursdays when there is an urgent demand.

Variation *The variation moved by Councillor Bradbery (the addition of Part 2) was accepted by the mover and seconder.*

In favour Councillors Connor, Brown, Martin, Takacs, Merrin, Blicavs, Dorahy, Colacino, Crasnich and Bradbery

Against Councillors Curran and Petty

DEPARTURE OF COUNCILLORS

During debate and prior to voting on Item 6, the following Councillors departed and returned to the meeting –

- Councillor Colacino from 8.24 pm to 8.26 pm, and from 8.51 pm to 8.54 pm; and,
- Councillor Curran from 8.25 pm to 8.26 pm.

ITEM 6 - WEST DAPTO URBAN RELEASE AREA - YALLAH-MARSHALL MOUNT PRECINCT - INFRASTRUCTURE COSTS

A PROCEDURAL MOTION was MOVED by Councillor Crasnich seconded Councillor Connor that an additional three minutes be granted to Councillor Martin to address the meeting. The MOTION was CARRIED.

MOVED by Councillor Martin seconded Councillor Dorahy that -

- 1 The Yallah-Marshall Mount Planning Proposal (Attachment 4 of the report) be forwarded to the NSW Department of Planning and Environment for finalisation.
- 2 Council review the Section 94 Plan, with a view to entering into discussions with developers or landowners to meet land acquisition and road construction costs as part of a Voluntary Planning Agreement or similar where they will benefit from subdivisions that front a proposed road.
- 3 Landowners/developers be required to dedicate creek parklands at no cost to Council as part of a Voluntary Planning Agreement, or similar.
- 4 Final road layouts, including the conceptual roads mentioned in the local infrastructure report be prepared and costed with timelines over the 20 years of likely land release for design and construction, with developers and/or landowners carrying the majority of financial burden as per point (2).
- 5 Council prepare a submission to IPART and the NSW Housing Acceleration Fund to reduce the burden on Council for the cost of remaining local infrastructure across the entire West Dapto land release area.
- 6 A further report be submitted on amendments to the Wollongong DCP 2009 Chapter D16 to incorporate provisions for Yallah-Marshall Mount.

A PROCEDURAL MOTION was MOVED by Councillor Connor seconded Councillor Curran that this matter lay on the table, pending a detailed briefing with representatives from the Department of Planning and Environment.

The PROCEDURAL MOTION on being PUT to the VOTE was CARRIED.

ITEM 7 - CALDERWOOD DRAFT PLANNING AGREEMENT

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 The developer be advised that Council is not prepared to accept their current Calderwood draft Planning Agreement offer.
- 2 A draft Section 94 Development Contribution Plan be prepared for the Calderwood Urban Release Area based on the infrastructure costs identified in the report, and exhibited for a minimum period of 28 days. The exhibition include advice that the Wollongong Section 94A Development Contribution Plan would be repealed if the new Plan is made.

DEPARTURE OF COUNCILLORS

During debate and prior to voting on Item 8, Councillors Colacino and Curran departed and returned to the meeting, the times being 9.00 pm to 9.02 pm, and 9.00 pm to 9.05 pm, respectively.

ITEM 8 - INSTALLATION OF SOLAR PHOTOVOLTAIC CELLS ON COUNCIL BUILDINGS

A PROCEDURAL MOTION was MOVED by Councillor Dorahy seconded Councillor Connor that an additional three minutes be granted to Councillor Takacs to address the meeting. The MOTION was CARRIED.

131 **COUNCIL'S RESOLUTION** - RESOLVED UNANIMOUSLY on the motion of Councillor Takacs seconded Councillor Merrin that –

- 1 Council note the findings of the report.

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- 2 Subsequent to the completion of the energy audit currently underway, a briefing be held which canvasses –
 - i the priorities for installation of solar photovoltaic on Council buildings; and,
 - ii other initiatives for facilitating solar photovoltaic for low income households and pensioners, similar to those pursued by other councils, including Darebin in Victoria.

DEPARTURE OF COUNCILLOR

During the debate and prior to voting on Item 9, Councillor Merrin departed and returned to the meeting, the time being from 9.24 pm to 9.26 pm.

ITEM 9 - FINAL REPORT - REFURBISHMENT OF THE CROWN STREET MALL INCLUDING ANNUAL REVIEW OF THE CITY CENTRE MAJOR PROJECTS STEERING COMMITTEE

132 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor Brown seconded Councillor Dorahy that -

- 1 Council note the actions of the City Centre Major Projects Steering Committee to ensure timely delivery of the Crown Street Mall Refurbishment and the City Centre Footpath Program.
- 2 The City Centre Major Projects Steering Committee continue to provide oversight of any project nominated as a City Centre Major Project.
- 3 The existing Charter be adopted with the term of appointment extended until September 2016.

ITEM 10 - INDEPENDENT HEARING AND ASSESSMENT PANEL (IHAP) REVIEW

133 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor Curran seconded Councillor Petty that -

- 1 The revised Independent Hearing and Assessment Panel (IHAP) Charter be adopted.
- 2 Those who made submissions be advised and thanked.
- 3 A Briefing be held on the feasibility of IHAP development application files being available online, post-assessment.

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ITEM 11 - POLICY REVIEW: POSITIVE WORKING RELATIONSHIPS

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – The revised Positive Working Relationships Policy be endorsed.

ITEM 12 - BANK GUARANTEES FOR SUBDIVISIONS AND DEVELOPMENT POLICY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 Council's current 'Bank Guarantees or Equivalent Receipt, Retention and Release Management Policy' be revoked.
- 2 The Draft Bank Guarantee Policy for Subdivisions and Development be adopted.
- 3 The adopted policy be advertised in the local newspaper.

ITEM 13 - UPDATE ON DELIVERY OF CULTURAL PLAN 2014-2018

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – The information be received and noted.

ITEM 14 - ILLAWARRA 200 COMMEMORATIVE COUNCIL MEETING PROPOSAL

134 **COUNCIL'S RESOLUTION** – RESOLVED on the motion of Councillor Connor seconded Councillor Takacs that an Extraordinary Council meeting be held at 6.00 pm on 7 December 2015 as part of Illawarra 200 activities.

In favour Councillors Connor, Takacs, Merrin, Curran, Petty and Bradbery
Against Councillors Brown, Martin, Blicavs, Dorahy, Colacino and Crasnich

With votes being tied, the Lord Mayor used his Casting Vote in support of the motion.

ITEM 15 - POLICY REVIEW: PAYMENT OF EXPENSES AND PROVISION OF FACILITIES TO LORD MAYOR AND COUNCILLORS

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 The draft amended Payment of Expenses and Provision of Facilities to Lord Mayor and Councillors Policy be placed on public exhibition for a minimum period of 28 days and submissions be invited from the public.
- 2 A further report be submitted to Council following conclusion of the public exhibition period, along with a summary of any submissions received.

ITEM 16 - PROPOSED CLARIFICATION - WOLLONGONG WASTE AND RESOURCE RECOVERY PARK FEES AND EXEMPTIONS POLICY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – Council endorse the amendment to the Wollongong Waste and Resource Recovery Park Fees and Exemptions Policy to include the words: *“Eligible pension card holders who dispose of greater than 100kg in any one transaction will be charged for the portion of their transaction that is greater than the 100kg limit”*.

ITEM 17 - TENDER T15/21 - BALD HILL RESERVE UPGRADE STAGE 2B

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 In accordance with the Local Government (General) Regulation 2005, Clause 178 (1) (a), Council accept the tender of Co-Ordinated Landscapes Pty Ltd for Stage 2B of the Bald Hill Reserve Upgrade, in the sum of \$2,180,500.00, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required to give effect to this resolution.

ITEM 18 - TENDER T15/12 - EMPLOYEE ASSISTANCE SERVICES

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 In accordance with the Local Government (General) Regulation 2005, Clause 178(1)(a), Council accept the tender of Mentor Services for the provision of an employee assistance program in the sum of \$58,000 (excluding GST).
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required to give effect to this resolution.

ITEM 19 - JULY 2015 FINANCIALS

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION –

- 1 The report be received and noted.
- 2 Proposed changes in the Capital Works Program be approved.

ITEM 20 - STATEMENT OF INVESTMENTS - JULY 2015

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – Council receive the Statement of Investments for July 2015.

ITEM 21 - BI MONTHLY TABLING OF RETURNS OF DISCLOSURES OF INTEREST AND OTHER MATTERS

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – Council note the tabling of the Returns of Disclosures of Interest as required by Section 450A of the Local Government Act 1993.

ITEM 22 - MINUTES OF THE CITY OF WOLLONGONG TRAFFIC COMMITTEE MEETING HELD 19 AUGUST 2015

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 124).

COUNCIL'S RESOLUTION – In accordance with the powers delegated to Council, the minutes and recommendations of the City of Wollongong Traffic Committee Meeting held on 19 August 2015 in relation to Regulation of Traffic be adopted.

CLOSED COUNCIL SESSION

The Lord Mayor called for a motion to close the meeting for consideration of two reports which deal with the performance review of the General Manager.

135 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor Takacs seconded Councillor Martin that the meeting move into Closed Session to consider Items 1 and 2 of Confidential Council business which deal with the General Manager's Performance Review, for the following reasons –

- 1 In accordance with Section 10A 2(a) of the Local Government Act 1993 as the reports relate to personnel matters concerning particular individuals (other than Councillors).
- 2 The Division of Local Government Guidelines for the Appointment and Oversight of General Managers which states that the Performance Review Panel report to a Closed Session of Council the findings and recommendations of the General Manager's performance review.
- 3 On balance, the public interest in preserving the confidentiality of commercial information outweighs the public interest in openness and transparency in Council decision-making by discussing the matter in open meeting.

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Prior to moving into Closed Session, the Lord Mayor advised members of the gallery that both reports relate to the General Manager's performance review and the reports are classified as Confidential under Section 10A 2(a) of the Local Government Act 1993, which permits the meeting to be closed to the public, as the reports relate to personnel matters concerning particular individuals (other than Councillors).

In accordance with Section 10A (4) of the Local Government Act, the Lord Mayor invited members of the gallery to make representations to the Council meeting as to whether this part of the meeting should be closed.

No submissions were received from the press or members of the gallery.

The MOTION on being PUT to the VOTE was CARRIED UNANIMOUSLY.

At this stage, the time being 9.53 pm, members of the press and gallery departed the Council Chambers.

The meeting moved into Closed Session, the time being 9.54 pm.

Council resumed into Open Session at 10.04 pm and members of the gallery were invited back into the Council Chambers.

RESOLUTIONS FROM THE CLOSED SESSION OF COUNCIL

ITEM 1 - GENERAL MANAGER'S PERFORMANCE AGREEMENT 2015-16

- 136** The Lord Mayor advised that whilst in Closed Session Council resolved to note the Performance Agreement for the General Manager for 2015-16.

ITEM 2 - GENERAL MANAGER'S PERFORMANCE REVIEW 2014-15

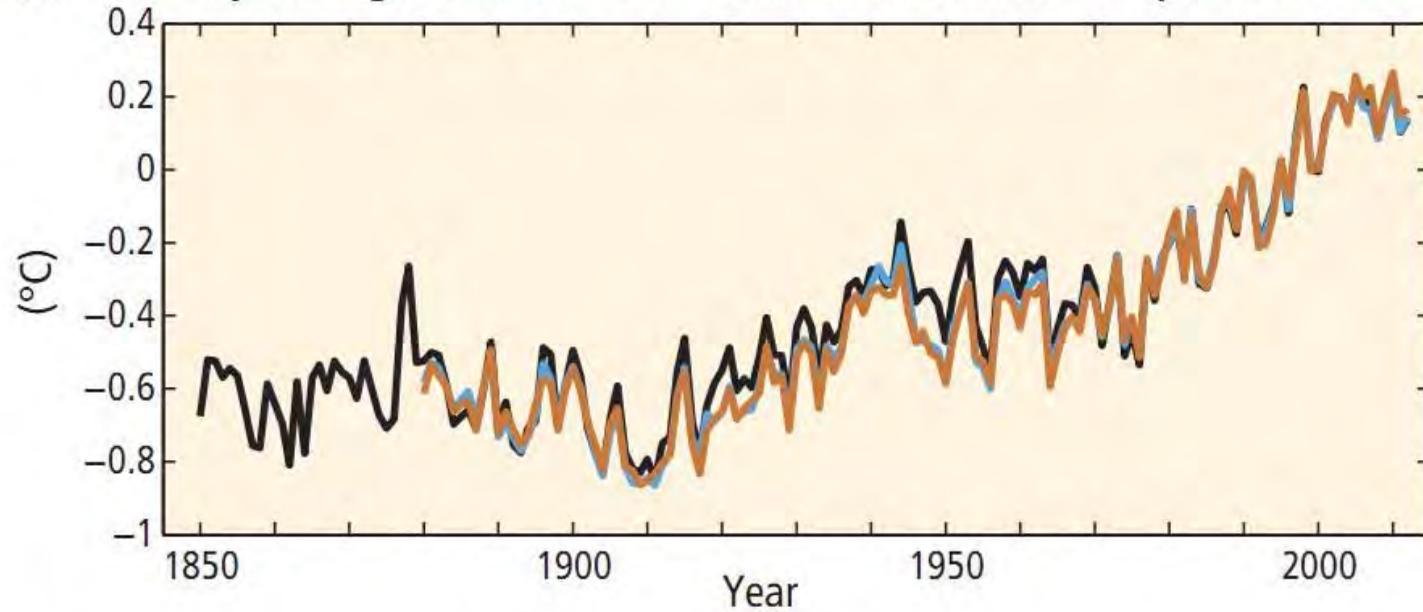
- 137** The Lord Mayor advised that whilst in Closed Session Council resolved to note the Performance Review Committee outcomes of the performance review for the General Manager for 2014-15.

THE MEETING CONCLUDED AT 10.06 PM.

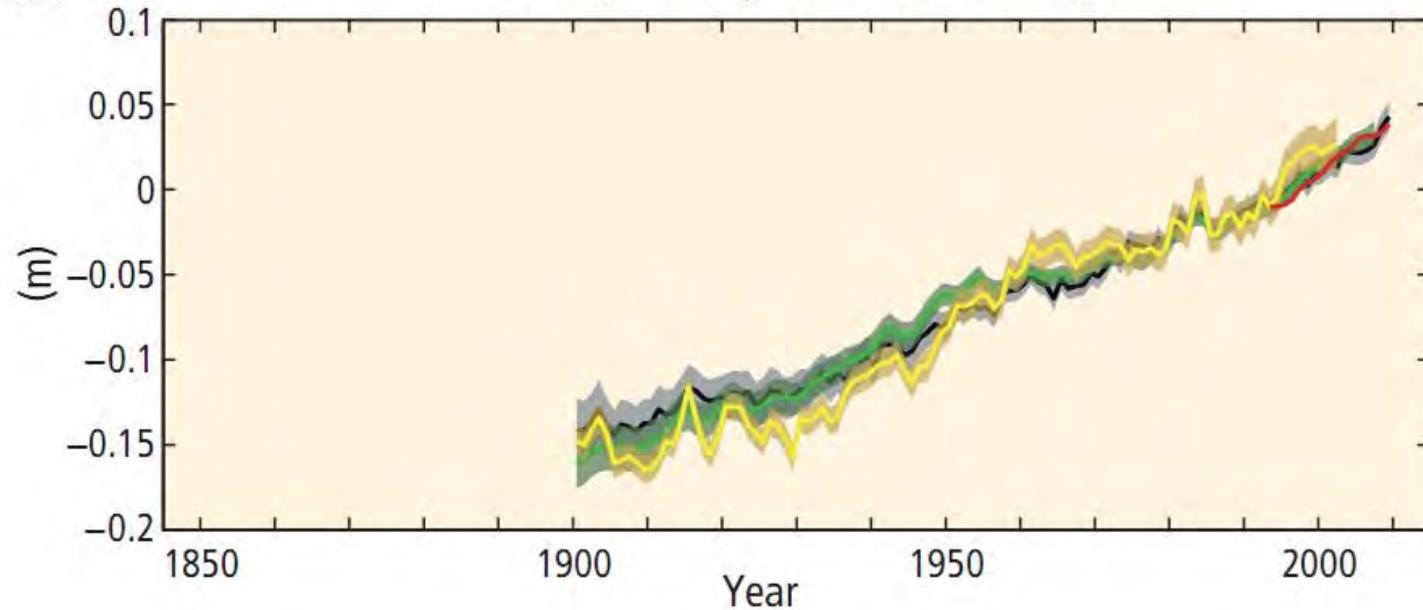
Confirmed as a correct record of proceedings at the Ordinary Meeting of the Council of the City of Wollongong held on 19 October 2015.

Chairperson

(a) Globally averaged combined land and ocean surface temperature anomaly



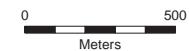
(b) Globally averaged sea level change



Structure Plan (March 2015)

Legend

-  800m Radius
-  Proposed Road Layout
-  WD Stage5 Boundary
-  Employment
-  School
-  Mixed Use
-  Conservation
-  Low Density Residential
-  Medium Density Residential
-  Recreation
-  Rural
-  Rural Residential
-  Semi Rural
-  Town Centre
-  Riparian Conservation



Drawn By: J Lewis

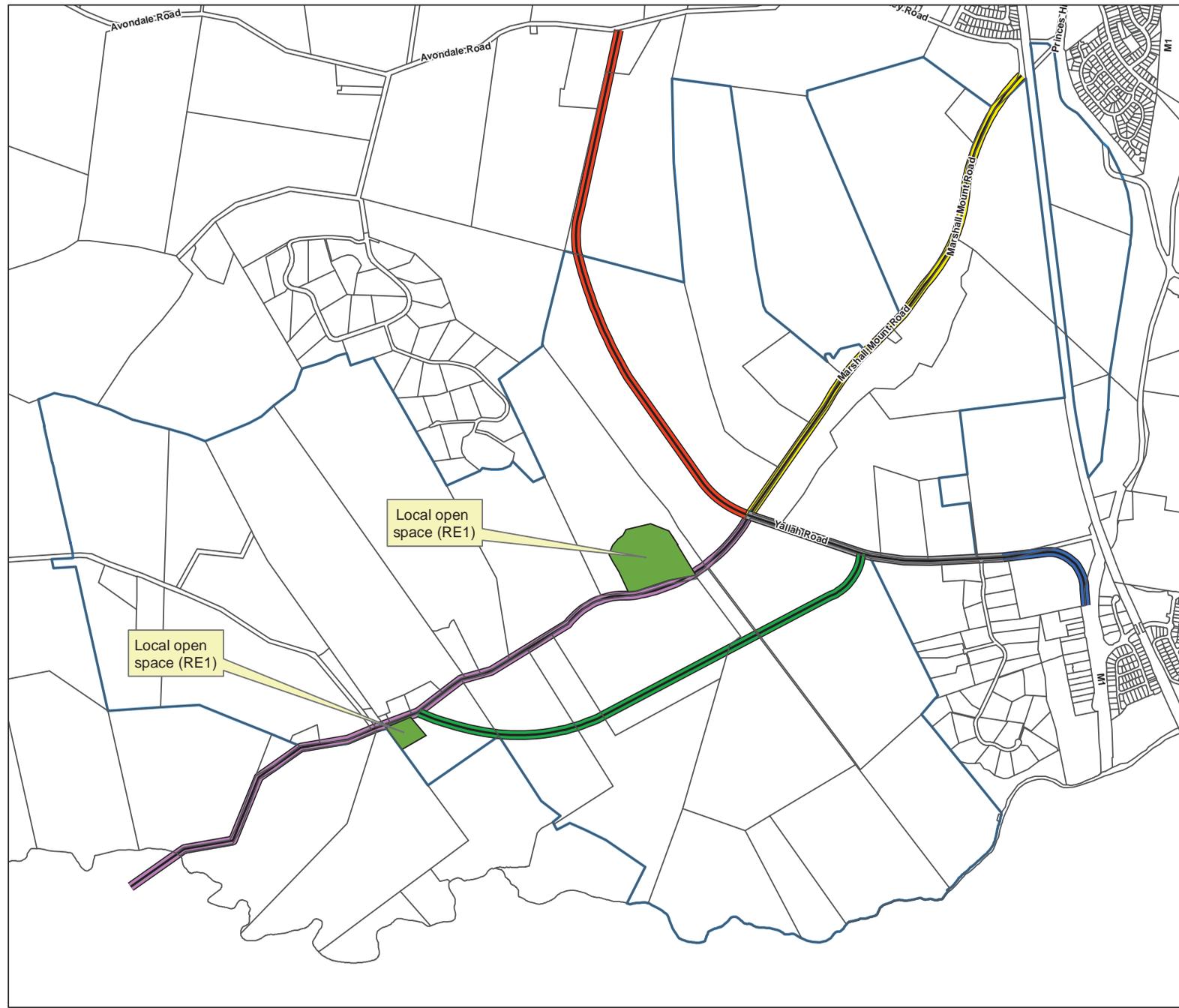
Date: 03 October 2014

Gis ref: Draft DSP 2014 03.10.14.mxd

Main Roads and Open Space

Legend

-  Active Open Space
-  Internal Link Rd
-  Marshall Mt Road Nth
-  Marshall Mt Road Sth
-  Road No. 8
-  Uncosted Road
-  Yallah Road
-  Stage 5 Boundary



Scale 1:16000 @A3

Drawn By: J Lewis

Date: 24.08.15

Gis ref: MainRoads_OpenSpace 240815.mxd

Neighbourhood Precincts

Legend

-  Stage 5 Boundary
-  Duck Creek
-  Elm Park
-  Iowna
-  Marshall Mount
-  Marshall Vale
-  Penrose
-  Timber Glades
-  Village Core
-  Woodville



0 560
Meters

Scale 1:16000 @A3

Drawn By: J Lewis

Date: 24.08.15

Gis ref: Draft Neighbourhood Precincts 240815.mxd

Planning Proposal

LOCAL GOVERNMENT AREA: Wollongong

ADDRESS OF LAND: various sites within the Yallah-Marshall Mount precinct

MAPS:

Location map:



DESCRIPTION OF LAND: The site is situated on the lower slopes of the Illawarra Escarpment and has a total area of 1005 hectares. There the site has been used for grazing and cattle farming. The site is made up of cleared grasslands and remnant trees with a mostly cleared understory. Portions of the site are vegetated and Endangered Ecological Communities are located on the site according to Council's records. The Duck Creek and a number of smaller riparian corridors run across the site.

Surrounding development consists of rural properties, with Shellharbour Local Government Area and the proposed Calderwood release area to the south, rural lands to the west and proposed stages 3 & 4 of the West Dapto Urban Release area to the south. Access to the area is currently off Calderwood Road to the southwest, Yallah Road to the east and Marshall Mount Road to the north.

Part 1: OBJECTIVES OR INTENDED OUTCOMES OF PROPOSED LEP:

Concise statement setting out objectives or intended outcomes of the planning proposal.

To allow development of the precinct as an urban release area (residential, commercial, open space, environmental and employment lands uses).

Part 2: EXPLANATION OF THE PROVISIONS OF PROPOSED LEP:

Statement of how the objectives or intended outcomes are to be achieved by means of new controls on development imposed via a LEP.

1. The repeal of Wollongong LEP No. 38 and Wollongong LEP 1990 from applying to the area.
2. The transfer of the following items of heritage significance within the area from the Wollongong LEP 1990 to Schedule 5 the Wollongong LEP 2009:

Suburb	Item name	Address	Property description	Significance	Item No
Dapto	House "Penrose", formerly Penrose Villa	480 Princes Highway	Lot 2, DP 608205	Local	5917
Marshall Mount	Former Marshall Mount School and Master's residence	456 Marshall Mount Road	Lot 100, DP 712786	Local	5983
Marshall Mount	Marshall Mount Progress Association hall	450 Marshall Mount Road	Lot 1, DP 396100	Local	61027

3. The amendment of the following maps in the Wollongong LEP 2009.
 - a. Land Application Map;
 - b. Land Zoning Map;
 - c. Lot Size Map;
 - d. Height of Buildings Map;
 - e. Floor Space Ratio Map;
 - f. Heritage Map;
 - g. Acid Sulfate Soils, Riparian Land and Flood Planning Map;
 - h. Land Reservation Acquisition Map; and
 - i. Active Street Frontage Map.
4. The insertion of the following clauses into the Wollongong LEP 2009 in Part 7:
 - Active street frontages – copy from Rockdale LEP 2011 clause 6.11 but amend subclause (1) to refer to B1, B2, B3 and B4 zones. Amend subclause (6) to refer to Wollongong LEP 2009. Also include an additional subclause that allows ground floor unit to be adaptable/convertible for temporary residential use, pending sufficient retail demand.
 - Lot averaging clause – copy from Eurobodalla LEP 2012 clause 4.1E. In the heading and subclause (1) include reference to RU2 and E3 and E4 zones within the Yallah-Marshall Mount precinct.
 - Add low impact camping on Lot 4 DP 608205, 54 Marshall Mount Road, Penrose to Schedule 1 of the LEP.
 - Add use lot averaging clause for subdivision of two existing dwellings on Lot 5 DP 24143, No 297 Marshall Mount Road, Marshall Mount to Schedule 1 of the LEP.

Part 3: JUSTIFICATION OF OBJECTIVES, OUTCOMES AND PROVISIONS AND PROCESSES FOR THEIR IMPLEMENTATION:

Section A – Need for the planning proposal

<p>1. Is the planning proposal a result of any strategic study or report?</p>	<p>The proposal The Yallah-Marshall Mount precinct was considered as Stage 5 of the West Dapto Release Area. The Draft West Dapto Local Environmental Plan and supporting documents were exhibited in 2007-2008.</p> <p>In May 2008 Council engaged the Growth Centres Commission to review the draft zonings for the release area. Following consideration of the Growth Centres Commission recommendations and representations from land owners, Council abandoned its previous draft zonings for the Yallah Marshall Mount area, and has commenced planning the Yallah - Marshall Mount precinct from a fresh perspective.</p> <p>Council has completed the Duck Creek Flood Study and held a two day enquiry by design workshop. The enquiry by design workshop has resulted in the creation of a draft structure plan, which has been used as the basis for further precinct planning work.</p> <p>Council has completed a number of studies to inform the draft structure plan, and has also incorporated changes to the structure plan as a result of submissions made by landholders following the exhibition of the Planning Proposal and draft structure plan. The structure plan is still substantially the same as the one originating from the Enquiry by Design workshop.</p>
<p>2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?</p>	<p>The planning proposal is evolved from an Enquiry by Design workshop held in March 2011. The planning proposal is considered the best way of achieving the stated objective of preparing a plan for Stage 5 of the West Dapto Urban Release Area.</p>
<p>3. Is there a net community benefit?</p>	<p>The precinct is required for the long term future urban needs of the Wollongong community, and is identified as such in the Illawarra Regional Strategy and in the draft Illawarra Regional Growth and Infrastructure Plan 2014.</p>

Section B – Relationship to strategic planning framework

<p>4. Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?</p>	<p>Yes, the proposal is consistent with the Illawarra Regional Strategy 2007 and draft Illawarra Regional Growth and Infrastructure Plan 2014, which identifies the precinct within the West Dapto Urban Release Area. The West Dapto Urban Release Area is the final remaining large Greenfield release area within the Wollongong Local Government Area.</p>
<p>5. Is the planning proposal consistent with the local council's Community Strategic Plan or other local strategic plan?</p>	<p>Council currently has Community Strategic Plan 2022. The planning proposal is consistent with this overall vision. The planning proposal intends to provide for increased variety of housing choice, which is consistent with the Community Strategic Plan 2022.</p> <p>An action in the 2012-13 Annual Plan was to complete the Yallah-Marshall Mount studies.</p>

<p>6. Is the planning proposal consistent with applicable state environmental planning policies?</p>	<p>SEPP 55 – Remediation of Land applies to sites which are suspected of contamination. Further study will be required for any sites which may be contaminated. This is best carried out as individual neighbourhood areas within the precinct are developed, as many landholders intend to continue their present land uses for an indefinite period.</p> <p>SEPP (Infrastructure) 2008 – Complies.</p> <p>SEPP (Rural Lands) 2008 - Although not applying to the planning proposal, the principles of this SEPP have been considered during the development of the plan. The area is identified as an urban release area under the Illawarra Regional Strategy, which will result in an inevitable change for the current rural land uses if the strategy is to be achieved. Refinement of the structure plan has considered the interaction of the proposed development with existing agricultural activities, particularly as some landholders intend to continue their existing agricultural operations.</p>
<p>7. Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?</p>	<p>The proposal has been considered in accordance with the following Ministerial directions:</p> <p>1.1 Business and Industrial Zones – The planning proposal affects some Industrial land. The affected land is largely undeveloped land, with a small portion previously used as an abattoir. The planning proposal identifies new land for business and employment uses in accordance with the structure plan developed in conjunction with background studies.</p> <p>1.2 Rural Zones – The planning proposal applies to areas covered by rural zones; however the planning proposal is consistent with the Illawarra Regional Strategy, which identifies the area as being part of an urban release area. The study into the precinct and its status as an urban release area justifies the inconsistency.</p> <p>1.3 Mining, Petroleum Production & Extractive Industries – NA.</p> <p>1.4 Oyster Aquaculture – NA.</p> <p>1.5 Rural Lands - NA.</p> <p>2.1 Environment Protection Zones - The planning proposal applies to areas covered by environmental zones; however the planning proposal is consistent with the Illawarra Regional Strategy, which identifies the precinct as being part of an urban release area. Further work has been undertaken to refine habitat boundaries, vegetation boundaries and identify potential options to resolve stewardship issues. The planning proposal adopts a “stepping stone” approach, preserving the various stands of significant vegetation, representing the gradation of vegetation types from the Marshall Mount hills to the lower areas of Duck Creek, leading to Lake Illawarra. While potential revegetation of Duck</p>

	<p>Creek is limited due to potential impacts on flood flows, a number of smaller tributaries have potential for revegetation to occur that would assist in linking the significant vegetation patches. The planning proposal seeks to maximise development around the village centre and along transport routes, with lower densities in the fringe areas allowing for environmental outcomes. The work undertaken on the planning proposal has considered the objective of this direction and devised an appropriate conservation outcome, in accordance with the Illawarra Regional Strategy.</p> <p>2.2 Coastal Protection – NA.</p> <p>2.3 Heritage Conservation – The subject area includes items of built and environmental heritage, and potential for Aboriginal heritage. Further study has been undertaken to refine the areas of potential Aboriginal heritage. The development areas within the structure plan have avoided the sensitive areas. Aboriginal heritage items have not been mapped in the planning proposal due to sensitivity of mapping Aboriginal heritage items. Further detailed assessment of individual areas is best carried out as individual neighbourhood plans within the precinct are developed, as many landholders intend to continue their present land uses for an indefinite period. Council has revised the European and landscape heritage items listed under Wollongong Local Environmental Plan 1990 and made revision to curtilages of items. Landscape items have been removed, as the significant landscape areas are zoned for conservation purposes.</p> <p>2.4 Recreation Vehicle Areas – NA.</p> <p>3.1 Residential Zones – The planning proposal would involve the creation of new residential zones. The draft structure plan provides for a variety of housing types. The planning proposal would amend Wollongong Local Environmental Plan 2009, which already contains clauses requiring infrastructure provision prior to development occurring. The precinct will involve significant decisions by government agencies and Council regarding infrastructure provision prior to the physical development of the precinct. Interagency groups are progressing ongoing discussions regarding servicing and access for the West Dapto urban release area, of which this planning proposal covers Stage 5.</p> <p>3.2 Caravan Parks and Manufactured Homes – The planning proposal has not identified land within the precinct suitable for this form of development. The planning proposal is based on the work and studies undertaken in accordance with the objectives of this direction.</p> <p>3.3 Home Occupations – The planning proposal will</p>
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comply.

- 3.4 Integrating Land Use and Transport – The Enquiry by design workshop and resulting structure plan considers the integration of land use and transport. The planning proposal seeks to maximise densities around the proposed village centre and to create a more sustainable urban form. Smaller lot sizes are proposed along main road links in order to maximise the potential access to public transport routes. Larger lots and rural-residential development are proposed away from the village centre and transport routes to reduce the potential population in areas with unlikely access to future public transport. Ongoing discussions with government agencies are being undertaken as part of the West Dapto Access Strategy. Road upgrades will be necessary for development of the precinct to proceed. It is anticipated that short term development of the precinct would be limited. In the long term, Marshall Mount Road will need to be widened and intersections connecting to the Princes Highway upgraded. In the long term, significant upgrades to the Southern Freeway and Yallah Road intersection would be required. Concept plans for interaction between the Albion Park Bypass and upgraded Yallah Road have been discussed with NSW Roads and Maritime Services. Yallah Road is expected to be realigned and upgraded to be the emergency flood access route to the precinct.
- 3.5 Development Near Licensed Aerodromes – The area covered by the planning proposal is outside the 20 ANEF contour.
- 3.6 Shooting Ranges – NA.
- 4.1 Acid Sulphate Soils – There are some minor acid sulphate soils on the fringes of the study area around Macquarie Rivulet. These are of minor significance. The area's most significantly affected are proposed for conservation uses. Clause 7.5 of the Wollongong Local Environmental Plan 2009 provides appropriate controls for development of land subject to Acid Sulfate Soils. Where development opportunities exist on land within this area, larger lots of 5000sqm to 1ha are proposed to minimise impacts.
- 4.2 Mine Subsidence and Unstable Land – NA.
- 4.3 Flood Prone Land – Council has completed the Duck Creek Flood Study. Further modelling and a Post Development Flood Risk Management Plan have been developed, particularly for those sites where the landholders seek to modify flood behaviour. The studies have concluded that development should be kept clear of floodway areas in accordance with the Floodplain Development Manual. Additional development in the area immediately north of the village centre

	<p>has been avoided due to this area having potential for flood isolation. Some land subject to low hazard flood conditions has been considered for development around the village centre, subject to appropriate flood engineering, demonstrating no additional flood impacts to other properties. The structure plan and draft zonings have considered the flood risk. Clause 7.3 of the Wollongong Local Environmental Plan 2009 provides suitable controls on flood liable land. The proposal has considered the most efficient emergency flood access route and minimises the government spending to on flood mitigation to service this urban release precinct.</p> <p>4.4 Planning For Bushfire Protection – development structure plan has been tested. Bushfire affectation in the area is minor and a bushfire management strategy has been completed as part of the development of the structure plan. Rural and rural-residential lots are proposed to be large to enable flexibility in selecting building sites, whilst maintaining suitable asset protection zones.</p> <p>5.1 Implementation of Regional Strategies – The planning proposal will implement Stage 5 of an urban release area identified within the Illawarra Regional Strategy.</p> <p>5.2 Sydney Drinking Water Catchments – NA.</p> <p>5.3 Farmland of State and Regional Significance on the NSW Far North Coast – NA.</p> <p>5.4 Commercial and Retail Development along the Pacific Highway, North Coast – NA.</p> <p>5.5 – Revoked.</p> <p>5.6 – Revoked.</p> <p>5.7 – Revoked.</p> <p>5.8 Second Sydney Airport: Badgerys Creek – NA.</p> <p>6.1 Approval and Referral Requirements – The planning proposal complies with the direction and does not envisage additional approval or referral requirements.</p> <p>6.2 Reserving Land for Public Purposes – The planning proposal complies with the Direction.</p> <p>6.3 Site Specific Provisions - The planning proposal does not contain unnecessary site specific provisions. The planning proposal aims to enable low-impact camping on Lot 4 DP 608205, 54 Marshall Mount Road, Penrose. The planning proposal also seeks to enable development of ground floor residential units within the B4 zone within the village centre, subject to their adaptability for retail/commercial uses at a later date. This provision would allow for the desired mix of uses within the secondary streets of the centre and would avoid potential sterilisation of the land in the short term. The planning proposal aims</p>
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	<p>to allow the use of the lot averaging clause for Lot 5 DP 24143, No. 297 Marshall Mount Road to subdivide two existing dwellings into separate lots.</p> <p>7.1 Implementation of The Metropolitan Plan for Sydney 2036 – NA.</p>
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Section C – Environmental, social and economic impact

<p>8. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?</p>	<p>The planning proposal and draft structure plan have the potential to impact on ecological communities. There are a variety of design and control measures which could be implemented. Perimeter roads and asset protection zones will be located within the development zones to avoid clearing of significant vegetation. Further refining has been undertaken to refine habitat preservation boundaries and to resolve stewardship issues. The Planning Proposal seeks to allow low impact uses, such as camping for some sites as a practical use of the land.</p>
<p>9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?</p>	<p>The draft structure plan seeks to maximise the urban outcome, while minimising environmental impacts. Further work on the structure plan has been undertaken to balance the need for a vibrant urban community and the environmental attributes of the study area. The plan maximises development near the village centre and along transport routes, while providing larger lot sizes and densities away from the core urban areas and in the vicinity of conservation areas.</p>
<p>10 How has the planning proposal adequately addressed any social and economic effects?</p>	<p>The planning proposal seeks to create a sustainable community. The draft structure plan seeks to maximise the concentration of dwellings around the proposed village centre and transport routes, to provide for the social and economic needs of the community within the area where possible.</p>

Section D – State and Commonwealth interests

<p>11. Is there adequate public infrastructure for the planning proposal?</p>	<p>Public infrastructure can be provided. Satisfactory arrangements with relevant agencies will need to be made prior to development of the precinct. Sydney Water is considering bringing forward its servicing of the precinct, and estimate the first stage infrastructure works will start in 2017.</p> <p>Access issues from the precinct to the Princes Highway exist. The full development potential of the precinct will require substantial road upgrades, including significant work to connect to the Princes highway between Yallah and Tallawarra. Council is working with NSW Planning and Environment and Department of Roads and Maritime Services on an access strategy for the West Dapto release area (including the area covered by this planning proposal). The Albion Park bypass is likely to be constructed by the time significant development within the precinct is completed. Yallah Road is able to</p>
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	<p>cater for interim traffic generation likely to occur between rezoning and 2021, with minor signage upgrades and speed limit reductions on the Princes Highway in the vicinity of the Yallah Road on-ramp. Clause 6.1 of Wollongong Local Environmental Plan 2009 provides that subdivision of land within an urban release area is to be undertaken in conjunction with satisfactory arrangements for provision of essential state infrastructure.</p> <p>At present, the precinct is unlikely to be developed in the near future (due to land ownership patterns and varying owner aspirations) however the rezoning of the precinct will enable a reserve of land for urban development, which can be developed as servicing infrastructure reaches the area.</p>
<p>12. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?</p>	<p>State government agencies have provided comments on the planning proposal. Continuing discussions have been held with agencies regarding their areas of interest during the development of the structure plan and planning proposal</p> <p>A number of meetings have been held with the Office of Environment and Heritage regarding the potential for bio-banking and bio-certification of the precinct. Council is currently working on a bio-certification strategy for the whole of West Dapto, including the land covered by this planning proposal.</p> <p>The NSW Office of Environment and Heritage have indicated that they consider the flood modelling is not consistent with surrounding areas and studies. Council's flood consultant has reviewed the comments provided by OEH and Council is satisfied that the flood study reflects the characteristics and potential flooding conditions within the Duck Creek catchment and does not increase the likely flood risk.</p> <p>OEH have also sought 40ha minimum lot sizes for E2 zoned areas and want a buffer area to be applied to high conservation areas. The planning proposal includes much of the high conservation areas and riparian areas within 40ha minimum lot size areas. Perimeter roads, asset protection zones and buffer areas will be within the development area. These buffer areas will be further refined during the neighbourhood planning stages.</p> <p>OEH note that there is a considerable surplus of urban land and seek deferral of the rezoning until bio-certification of the West Dapto urban release area is completed. Council intends to proceed with the planning proposal as a long term development precinct for the West Dapto urban release area. There is likely to be a long period before intensive development of the precinct takes place, which allows time for bio-certification to be completed.</p> <p>NSW Planning and Environment have indicated that height limits of 6m and 8m in the rural and rural-residential zones could be made 9m in keeping with similar areas in Wollongong LEP 2009. The planning</p>

	<p>proposal has amended the proposed height limits to 9m in these areas.</p> <p>NSW Roads and Maritime Services have indicated that they are not satisfied that short or long term plans to manage traffic are in place and integration with the Albion Park bypass. Council is working with the Department of Planning and Infrastructure and Department of Roads and Maritime Services on developing the access strategy for the West Dapto release area, including the area covered by this planning proposal. Roads and Maritime Services have been made aware of the need for Yallah Road to be upgraded and pass under the proposed new freeway infrastructure. A concept plan for this road link has been developed. RMS have noted that provisions will need to be made to cater for traffic generated by the proposal in the interim, as the capacity of crucial intersections to handle increased traffic movements is low. Council's short term traffic modelling has indicated that the likely additional traffic generation in the short term is low and could be handled by upgrades to Yallah Road and speed limit reduction on the Princes Highway near the Yallah Road on-ramp.</p>
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Part 4: DETAILS OF COMMUNITY CONSULTATION TO BE UNDERTAKEN ON THE PLANNING PROPOSAL:

<p>The planning proposal draft zoning maps and associated provisions was publicly exhibited from 17 March 2014 to 7 May 2014.</p> <p>To date, Council has held a two day Enquiry By Design workshop in 2011, to which landholders were invited, plus a drop-in information session at the same time for members of the public.</p> <p>Council held regular meetings with a group of landholder representatives during the development of the structure plan. The draft structure plan was also exhibited for public comment in April 2013. Council has also held two sessions with landholders to discuss bio-certification and bio-banking options. Council held a workshop on 11 October 2013 with landowners, councillors, representatives from the Department of Planning and Infrastructure and Office of Environment and Heritage to work through the draft structure plan.</p> <p>Council seeks to finalise this planning proposal.</p>
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wollongong
city of innovation

Land Application Map

Legend

 Study Area



0 500
Meters

Scale 1:16000 @ A3

Drawn By: H. Jones

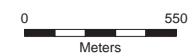
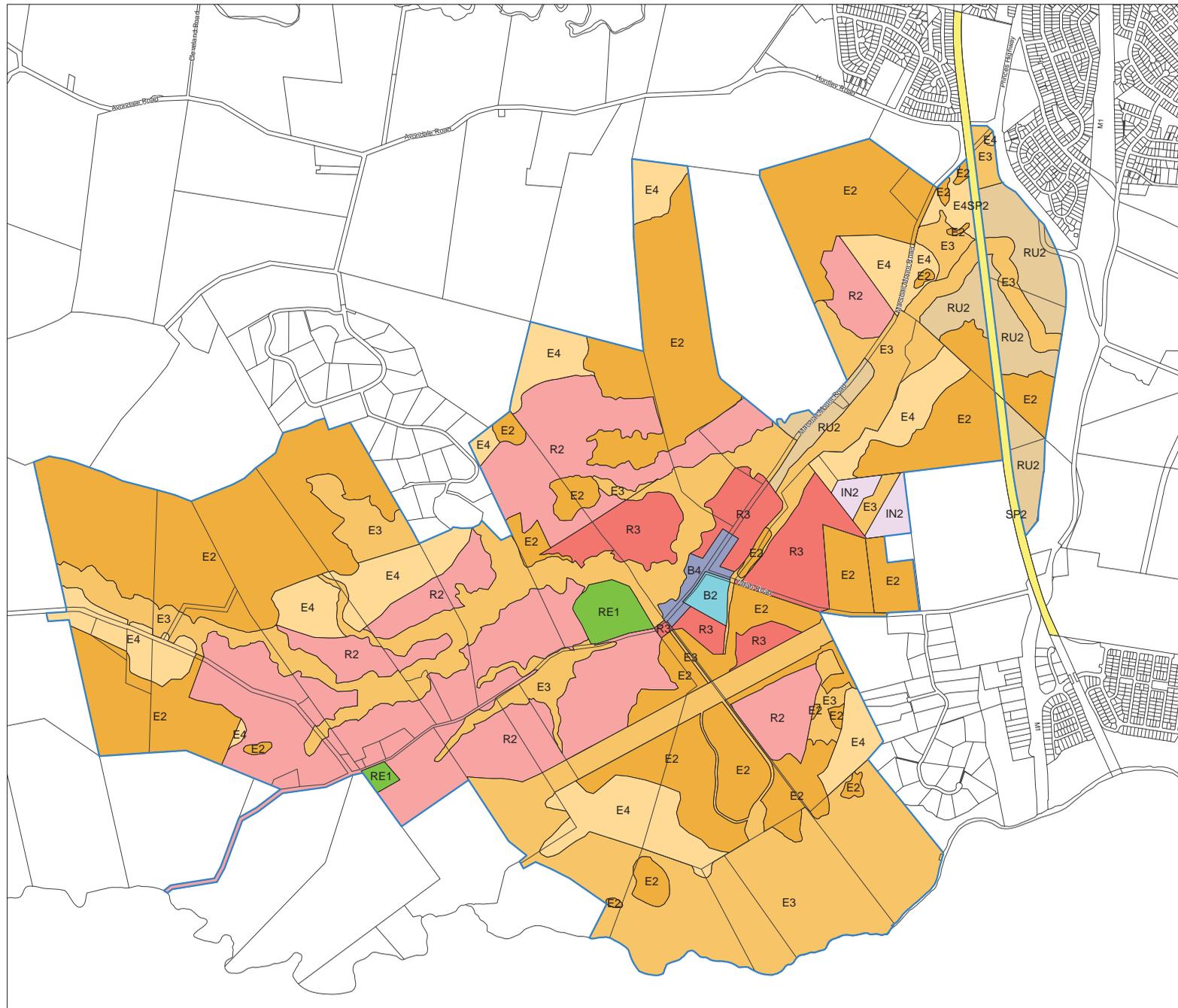
Date: 04 April 2013

Gis ref: Draft Land Application31-07-13.mxd

Zoning

Legend

-  Stage 5 Boundary
-  B2 Local Centre
-  B4 Mixed Use
-  E2 Environmental Conservation
-  E3 Environmental Management
-  E4 Environmental Living
-  IN2 Light Industrial
-  R2 Low Density Residential
-  R3 Medium Density Residential
-  RE1 Public Recreation
-  RU2 Rural Landscape
-  SP2 Infrastructure



Minimum Lot Size Map

Minimum Lot Size (sq m)

 Stage 5 Boundary

	C	300
	D	349
	F	449
	T	999
	W1	4999
	X	0.99ha
	Y	1.99
	AA1	6.99ha
	AA2	8.99ha
	AB1	14.99ha
	AB	39.99ha



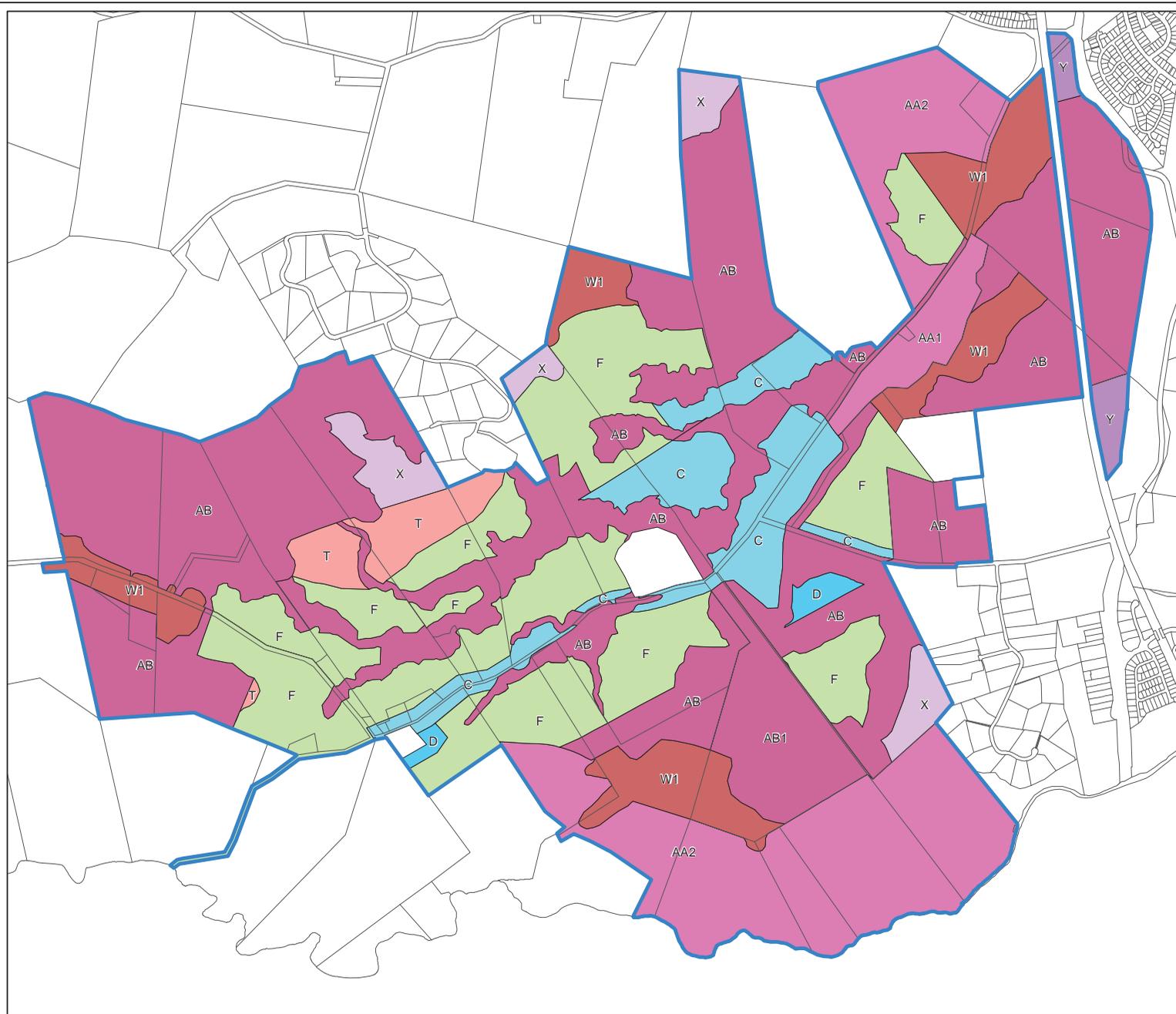
0  500
Meters

Scale 1:16000 @A3

Drawn By: J Lewis

Date: 03 October 2014

Gis ref: Draft MinLotSize 03.10.14.mxd



Height of Buildings Map

Legend

 Stage 5 Boundary

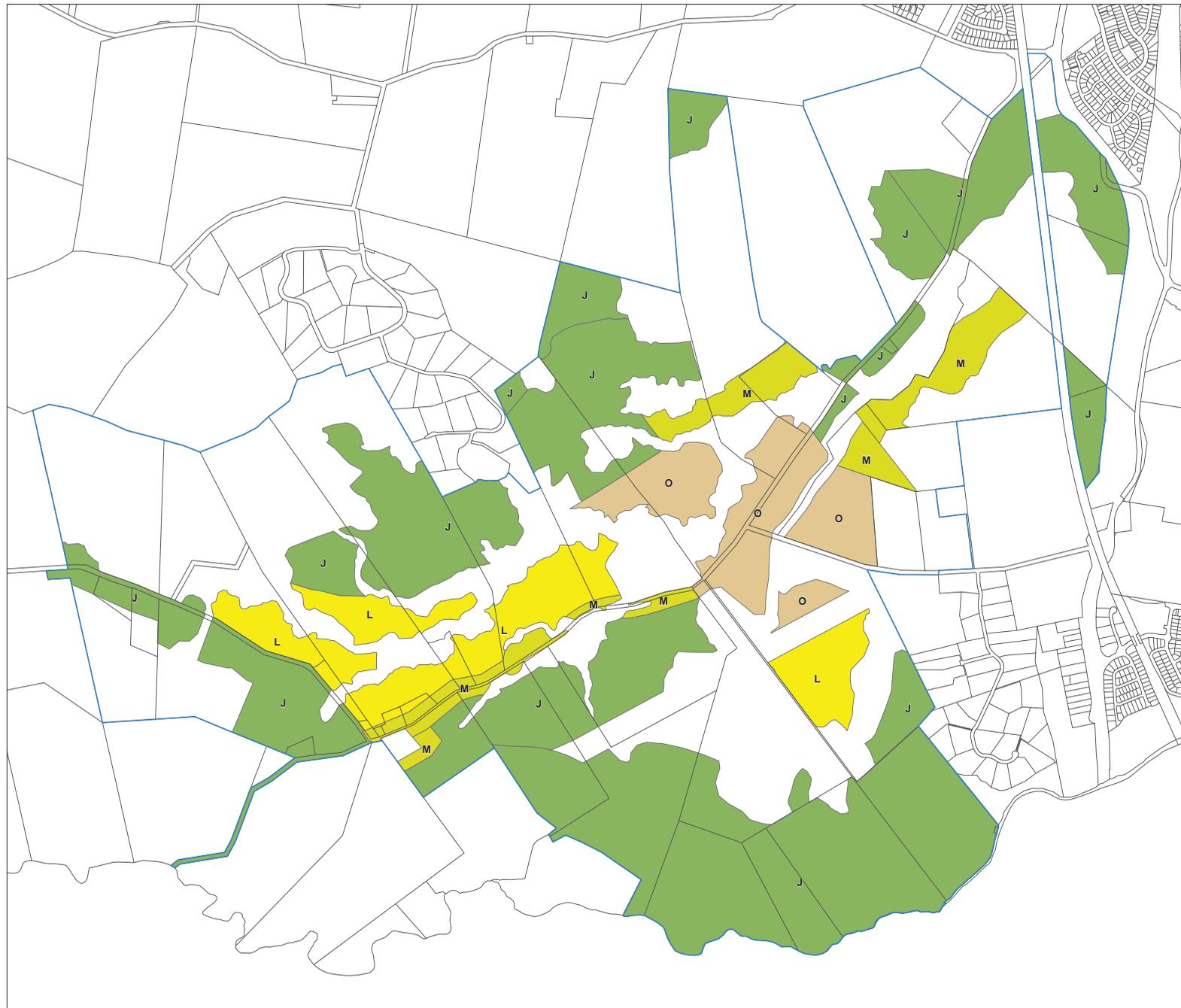
Maximum Height of Buildings (m)

 J 9

 L 11

 M 12

 O 15



0 510
Meters

Scale 1:16000 @ A3

Drawn By: J Lewis

Date: 03.10.13 Amended 02.10.14

Gis ref: Draft Strategy_Height 310713.mxd

Floor Space Ratio Map

Legend

 Stage 5 Boundary

Max Floor Space (n:1)

 A 0.3

 D 0.5

 I 0.75

 N 1

 S 1.5

 T 2



0 500
Meters

Scale 1:16000 @A3

Drawn By: J Lewis

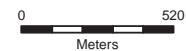
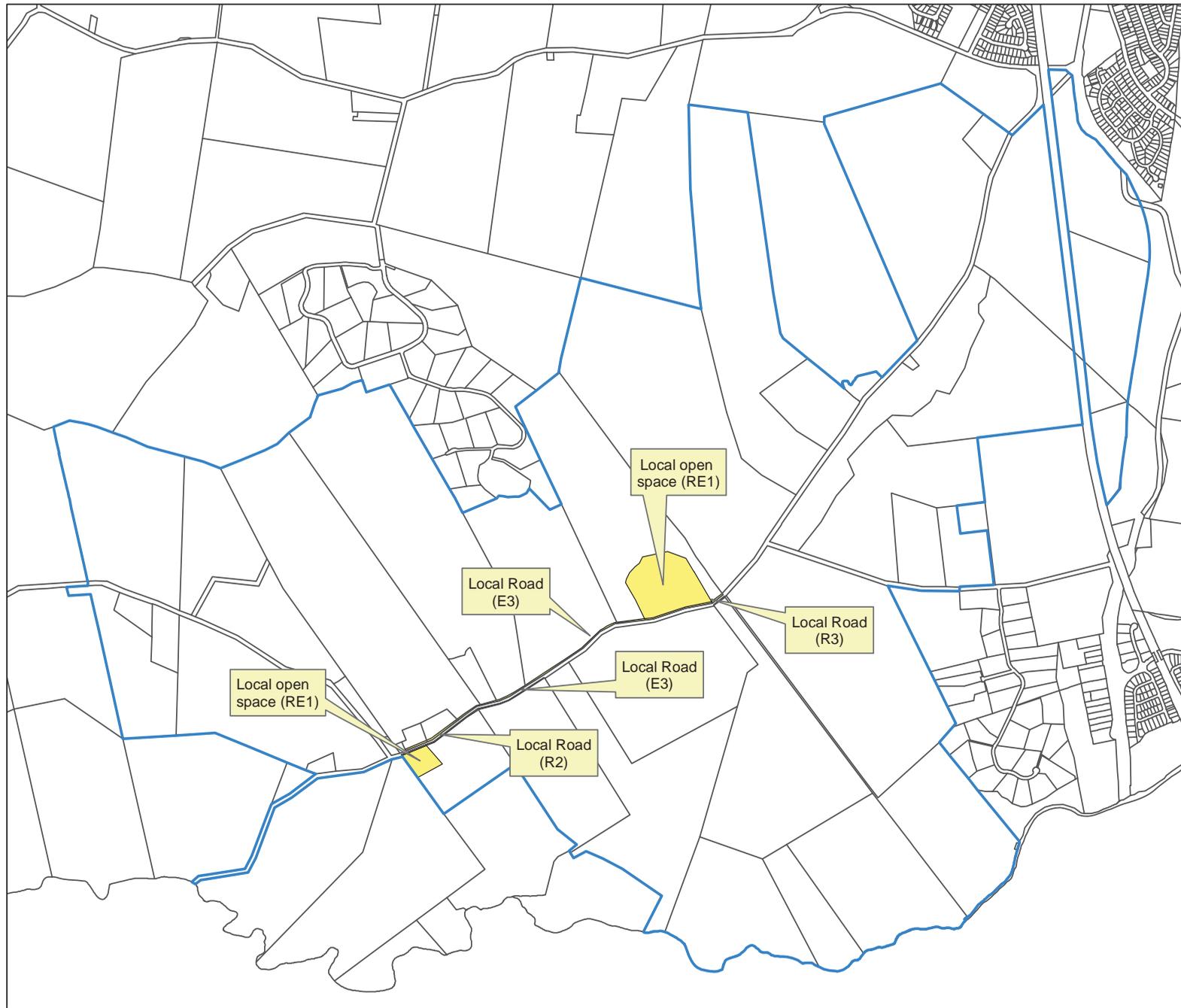
Date: 03 October 2013

Gis ref: Draft FSR 310713.mxd

Acquisition

Legend

-  Stage 5 Boundary
-  Land Acquisition



Scale 1:16000 @A3

Drawn By: H. Jones

Date: 31 July 2013

Gis ref: Draft Acquisition 31-07-13mxd

Natural Resource Sensitivity - Biodiversity Map

Legend

-  Stage 5 Boundary
-  Natural Resource Sensitivity - Biodiversity Map



0 520
Meters

Scale 1:16000 @A3

Drawn By: H. Jones

Date: 31 July 2013

Gis ref: Draft Strategy Vegetation Types 31-07-13mxd

Acid Sulfate Soils, Riparian Lands and Flood Planning map

Legend

-  Stage 5 Boundary
- Riparian Corridors**
-  Riparian Corridors
-  Class 1
-  Class 2
-  Class 3
-  Class 4
-  Class 5
-  dc_des_100y_max_extents



0 520
Meters

Scale 1:16000 @A3

Drawn By: H. Jones

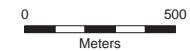
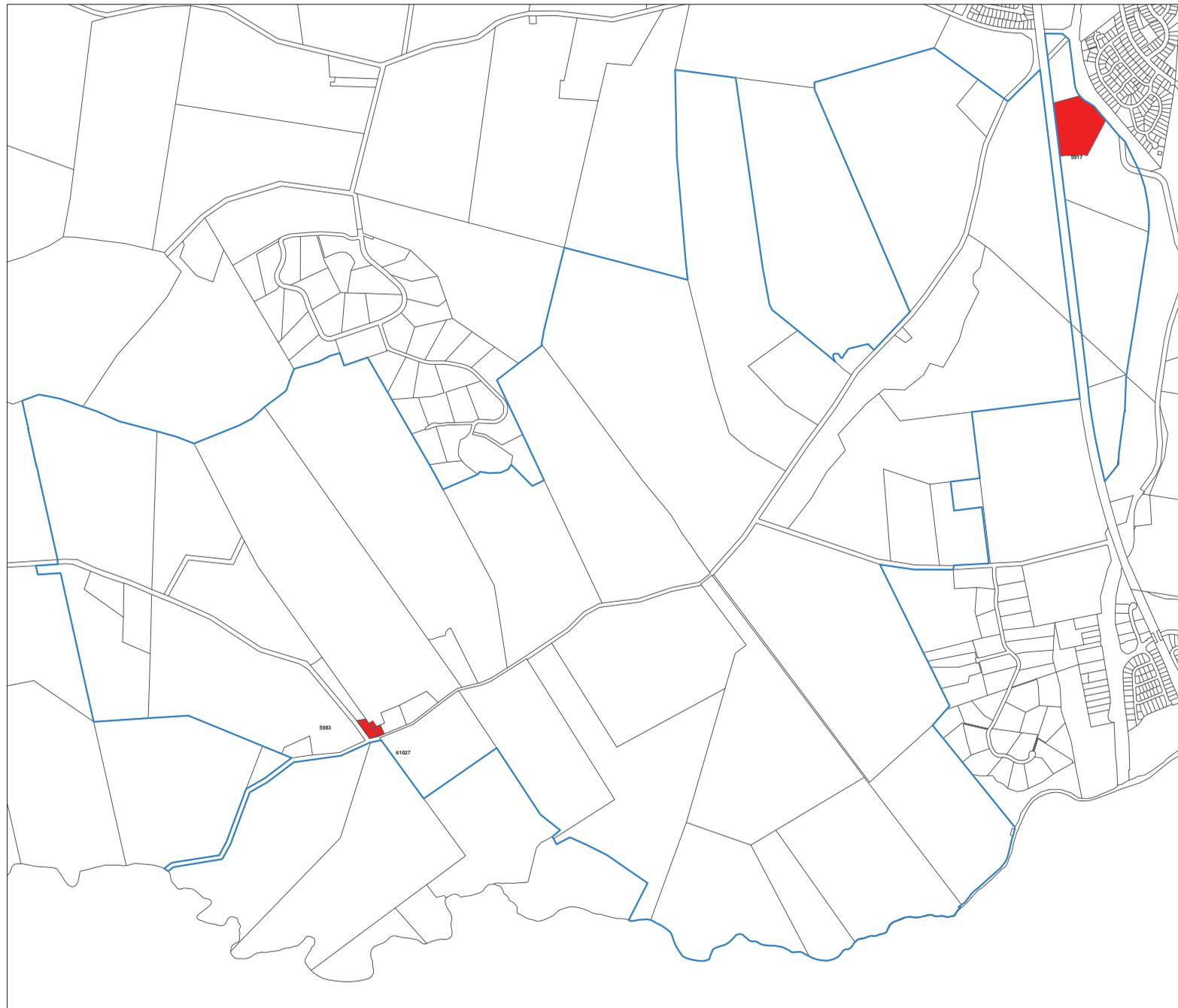
Date: 31 July 2013

Gis ref: Draft Strategy Plan AcidSulfate 27-11-13.mxd

Heritage

Legend

-  Stage 5 Boundary
-  Heritage Items



Scale 1:16000 @A3

Drawn By: H. Jones

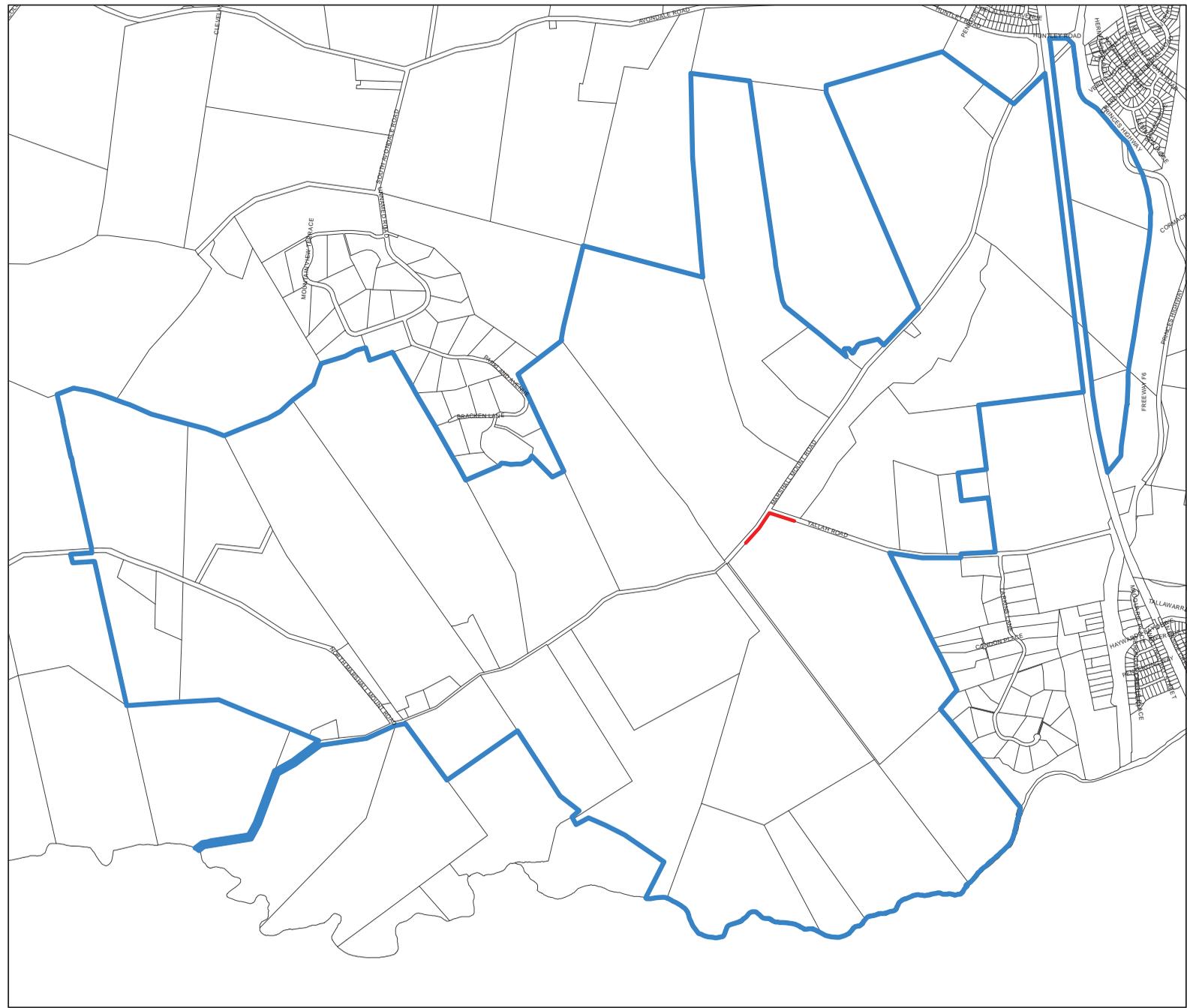
Date: 31 July 2013

Gis ref: Draft Heritage 31-07-13mxd



Active Street Frontages

- Legend**
- Active Street Frontage
 - Stage 5 Boundary



Wollongong City Council

GENERAL PURPOSE FINANCIAL STATEMENTS
for the year ended 30 June 2015



Wollongong City Council

General Purpose Financial Statements

for the financial year ended 30 June 2015

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Overview

(i) These financial statements are General Purpose Financial Statements and cover the consolidated operations for Wollongong City Council.

(ii) Wollongong City Council is a body politic of NSW, Australia - being constituted as a Local Government area by proclamation and is duly empowered by the Local Government Act (LGA) 1993 of NSW.

Council's Statutory Charter is detailed in Paragraph 8 of the LGA and includes giving Council;

- the ability to provide goods, services & facilities, and to carry out activities appropriate to the current & future needs of the local community and of the wider public,
- the responsibility for administering regulatory requirements under the LGA and
- a role in the management, improvement and development of the resources in the area.

A description of the nature of Council's operations and its principal activities are provided in Note 2(b).

(iii) All figures presented in these financial statements are presented in Australian Currency.

(iv) These financial statements were authorised for issue by the Council on 20 October 2015. Council has the power to amend and reissue these financial statements.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Understanding Council's Financial Statements

Introduction

Each year, individual Local Governments across NSW are required to present a set of audited financial statements to their Council & Community.

What you will find in the Statements

The financial statements set out the financial performance, financial position & cash flows of Council for the financial year ended 30 June 2015.

The format of the financial statements is standard across all NSW Councils and complies with both the accounting & reporting requirements of Australian Accounting Standards and requirements as set down by the Office of Local Government.

About the Councillor/Management Statement

The financial statements must be certified by Senior staff as "presenting fairly" the Council's financial results for the year, and are required to be adopted by Council - ensuring both responsibility for & ownership of the financial statements.

About the Primary Financial Statements

The financial statements incorporate 5 "primary" financial statements:

1. The Income Statement

Summarises Council's financial performance for the year, listing all income & expenses.

This statement also displays Council's original adopted budget to provide a comparison between what was projected and what actually occurred.

2. The Statement of Comprehensive Income

Primarily records changes in the fair values of Council's Infrastructure, Property, Plant & Equipment.

3. The Statement of Financial Position

A 30 June snapshot of Council's financial position indicating its Assets, Liabilities & "Net Wealth".

4. The Statement of Changes in Equity

The overall change for the year (in dollars) of Council's "Net Wealth".

5. The Statement of Cash Flows

Indicates where Council's cash came from and where it was spent.

This statement also displays Council's original adopted budget to provide a comparison between what was projected and what actually occurred.

About the Notes to the Financial Statements

The Notes to the financial statements provide greater detail and additional information on the 5 primary financial statements.

About the Auditor's Reports

Council's financial statements are required to be audited by external accountants (that generally specialize in Local Government).

In NSW, the Auditor provides 2 audit reports:

1. An opinion on whether the financial statements present fairly the Council's financial performance & position, &
2. Their observations on the conduct of the Audit including commentary on the Council's financial performance & financial position.

Who uses the Financial Statements ?

The financial statements are publicly available documents & must be presented at a Council meeting between 7 days & 5 weeks after the date of the Audit Report.

Submissions from the public can be made to Council up to 7 days subsequent to the public presentation of the financial statements.

Council is required to forward an audited set of financial statements to the Office of Local Government.

Wollongong City Council

General Purpose Financial Statements

for the financial year ended 30 June 2015

Statement by Councillors and Management

made pursuant to Section 413(2)(c) of the Local Government Act 1993 (as amended)

The attached General Purpose Financial Statements have been prepared in accordance with:

- The Local Government Act 1993 (as amended) and the Regulations made thereunder,
- The Australian Accounting Standards and professional pronouncements, and
- The Local Government Code of Accounting Practice and Financial Reporting.

To the best of our knowledge and belief, these Financial Statements:

- present fairly the Council's operating result and financial position for the year, and
- accords with Council's accounting and other records.

We are not aware of any matter that would render the Reports false or misleading in any way.

Signed in accordance with a resolution of Council made on 19 October 2015.

Gordon Bradberry
LORD MAYOR

John Dorahy
DEPUTY LORD MAYOR

David Farmer
GENERAL MANAGER

Brian Jenkins
RESPONSIBLE ACCOUNTING OFFICER

Wollongong City Council

Income Statement

for the financial year ended 30 June 2015

Budget ¹ 2015	\$ '000	Notes	Actual 2015	Actual 2014
Income from Continuing Operations				
Revenue:				
165,699	Rates & Annual Charges	3a	166,849	155,509
32,487	User Charges & Fees	3b	32,851	32,250
5,238	Interest & Investment Revenue	3c	5,689	5,937
9,143	Other Revenues	3d	11,965	10,153
28,146	Grants & Contributions provided for Operating Purposes	3e,f	30,319	20,463 ²
32,604	Grants & Contributions provided for Capital Purposes	3e,f	22,033	31,361
Other Income:				
1,040	Net gains from the disposal of assets	5	3,533	-
-	Net Share of interests in Joint Ventures & Associates using the equity method	19	-	198
274,357	Total Income from Continuing Operations		273,239	255,871
Expenses from Continuing Operations				
96,607	Employee Benefits & On-Costs	4a	95,399	95,792
3,830	Borrowing Costs	4b	4,037	3,989
49,396	Materials & Contracts	4c	45,647	42,685
61,767	Depreciation & Amortisation	4d	60,763	61,203
-	Impairment	4d	-	-
39,492	Other Expenses	4e	35,777	35,846
-	Net Losses from the Disposal of Assets	5	-	4,245
-	Net Share of interests in Joint Ventures & Associates using the equity method	19	22	-
251,092	Total Expenses from Continuing Operations		241,645	243,760
23,265	Operating Result from Continuing Operations		31,594	12,111
Discontinued Operations				
-	Net Profit/(Loss) from Discontinued Operations	24	-	-
23,265	Net Operating Result for the Year		31,594	12,111
23,265	Net Operating Result attributable to Council		31,594	12,111
-	Net Operating Result attributable to Non-controlling Interests		-	-
(9,339)	Net Operating Result for the year before Grants and Contributions provided for Capital Purposes		9,561	(19,250)

¹ Original Budget as approved by Council - refer Note 16

² Financial Assistance Grants for 13/14 were lower reflecting one off timing differences due to a change in how the grant was paid in prior years - refer Note 3 (e)

Wollongong City Council

Statement of Comprehensive Income

for the financial year ended 30 June 2015

\$ '000	Notes	Actual 2015	Actual 2014
Net Operating Result for the year (as per Income statement)		31,594	12,111
Other Comprehensive Income:			
Amounts which will not be reclassified subsequently to the Operating Result			
Gain (loss) on revaluation of I,PP&E	20b (ii)	4,039	(205,106)
Adjustment to correct prior period errors	20a	19,544	10,293
Impairment (loss) reversal relating to I,PP&E	20b (ii)	937	-
Total Items which will not be reclassified subsequently to the Operating Result		24,520	(194,813)
Amounts which will be reclassified subsequently to the Operating Result when specific conditions are met			
Nil			
Total Other Comprehensive Income for the year		24,520	(194,813)
Total Comprehensive Income for the Year		56,114	(182,702)
Total Comprehensive Income attributable to Council		56,114	(182,702)
Total Comprehensive Income attributable to Non-controlling Interests		-	-

Wollongong City Council

Statement of Financial Position

as at 30 June 2015

\$ '000	Notes	Actual 2015	Actual 2014
ASSETS			
Current Assets			
Cash & Cash Equivalents	6a	33,580	33,299
Investments	6b	102,076	63,672
Receivables	7	22,109	23,808
Inventories	8	6,040	6,037
Other	8	4,313	1,646
Non-current assets classified as "held for sale"	22	-	1,700
Total Current Assets		168,118	130,162
Non-Current Assets			
Investments	6b	9,000	21,000
Receivables	7	-	-
Inventories	8	-	-
Infrastructure, Property, Plant & Equipment	9	2,251,343	2,207,842
Investments accounted for using the equity method	19	1,160	1,181
Investment Property	14	2,750	2,750
Intangible Assets	25	1,220	930
Total Non-Current Assets		2,265,473	2,233,703
TOTAL ASSETS		2,433,591	2,363,865
LIABILITIES			
Current Liabilities			
Payables	10	34,039	29,360
Borrowings	10	6,369	3,908
Provisions	10	47,487	42,651
Total Current Liabilities		87,895	75,919
Non-Current Liabilities			
Payables	10	-	4,034
Borrowings	10	39,758	31,459
Provisions	10	42,554	45,183
Total Non-Current Liabilities		82,312	80,676
TOTAL LIABILITIES		170,207	156,595
Net Assets		2,263,384	2,207,270
EQUITY			
Retained Earnings	20	1,252,318	1,193,467
Revaluation Reserves	20	1,011,066	1,013,803
Council Equity Interest		2,263,384	2,207,270
Non-controlling Equity Interests		-	-
Total Equity		2,263,384	2,207,270

Wollongong City Council

Statement of Changes in Equity

for the financial year ended 30 June 2015

\$ '000	Notes	Retained Earnings	Reserves (Refer 20b)	Council Interest	Non- controlling Interest	Total Equity
2015						
Opening Balance (as per Last Year's Audited Accounts)		1,193,467	1,013,803	2,207,270	-	2,207,270
a. Changes in Accounting Policies (prior year effects)	20 (d)	-	-	-	-	-
Revised Opening Balance (as at 1/7/14)		1,193,467	1,013,803	2,207,270	-	2,207,270
b. Net Operating Result for the Year		31,594	-	31,594	-	31,594
c. Other Comprehensive Income						
- Revaluations : IPP&E Asset Revaluation Rsve	20b (ii)	-	4,039	4,039	-	4,039
- Revaluations: Other Reserves	20b (ii)	-	-	-	-	-
- Transfers to Income Statement	20b (ii)	-	-	-	-	-
- Impairment (loss) reversal relating to I,PP&E	20b (ii)	-	937	937	-	937
- Reserves Movements (Revaluation Error - 2012)	20b (ii)	-	-	-	-	-
- Adjustment to correct prior period errors	20 (c)	19,544	-	19,544	-	19,544
Other Comprehensive Income		19,544	4,976	24,520	-	24,520
Total Comprehensive Income (b&c)		51,138	4,976	56,114	-	56,114
d. Distributions to/(Contributions from) Non-controlling Interests		-	-	-	-	-
e. Transfers between Equity		7,713	(7,713)	-	-	-
Equity - Balance at end of the reporting period		1,252,318	1,011,066	2,263,384	-	2,263,384
2014						
Opening Balance (as per Last Year's Audited Accounts)		1,163,160	1,226,812	2,389,972	-	2,389,972
a. Changes in Accounting Policies (prior year effects)	20 (d)	-	-	-	-	-
Revised Opening Balance (as at 1/7/13)		1,163,160	1,226,812	2,389,972	-	2,389,972
b. Net Operating Result for the Year		12,111	-	12,111	-	12,111
c. Other Comprehensive Income						
- Revaluations : IPP&E Asset Revaluation Rsve	20b (ii)	-	(205,106)	(205,106)	-	(205,106)
- Revaluations: Other Reserves	20b (ii)	-	-	-	-	-
- Transfers to Income Statement	20b (ii)	-	-	-	-	-
- Impairment (loss) reversal relating to I,PP&E	20b (ii)	-	-	-	-	-
- Impairment (loss) reversal relating to I,PP&E	20b (ii)	-	-	-	-	-
- Adjustment to correct prior period errors	20 (c)	10,293	-	10,293	-	10,293
Other Comprehensive Income		10,293	(205,106)	(194,813)	-	(194,813)
Total Comprehensive Income (b&c)		22,404	(205,106)	(182,702)	-	(182,702)
d. Distributions to/(Contributions from) Non-controlling Interests		-	-	-	-	-
e. Transfers between Equity		7,903	(7,903)	-	-	-
Equity - Balance at end of the reporting period		1,193,467	1,013,803	2,207,270	-	2,207,270

Wollongong City Council

Statement of Cash Flows

for the financial year ended 30 June 2015

Budget 2015	\$ '000	Notes	Actual 2015	Actual 2014
Cash Flows from Operating Activities				
Receipts:				
162,977		Rates & Annual Charges	166,562	157,362
32,487		User Charges & Fees	33,505	35,044
5,238		Investment & Interest Revenue Received	5,789	5,147
60,750		Grants & Contributions	54,189	44,520
-		Bonds, Deposits & Retention amounts received	1,381	1,212
8,960		Other	22,527	19,723
Payments:				
(94,429)		Employee Benefits & On-Costs	(92,705)	(93,305)
(86,241)		Materials & Contracts	(58,051)	(51,846)
(1,104)		Borrowing Costs	(1,311)	(1,104)
-		Bonds, Deposits & Retention amounts refunded	(797)	(1,293)
-		Other	(41,998)	(34,107)
88,638		Net Cash provided (or used in) Operating Activities	89,091	81,352
Cash Flows from Investing Activities				
Receipts:				
(316)		Sale of Investment Securities	57,074	14,088
3,263		Sale of Investment Property	-	-
-		Sale of Infrastructure, Property, Plant & Equipment	12,570	3,219
-		Deferred Debtors Receipts	10	18
Payments:				
-		Purchase of Investment Securities	(83,147)	(81,080)
(83,693)		Purchase of Infrastructure, Property, Plant & Equipment	(85,072)	(83,472)
(135)		Deferred Debtors & Advances Made	-	-
(80,881)		Net Cash provided (or used in) Investing Activities	(98,566)	(147,227)
Cash Flows from Financing Activities				
Receipts:				
-		Proceeds from Borrowings & Advances	15,000	4,305
Payments:				
(4,914)		Repayment of Borrowings & Advances	(5,244)	(4,633)
(4,914)		Net Cash Flow provided (used in) Financing Activities	9,756	(328)
2,843		Net Increase/(Decrease) in Cash & Cash Equivalents	281	(66,203)
95,691		plus: Cash & Cash Equivalents - beginning of year	33,299	99,502
98,534		Cash & Cash Equivalents - end of the year	33,580	33,299
Additional Information:				
		plus: Investments on hand - end of year	111,076	84,672
		Total Cash, Cash Equivalents & Investments	144,656	117,971

Please refer to Note 11 for additional cash flow information

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

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n/a - not applicable

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

The principal accounting policies adopted by Council in the preparation of these consolidated financial statements are set out below in order to assist in its general understanding.

Under Australian Accounting Standards (AASBs), accounting policies are defined as those specific principles, bases, conventions, rules and practices applied by a reporting entity (in this case Council) in preparing and presenting its financial statements.

(a) Basis of preparation

(i) Background

These financial statements are general purpose financial statements which have been prepared in accordance with;

- Australian Accounting Standards and Australian Accounting Interpretations issued by the Australian Accounting Standards Board,
- the Local Government Act (1993) & Regulation, and
- the Local Government Code of Accounting Practice and Financial Reporting.

For the purpose of preparing these financial statements, Council has been deemed to be a not-for-profit entity.

(ii) Compliance with International Financial Reporting Standards (IFRSs)

Because AASBs are sector neutral, some standards either:

- (a) have local Australian content and prescription that is specific to the Not-For-Profit sector (including Local Government) which are not in compliance with IFRS's, or
- (b) specifically exclude application by Not for Profit entities.

Accordingly in preparing these financial statements and accompanying notes, Council has been unable to comply fully with International Accounting Standards, but has complied fully with Australian Accounting Standards.

Under the Local Government Act (LGA), Regulations and Local Government Code of Accounting Practice & Financial Reporting, it should be noted that Councils in NSW only have a requirement to comply with AASBs.

(iii) New and amended standards adopted by Council

During the current year, the following relevant accounting standards became mandatory and have been adopted by Council:

- AASB 10 Consolidated Financial Statements
- AASB 11 Joint Arrangements
- AASB 12 Disclosures of Interests in Other Entities

AASB 10 introduced a new definition of control based on the substance of the relationship and required Councils to consider their involvement with other entities regardless of whether there was a financial interest.

AASB 11 classified joint arrangements into either joint ventures (equity accounting) or joint operations (accounting for share of assets and liabilities).

AASB 12 has increased the level of disclosures required where Council has any interests in subsidiaries, joint arrangements, associates or unconsolidated structured entities.

As Council applies equity accounting to joint ventures there are no significant impacts on joint venture disclosures within these financial statements. However these amendments have required further disclosures relating to unconsolidated structured entities.

(iv) Early adoption of Accounting Standards

Council has elected to apply amendments to AASB 13 under AASB 2015-7 Amendments to Australian Accounting Standards for Fair Value Disclosures of Not-for-Profit Public Sector Entities in the preparation of these financial statements. This standard will apply to annual reporting periods beginning on or after 1 July 2016.

Paragraph (ab) discusses further amendments to Accounting Standards which have not been adopted by Council before their future operative date.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

(v) Basis of Accounting

These financial statements have been prepared under the **historical cost convention** except for:

- (i) certain financial assets and liabilities at fair value through profit or loss and available-for-sale financial assets which are all valued at fair value,
- (ii) the write down of any Asset on the basis of Impairment (if warranted) and
- (iii) certain classes of non current assets (eg. Infrastructure, Property, Plant & Equipment and Investment Property) that are accounted for at fair valuation.

The accrual basis of accounting has also been applied in their preparation.

(vi) Changes in Accounting Policies

Council's accounting policies have been consistently applied to all the years presented, unless otherwise stated.

There have also been no changes in accounting policies when compared with previous financial statements unless otherwise stated [refer Note 20(d)].

(vii) Critical Accounting Estimates

The preparation of financial statements requires the use of certain critical accounting estimates (in conformity with AASBs).

Accordingly this requires management to exercise its judgement in the process of applying the Council's accounting policies.

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that may have a financial impact on Council and that are believed to be reasonable under the circumstances.

Significant accounting estimates and assumptions

Council makes estimates and assumptions concerning the future.

The resulting accounting estimates will, by definition, seldom equal the related actual results.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are set out below:

- (i) Estimated fair values of investment properties
- (ii) Estimated fair values of infrastructure, property, plant and equipment.
- (iii) Estimated remediation provisions.

Significant judgements in applying Council's accounting policies

- (i) Impairment of Receivables - Council has made a significant judgement about the impairment of a number of its receivables in Note 7.
- (ii) Projected Section 94 Commitments - Council has used significant judgement in determining future Section 94 income and expenditure in Note 17.

(b) Revenue recognition

Council recognises revenue when the amount of revenue can be reliably measured, it is probable that future economic benefits will flow to it and specific criteria have been met for each of the Council's activities as described below.

Council bases any estimates on historical results, taking into consideration the type of customer, the type of transaction and the specifics of each arrangement.

Revenue is measured at the fair value of the consideration received or receivable.

Revenue is measured on major income categories as follows:

Rates, Annual Charges, Grants and Contributions

Rates, annual charges, grants and contributions (including developer contributions) are recognised as revenues when the Council obtains control over the assets comprising these receipts.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Control over assets acquired from rates and annual charges is obtained at the commencement of the rating year as it is an enforceable debt linked to the rateable property or, where earlier, upon receipt of the rates.

A provision for the impairment on rates receivables has not been established as unpaid rates represent a charge against the rateable property that will be recovered when the property is next sold.

Control over granted assets is normally obtained upon their receipt (or acquittal) or upon earlier notification that a grant has been secured, and is valued at their fair value at the date of transfer.

Revenue from Contributions is recognised when the Council either obtains control of the contribution or the right to receive it, **(i)** it is probable that the economic benefits comprising the contribution will flow to the Council and **(ii)** the amount of the contribution can be measured reliably.

Where grants or contributions recognised as revenues during the financial year were obtained on condition that they be expended in a particular manner or used over a particular period and those conditions were undischarged at balance date, the unused grant or contribution is disclosed in Note 3(g).

Note 3(g) also discloses the amount of unused grant or contribution from prior years that was expended on Council's operations during the current year.

The Council has obligations to provide facilities from contribution revenues levied on developers under the provisions of S94 of the EPA Act 1979.

Whilst Council generally incorporates these amounts as part of a Development Consents Order, such developer contributions are only recognised as income upon their physical receipt by Council, due to the possibility that individual Development Consents may not be acted upon by the applicant and accordingly would not be payable to Council.

Developer contributions may only be expended for the purposes for which the contributions were required but the Council may apply contributions according to the priorities established in work schedules.

A detailed Note relating to developer contributions can be found at Note 17.

User Charges, Fees and Other Income

User charges, fees and other income (including parking fees and fines) are recognised as revenue when the service has been provided, the payment is received, or when the penalty has been applied, whichever first occurs.

A provision for the impairment of these receivables is recognised when collection in full is no longer probable.

A liability is recognised in respect of revenue that is reciprocal in nature to the extent that the requisite service has not been provided as at reporting date.

Sale of Infrastructure, Property, Plant and Equipment

The profit or loss on sale of an asset is determined when control of the asset has irrevocably passed to the buyer.

Interest and Rents

Rental income is accounted for on a straight-line basis over the lease term.

Interest Income from Cash & Investments is accounted for using the effective interest rate at the date that interest is earned.

Dividend Income

Revenue is recognised when the Council's right to receive the payment is established, which is generally when shareholders approve the dividend.

Other Income

Other income is recorded when the payment is due, the value of the payment is notified or the payment is received, whichever occurs first.

(c) Principles of Consolidation

These financial statements incorporate **(i)** the assets and liabilities of Council and any entities (or operations) that it **controls** (as at 30 June 2015) and **(ii)** all the related operating results (for the financial year ended the 30th June 2015).

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Detailed information relating to the entities that Council Controls can be found at Note 19 (a).

In the process of reporting on Council's activities as a single unit, all inter-entity year end balances and reporting period transactions have been eliminated in full between Council and its controlled entities.

(i) The Consolidated Fund

In accordance with the provisions of Section 409(1) of the LGA 1993, all money and property received by Council is held in the Council's Consolidated Fund unless it is required to be held in the Council's Trust Fund.

The Consolidated Fund and other entities through which the Council controls resources to carry on its functions have been included in the financial statements forming part of this report.

(ii) The Trust Fund

In accordance with the provisions of Section 411 of the Local Government Act 1993 (as amended), a separate and distinct Trust Fund is maintained to account for all money and property received by the Council in trust which must be applied only for the purposes of or in accordance with the trusts relating to those monies.

Trust monies and property subject to Council's control have been included in these statements.

Trust monies and property held by Council but not subject to the control of Council, have been excluded from these statements.

A separate statement of monies held in the Trust Fund is available for inspection at the Council office by any person free of charge.

(iii) Joint Arrangements

AASB 11 *Joint Arrangements* defines a joint arrangement as an arrangement of which two or more parties have joint control and classifies these arrangements as either joint ventures or joint operations.

Joint Operations (controlled assets & operations)

Councils has no interest in any joint operations.

Joint Ventures

Joint Ventures represent operational arrangements where the parties joint control parties have rights to the net assets of the arrangement.

Any interests in Joint Ventures are accounted for using the equity method and are carried at cost.

Under the equity method, Council's share of the operation's profits/(losses) are recognised in the income statement, and its share of movements in retained earnings & reserves are recognised in the Statement of Financial Position.

Detailed information relating to Council's Joint Ventures can be found at Note 19 (b).

(iv) Associates

Council has no interest in any associates.

(v) County Councils

Council is not a member of any County Councils.

(d) Leases

All Leases entered into by Council are reviewed and classified on inception date as either a Finance Lease or an Operating Lease.

Finance Leases

Leases of property, plant and equipment where the Council has substantially all the risks and rewards of ownership are classified as finance leases.

Finance leases are capitalised at the lease's inception at the lower of the fair value of the leased property and the present value of the minimum lease payments.

The corresponding rental obligations, net of finance charges, are included in borrowings.

Each lease payment is allocated between the liability outstanding and the recognition of a finance charge.

The interest element of the finance charge is costed to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Property, plant and equipment acquired under finance leases is depreciated over the shorter of each leased asset's useful life and the lease term.

Operating Leases

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases.

Payments made under operating leases (net of any incentives received from the lessor) are charged to the income statement on a straight-line basis over the period of the lease.

Lease income from operating leases is recognised in income on a straight-line basis over the lease term.

(e) Cash and Cash Equivalents

For Statement of Cash Flows (and Statement of Financial Position) presentation purposes, cash and cash equivalents includes;

- cash **on hand**,
- deposits held **at call** with financial institutions,
- other short-term, highly liquid investments **with original maturities of three months or less** that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value, and
- bank overdrafts.

Bank overdrafts are shown within borrowings in current liabilities on the Statement of Financial Position but are incorporated into Cash & Cash Equivalents for presentation of the Cash Flow Statement.

(f) Investments and Other Financial Assets

Council (in accordance with AASB 139) classifies each of its investments into one of the following categories for measurement purposes:

- **financial assets at fair value through profit or loss**,
- **loans and receivables**,
- **held-to-maturity investments**, and
- **available-for-sale financial assets**.

Each classification depends on the purpose/intention for which the investment was acquired & at the time it was acquired.

Management determines each Investment classification at the time of initial recognition and re-evaluates this designation at each reporting date.

(i) Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets that are "held for trading".

A financial asset is classified in the "held for trading" category if it is acquired principally for the purpose of selling in the short term.

Assets in this category are primarily classified as current assets as they are primarily held for trading &/or are expected to be realised within 12 months of the balance sheet date.

(ii) Loans and receivables

Loans and receivables are non derivative financial assets with fixed or determinable payments that are not quoted in an active market.

They arise when the Council provides money, goods or services directly to a debtor with no intention (or in some cases ability) of selling the resulting receivable.

They are included in current assets, except for those with maturities greater than 12 months after the balance sheet date which are classified as non-current assets. Loans and receivables are included in receivables (note 7) in the statement of financial position.

(iii) Held-to-maturity investments

Held-to-maturity investments are non-derivative financial assets with fixed or determinable payments and fixed maturities that the Council's management has the positive intention and ability to hold to maturity.

If Council were to sell other than an insignificant amount of held-to-maturity financial assets, the whole category would be tainted and reclassified as available-for-sale.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

In contrast to the "Loans & Receivables" classification, these investments are generally quoted in an active market.

Held-to-maturity financial assets are included in non-current assets, except for those with maturities less than 12 months from the reporting date, which are classified as current assets.

(iv) Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories.

Investments must be designated as available-for-sale if they do not have fixed maturities and fixed or determinable payments and management intends to hold them for the medium to long term.

Accordingly, this classification principally comprises marketable equity securities, but can include all types of financial assets that could otherwise be classified in one of the other investment categories.

They are generally included in non-current assets unless management intends to dispose of the investment within 12 months of the balance sheet date or the term to maturity from the reporting date is less than 12 months.

General Accounting & Measurement of Financial Instruments:

(i) Initial Recognition

Investments are initially recognised (and measured) at fair value, plus in the case of investments not at "fair value through profit or loss", directly attributable transactions costs

Purchases and sales of investments are recognised on trade-date - the date on which the Council commits to purchase or sell the asset.

Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Council has transferred substantially all the risks and rewards of ownership.

(ii) Subsequent Measurement

Available-for-sale financial assets and **financial assets at fair value through profit and loss** are subsequently carried at fair value.

Loans and receivables and **held-to-maturity** investments are carried at amortised cost using the effective interest method.

Realised and unrealised gains and losses arising from changes in the fair value of the financial assets classified as "**fair value through profit or loss**" category are included in the income statement in the period in which they arise.

Unrealised gains and losses arising from changes in the fair value of non monetary securities classified as "**available-for-sale**" are recognised in equity in the available-for-sale investments revaluation reserve.

When securities classified as "**available-for-sale**" are sold or impaired, the accumulated fair value adjustments are included in the income statement as gains and losses from investment securities.

Impairment

Council assesses at each balance date whether there is objective evidence that a financial asset or group of financial assets is impaired.

A financial asset or a group of financial assets is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a 'loss event') and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.

(iii) Investment Policy

Council has an approved Investment Policy in order to undertake its investment of money in accordance with (and to comply with) Section 625 of the Local Government Act and S212 of the LG (General) Regulation 2005.

Investments are placed and managed in accordance with the Policy and having particular regard to authorised investments prescribed under the Ministerial Local Government Investment Order.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Council maintains its investment Policy in compliance with the Act and ensures that it or its representatives exercise care, diligence and skill that a prudent person would exercise in investing Council funds.

Council amended its policy following revisions to the Ministerial Local Government Investment Order arising from the Cole Inquiry recommendations. Certain investments that Council holds are no longer prescribed (eg. managed funds, CDOs, and equity linked notes), however they have been retained under grandfathering provisions of the Order. These will be disposed of when most financially advantageous to Council.

(g) Fair value estimation

The fair value of financial assets and financial liabilities must be estimated for recognition and measurement or for disclosure purposes.

The fair value of financial instruments traded in active markets is based on quoted market prices at the balance sheet date.

The fair value of financial instruments that are not traded in an active market is determined using valuation techniques.

Council uses a variety of methods and makes assumptions that are based on market conditions existing at each balance date.

Quoted market prices or dealer quotes for similar instruments are used for long-term debt instruments held.

If the market for a financial asset is not active (and for unlisted securities), the Council establishes fair value by using valuation techniques.

These include reference to the fair values of recent arm's length transactions, involving the same instruments or other instruments that are substantially the same, discounted cash flow analysis, and option pricing models refined to reflect the issuer's specific circumstances.

The nominal value less estimated credit adjustments of trade receivables and payables are assumed to approximate their fair values.

The fair value of financial liabilities for disclosure purposes is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Council for similar financial instruments.

(h) Receivables

Receivables are initially recognised at fair value and subsequently measured at amortised cost, less any provision for impairment.

Receivables (excluding Rates & Annual Charges) are generally due for settlement no more than 30 days from the date of recognition.

The collectibility of receivables is reviewed on an ongoing basis. Debts which are known to be uncollectible are written off in accordance with Council's policy.

A provision for impairment (ie. an allowance account) relating to receivables is established when there is objective evidence that the Council will not be able to collect all amounts due according to the original terms of each receivable.

Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy or financial reorganisation, and default or delinquency in payments (more than 30 days overdue) are considered indicators that the receivable is impaired.

The amount of the provision is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the effective interest rate.

Impairment losses are recognised in the Income Statement within other expenses.

When a receivable for which an impairment allowance had been recognised becomes uncollectible in a subsequent period, it is written off against the allowance account.

Subsequent recoveries of amounts previously written off are credited against other expenses in the income statement.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

(i) Inventories

Raw Materials and Stores, Work in Progress and Finished Goods

Raw materials and stores, work in progress and finished goods in respect of business undertakings are all stated at the lower of cost and net realisable value.

Cost comprises direct materials, direct labour and an appropriate proportion of variable and fixed overhead expenditure, the latter being allocated on the basis of normal operating capacity.

Costs are assigned to individual items of inventory on the basis of weighted average costs.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

Inventories held in respect of non-business undertakings have been valued at cost subject to adjustment for loss of service potential.

Land Held for Resale/Capitalisation of Borrowing Costs

Land held for resale is stated at the lower of cost and net realisable value.

Cost is assigned by specific identification and includes the cost of acquisition, and development and borrowing costs during development.

When development is completed borrowing costs and other holding charges are expensed as incurred.

Borrowing costs included in the cost of land held for resale are those costs that would have been avoided if the expenditure on the acquisition and development of the land had not been made.

Borrowing costs incurred while active development is interrupted for extended periods are recognised as expenses.

(j) Infrastructure, Property, Plant and Equipment (I,PP&E)

Acquisition of assets

Council's non current assets are continually revalued (over a 5 year period) in accordance with the fair valuation policy as mandated by the Office of Local Government.

At balance date, the following classes of I,PP&E were stated at their Fair Value;

- **Investment Properties** – refer Note 1(p),
- **Operational Land** (External Valuation) [Initial Valuation: 2009, Current Valuation: 2014]
- **Buildings – Specialised/Non Specialised** (External and Internal Valuation) [Initial Valuation: 2009, Current Valuation: 2014]
- **Property Plant & Equipment, Office Equipment & Furniture & Fittings.** (as approximated by depreciated historical cost)
- **Library Books** (as approximated by depreciated historical cost)
- **Roads Assets incl. roads, bridges & footpaths** (Internal Valuation) [Initial Valuation: 2010, Current Valuation: 2015]
- **Drainage Assets** (Internal Valuation) [Initial Valuation: 2010, Current Valuation: 2015]
- **Community Land** (Internal Valuation) [Initial Valuation: 2011, Current Valuation: 2012]
- **Other Structures** (Internal Valuation) [Initial Valuation: 2011, Current Valuation: 2014]
- **Other Open Space / Recreational Assets** (Internal Valuation) [Initial Valuation: 2011, Current Valuation: 2014]

Initial Recognition

On initial recognition, an assets cost is measured at its fair value, plus all expenditure that is directly attributable to the acquisition.

Where settlement of any part of an asset's cash consideration is deferred, the amounts payable in the future are discounted to their present value as at the date of recognition (ie. date of exchange) of the asset to arrive at fair value.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

The discount rate used is the Council's incremental borrowing rate, being the rate at which a similar borrowing could be obtained from an independent financier under comparable terms and conditions.

Where infrastructure, property, plant and equipment assets are acquired for no cost or for an amount other than cost, the assets are recognised in the financial statements at their fair value at acquisition date - being the amount that the asset could have been exchanged between knowledgeable willing parties in an arm's length transaction.

Subsequent costs

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to Council and the cost of the item can be measured reliably.

All other repairs and maintenance are charged to the income statement during the financial period in which they are incurred.

Asset Revaluations (including Indexation)

In accounting for Asset Revaluations relating to Infrastructure, Property, Plant & Equipment:

- Increases in the combined carrying amounts of asset classes arising on revaluation are credited to the asset revaluation reserve.
- To the extent that a net asset class increase reverses a decrease previously recognised via the profit or loss, then increase is first recognised in profit or loss.
- Net decreases that reverse previous increases of the same asset class are first charged against revaluation reserves directly in equity to the extent of the remaining reserve attributable to the asset, with all other decreases charged to the Income statement.

For all assets, Council assesses at each reporting date whether there is any indication that a revalued asset's carrying amount may differ materially from that which would be determined if the asset were revalued at the reporting date.

If any such indication exists, Council determines the asset's fair value and revalues the asset to that amount.

Full revaluations are undertaken for all assets on a 5 year cycle. The next scheduled revaluation by asset class based on this cycle is outlined in the table below. It is noted that although the schedule provides mandatory revaluation dates Council aims to revalue all asset classes on an annual basis.

Asset Class	Due
Community Land, Other Open Space / Recreational Assets, Other Structures, Swimming Pools & Land Improvements	30 June 2016
Buildings – Non Specialised & Specialised	30 June 2019
Operational Land	30 June 2019
Roads, Bridges, Footpaths & Drainage	30 June 2020

Capitalisation Thresholds

Items of infrastructure, property, plant and equipment are not capitalised unless their cost of acquisition exceeds the following;

Land

- council land	100% Capitalised
- open space	100% Capitalised
- land under roads (purchases after 30/6/08)	100% Capitalised

Plant & Equipment

Office Equipment	100% Capitalised
Office Furniture	> \$5,000
Other Plant & Equipment	> \$5,000

Buildings & Land Improvements

Building	
- construction/extensions	100% Capitalised
- renovations	> \$5,000

Other Structures	> \$5,000
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Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Stormwater Assets

Drains & Culverts	> \$5,000
Other	> \$5,000

Other Assets

- Swimming Pools	50 years
- Library Books	6 years

Roads, Bridges & Footpaths

Construction & reconstruction	100% Capitalised
Reseal/Re-sheet & major repairs:	> \$5,000

All asset residual values and useful lives are reviewed and adjusted (if appropriate), at each reporting date.

Depreciation

Depreciation on Council's infrastructure, property, plant and equipment assets is calculated using the straight line method in order to allocate an assets cost (net of residual values) over its estimated useful life.

Land is not depreciated.

Estimated useful lives for Council's I,PP&E include:

Plant & Equipment

- Office Equipment	5 to 10 years
- Furniture & Fittings	10 to 20 years
- Vehicles	5 to 7 years
- Earthmoving Equipment	10 to 20 years
- Rural Fire Service Equipment	5 to 10 years
- Other plant and equipment	5 to 15 years

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount – refer Note 1(s) on Asset Impairment.

Disposal and De-recognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in Council's Income Statement in the year the asset is derecognised.

Other Equipment

- Playground equipment	10 to 15 years
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(k) Land

Land (other than Land under Roads) is in accordance with Part 2 of Chapter 6 of the Local Government Act (1993) classified as either Operational or Community.

This classification of Land is disclosed in Note 9(a).

Buildings

- Buildings	15 to 50 years
- Public Amenities	10 to 50 years

(l) Land under roads

Stormwater Drainage

- Stormwater Drainage Infrastructure	75 to 100 years
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Land under roads is land under roadways and road reserves including land under footpaths, nature strips and median strips.

Council has elected not to recognise land under roads acquired before 1 July 2008 in accordance with AASB 1051.

Transportation Assets

- Roads - Infrastructure	20 to 80 years
- Bridges - Concrete	30 to 80 years
- Footpaths - Concrete	60 to 80 years
- Shared Path - Concrete	30 to 80 years

Land under roads acquired after 1 July 2008 is recognised in accordance with AASB 116 – Property, Plant and Equipment.

Other Infrastructure Assets

- Land Improvements	10 to 50 years
- Bulk earthworks	Infinite
- Land – Council owned	Infinite
- Land – Council controlled	Infinite

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

(m) Intangible Assets

IT Development and Software

Costs incurred in developing products or systems and costs incurred in acquiring software and licenses that will contribute to future period financial benefits through revenue generation and/or cost reduction are capitalised to software and systems.

Costs capitalised include external direct costs of materials and service, direct payroll and payroll related costs of employees' time spent on the project.

Amortisation is calculated on a straight line bases over periods generally ranging from 3 to 5 years.

IT development costs include only those costs directly attributable to the development phase and are only recognised following completion of technical feasibility and where Council has an intention and ability to use the asset.

(n) Crown Reserves

Crown Reserves under Council's care and control are recognised as assets of the Council.

While ownership of the reserves remains with the Crown, Council retains operational control of the reserves and is responsible for their maintenance and use in accordance with the specific purposes to which the reserves are dedicated.

Improvements on Crown Reserves are also recorded as assets, while maintenance costs incurred by Council and revenues relating to the reserves are recognised within Council's Income Statement.

Representations are currently being sought across State and Local Government to develop a consistent accounting treatment for Crown Reserves across both tiers of government.

(o) Rural Fire Service assets

Under section 119 of the Rural Fires Act 1997, "all fire fighting equipment purchased or constructed wholly or from money to the credit of the Fund is to be vested in the council of the area for or on behalf of which the fire fighting equipment has been purchased or constructed".

At present, the accounting for such fire fighting equipment is not treated in a consistent manner across all Councils.

Until such time as discussions on this matter have concluded and the legislation changed, Council will continue to account for these assets as it has been doing in previous years, which is to incorporate the assets, their values and depreciation charges within these financial statements.

(p) Investment property

Investment property comprises land &/or buildings that are principally held for long-term rental yields, capital gains or both that is not occupied by Council.

Investment property is carried at fair value, representing an open-market value determined annually by external valuers.

Annual changes in the fair value of Investment Properties are recorded in the Income Statement as part of "Other Income".

Full revaluations are carried out every three years with an appropriate index utilised each year in between the full revaluations.

The last full revaluation for Council's Investment Properties was dated 30/06/2014.

(q) Provisions for close down, restoration and for environmental clean up costs – including Tips and Quarries

Close down, Restoration and Remediation costs include the dismantling and demolition of infrastructure, the removal of residual materials and the remediation of disturbed areas.

Estimated close down and restoration costs are provided for in the accounting period when the obligation arising from the related disturbance occurs, whether this occurs during the development or during the operation phase, based on the net present value of estimated future costs.

Provisions for close down and restoration costs do not include any additional obligations which are expected to arise from future disturbance.

Costs are estimated on the basis of a closure plan.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

The cost estimates are calculated annually during the life of the operation to reflect known developments, eg updated cost estimates and revisions to the estimated lives of operations, and are subject to formal review at regular intervals.

Close down, Restoration and Remediation costs are a normal consequence of tip and quarry operations, and the majority of close down and restoration expenditure is incurred at the end of the life of the operations.

Although the ultimate cost to be incurred is uncertain, Council estimates the respective costs based on feasibility and engineering studies using current restoration standards and techniques.

The amortisation or 'unwinding' of the discount applied in establishing the net present value of provisions is charged to the income statement in each accounting period.

This amortisation of the discount is disclosed as a borrowing cost in Note 4(b).

Other movements in the provisions for Close down, Restoration and Remediation costs including those resulting from new disturbance, updated cost estimates, changes to the estimated lives of operations and revisions to discount rates are capitalised within property, plant and equipment.

These costs are then depreciated over the lives of the assets to which they relate.

Where rehabilitation is conducted systematically over the life of the operation, rather than at the time of closure, provision is made for the estimated outstanding continuous rehabilitation work at each balance sheet date and the cost is charged to the income statement.

Provision is made for the estimated present value of the costs of environmental clean up obligations outstanding at the balance sheet date. These costs are charged to the income statement.

Movements in the environmental clean up provisions are presented as an operating cost, except for the unwind of the discount which is shown as a borrowing cost.

Remediation procedures generally commence soon after the time the damage, remediation process and

estimated remediation costs become known, but may continue for many years depending on the nature of the disturbance and the remediation techniques.

As noted above, the ultimate cost of environmental remediation is uncertain and cost estimates can vary in response to many factors including changes to the relevant legal requirements, the emergence of new restoration techniques or experience at other locations.

The expected timing of expenditure can also change, for example in response to changes in quarry reserves or production rates.

As a result there could be significant adjustments to the provision for close down and restoration and environmental clean up, which would affect future financial results.

Specific Information relating to Council's provisions relating to Close down, Restoration and Remediation costs can be found at Note 26.

(r) Non-Current Assets (or Disposal Groups) "Held for Sale" & Discontinued Operations

Non-current assets (or disposal groups) are classified as held for sale and stated at the lower of either **(i)** their carrying amount and **(ii)** fair value less costs to sell, if their carrying amount will be recovered principally through a sale transaction rather than through continuing use.

The exception to this is plant and motor vehicles which are turned over on a regular basis. Plant and motor vehicles are retained in Non Current Assets under the classification of Infrastructure, Property, Plant and Equipment - unless the assets are to be traded in after 30 June and the replacement assets were already purchased and accounted for as at 30 June.

For any assets or disposal groups classified as Non-Current Assets "held for sale", an impairment loss is recognised at any time when the assets carrying value is greater than its fair value less costs to sell.

Non-current assets "held for sale" are not depreciated or amortised while they are classified as "held for sale".

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Non-current assets classified as “held for sale” are presented separately from the other assets in the balance sheet.

A Discontinued Operation is a component of Council that has been disposed of or is classified as “held for sale” and that represents a separate major line of business or geographical area of operations, is part of a single co-ordinated plan to dispose of such a line of business or area of operations, or is a subsidiary acquired exclusively with a view to resale.

The results of discontinued operations are presented separately on the face of the income statement.

(s) Impairment of assets

All Council's I,PP&E is subject to an annual assessment of impairment.

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount.

The recoverable amount is the higher of an asset's fair value less costs to sell and value in use.

Where an asset is not held principally for cash generating purposes (for example Infrastructure Assets) and would be replaced if the Council was deprived of it then depreciated replacement cost is used as value in use, otherwise value in use is estimated by using a discounted cash flow model.

Non-financial assets (other than goodwill) that suffered a prior period impairment are reviewed for possible reversal of the impairment at each reporting date.

Goodwill & other Intangible Assets that have an indefinite useful life and are not subject to amortisation are tested annually for impairment.

(t) Payables

These amounts represent liabilities and include goods and services provided to the Council prior to the end of financial year which are unpaid.

The amounts for goods and services are unsecured and are usually paid within 30 days of recognition.

(u) Borrowings

Borrowings are initially recognised at fair value, net of transaction costs incurred.

Borrowings are subsequently measured at amortised cost.

Amortisation results in any difference between the proceeds (net of transaction costs) and the redemption amount being recognised in the Income Statement over the period of the borrowings using the effective interest method.

Borrowings are removed from the balance sheet when the obligation specified in the contract is discharged, cancelled or expired.

Borrowings are classified as current liabilities unless the Council has an unconditional right to defer settlement of the liability for at least 12 months after the balance sheet date.

(v) Borrowing costs

Borrowing costs are expensed except to the extent that they are incurred during the construction of qualifying assets.

Borrowing costs incurred for the construction of any qualifying asset are capitalised during the period of time that is required to complete and prepare the asset for its intended use or sale.

(w) Provisions

Provisions for legal claims, service warranties and other like liabilities are recognised when:

- Council has a present legal or constructive obligation as a result of past events;
- it is more likely than not that an outflow of resources will be required to settle the obligation; and
- the amount has been reliably estimated.

Provisions are not recognised for future operating losses.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole.

A provision is recognised even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the reporting date.

The discount rate used to determine the present value reflects current market assessments of the time value of money and the risks specific to the liability.

The increase in the provision due to the passage of time is recognised as interest expense.

(x) Employee benefits

(i) Short Term Obligations

Short term employee benefit obligations include liabilities for wages and salaries (including non-monetary benefits), annual leave and vesting sick leave expected to be wholly settled within the 12 months after the reporting period.

Leave liabilities are recognised in the provision for employee benefits in respect of employees' services up to the reporting date with other short term employee benefit obligations disclosed under payables.

These provisions are measured at the amounts expected to be paid when the liabilities are settled.

All other short-term employee benefit obligations are presented as payables.

Liabilities for non vesting sick leave are recognised at the time when the leave is taken and measured at the rates paid or payable, and accordingly no Liability has been recognised in these reports.

Wages & salaries, annual leave and vesting sick leave are all classified as Current Liabilities.

(ii) Other Long Term Obligations

The liability for all long service and annual leave in respect of services provided by employees up to the reporting date (which is not expected to be wholly settled within the 12 months after the reporting period) are recognised in the provision for employee benefits.

These liabilities are measured at the present value of the expected future payments to be made using the projected unit credit method.

Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service.

Expected future payments are then discounted using market yields at the reporting date based on national government bonds with terms to maturity and currency that match as closely as possible the estimated future cash outflows.

Due to the nature of when and how Long Service Leave can be taken, all Long Service Leave for employees with 4 or more years of service has been classified as Current, as it has been deemed that Council does not have the unconditional right to defer settlement beyond 12 months – even though it is not anticipated that all employees with more than 4 years service (as at reporting date) will apply for and take their leave entitlements in the next 12 months.

(iii) Retirement benefit obligations

All employees of the Council are entitled to benefits on retirement, disability or death.

Council contributes to various defined benefit plans and defined contribution plans on behalf of its employees.

Defined Benefit Plans

A liability or asset in respect of defined benefit superannuation plans would ordinarily be recognised in the balance sheet, and measured as the present value of the defined benefit obligation at the reporting date plus unrecognised actuarial gains (less unrecognised actuarial losses) less the fair value of the superannuation fund's assets at that date and any unrecognised past service cost.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

The present value of the defined benefit obligation is based on expected future payments which arise from membership of the fund to the reporting date, calculated annually by independent actuaries using the projected unit credit method. Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service.

However, when this information is not reliably available, Council can account for its obligations to defined benefit plans on the same basis as its obligations to defined contribution plans – i.e. as an expense when they become payable.

Council is party to an Industry Defined Benefit Plan under the Local Government Superannuation Scheme, named the “Local Government Superannuation Scheme – Pool B”

This Scheme has been deemed to be a “multi employer fund” for the purposes of AASB 119.

Sufficient information is not available to account for the Scheme as a defined benefit plan (in accordance with AASB 119) because the assets to the scheme are pooled together for all Councils.

The Local Government Superannuation Scheme has advised member Councils that, as a result of the global financial crisis, it has a deficiency of assets over liabilities. The position has been monitored during the reporting period and the Actuary has estimated that at 30 June 2015 a deficit still exists.

As a result, Local Government Superannuation have asked for higher contributions to recover that deficiency.

Council's share of that deficiency cannot be accurately calculated as the Scheme is a mutual arrangement where assets and liabilities are pooled together for all member councils.

For this reason, no liability for the deficiency has been recognised in these financial statements.

Council has, however, disclosed a contingent liability in Note 18 to reflect the possible obligation that may arise should the Scheme require immediate payment to correct the deficiency.

Defined Contribution Plans

Contributions to Defined Contribution Plans are recognised as an expense as they become payable. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

(iv) Employee Benefit On-Costs

Council has recognised at year end the aggregate on-cost liabilities arising from employee benefits, and in particular those on-cost liabilities that will arise when payment of current employee benefits is made in future periods.

These amounts include Superannuation and Workers Compensation expenses which will be payable upon the future payment of certain Leave Liabilities accrued as at 30/06/15.

(y) Self insurance

Council has determined to self-insure for various risks including public liability and professional indemnity.

A provision for self-insurance has been made to recognise outstanding claims the amount of which is detailed in Note 10.

Council also maintains cash and investments to meet expected future claims and these are detailed in Note 6(c).

(z) Allocation between current and non-current assets & liabilities

In the determination of whether an asset or liability is classified as current or non-current, consideration is given to the time when each asset or liability is expected to be settled.

The asset or liability is classified as current if it is expected to be settled within the next 12 months, being the Council's operational cycle.

Exceptions

In the case of liabilities where Council does not have the unconditional right to defer settlement beyond 12 months (such as vested long service leave), the

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

liability is classified as current even if not expected to be settled within the next 12 months.

In the case of inventories that are "held for trading", these are also classified as current even if not expected to be realised in the next 12 months.

(aa) Taxes

The Council is exempt from both Commonwealth Income Tax and Capital Gains Tax.

Council does however have to comply with both Fringe Benefits Tax and Goods and Services Tax (GST).

Goods & Services Tax (GST)

Income, expenses and assets are all recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Tax Office (ATO).

In these circumstances the GST is recognised as part of the cost of acquisition of the asset or as part of the revenue / expense.

Receivables and payables within the Balance Sheet are stated inclusive of any applicable GST.

The net amount of GST recoverable from or payable to the ATO is included as a current asset or current liability in the Balance Sheet.

Operating cash flows within the Cash Flow Statement are on a gross basis, ie. they are inclusive of GST where applicable.

Investing and Financing cash flows are treated on a net basis (where recoverable from the ATO), ie. they are exclusive of GST. Instead, the GST component of investing and financing activity cash flows which are recoverable from or payable to the ATO are classified as operating cash flows.

Commitments and contingencies are disclosed net of the amount of GST recoverable from (or payable to) the ATO.

(ab) New accounting standards and interpretations

Certain new (or amended) accounting standards and interpretations have been published that are not mandatory for reporting periods ending 30 June 2015.

Council has not adopted any of these standards early.

Council's assessment of the impact of these new standards and interpretations is set out below.

Apart from the AASB disclosures below, there are no other standards that are "not yet effective" which are expected to have a material impact on Council in the current or future reporting periods and on foreseeable future transactions.

Applicable to Local Government:

AASB 9 - Financial Instruments (and associated amending standards)

AASB 9 replaces AASB 139 Financial Instruments: Recognition and Measurement and has an effective date for reporting periods beginning on or after 1 January 2018 (and must be applied retrospectively).

The overriding impact of AASB 9 is to change the requirements for the classification, measurement and disclosures associated with financial assets.

Under the new requirements the four current categories of financial assets stipulated in AASB 139 will be replaced with two measurement categories:

- fair value and
- amortised cost (where financial assets will only be able to be measured at amortised cost where very specific conditions are met).

AASB 15 - Revenue from contracts with customers and associated amending standards

AASB 15 will introduce a five step process for revenue recognition with the core principle of the new Standard being that entities recognise revenue so as to depict the transfer of goods or services to customers in amounts that reflect the consideration (that is, payment) to which the entity expects to be entitled in exchange for those goods or services.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 1. Summary of Significant Accounting Policies

The changes in revenue recognition requirements in AASB 15 may cause changes to accounting policies relating to the timing and amount of revenue recorded in the financial statements as well as additional disclosures.

The full impact of AASB 15 has not yet been ascertained or quantified.

AASB 15 will replace AASB 118 which covers contracts for goods and services and AASB 111 which covers construction contracts.

The effective date of this standard is for annual reporting periods beginning on or after 1 January 2017.

AASB 124 - Related Party Disclosures

From 1 July 2016, AASB 124 Related Party Disclosures will apply to Council.

This means that Council will be required to disclose information about related parties and Council transactions with those related parties.

Related parties will more than likely include the Mayor, Councillors and certain Council staff. In addition, the close family members of those people and any organisations that they control or are associated with will be classified as related parties (and fall under the related party reporting requirements).

AASB 2014 - 10 Sale or contribution of Assets between an Investor and its Associate or Joint Venture

The amendments address an acknowledged inconsistency between the requirements in AASB 10 and those in AASB 128 (2011), in dealing with the sale or contribution of assets between an investor and its associate or joint venture.

The main consequence of the amendments is that a full gain or loss is recognised when a transaction involves a business (whether it is housed in a subsidiary or not).

A partial gain or loss is recognised when a transaction involves assets that do not constitute a business, even if these assets are housed in a subsidiary.

The effective date of this standard is for annual reporting periods beginning on or after 1 January 2016.

This standard will only impact Council where there has been a sale or contribution of assets between the entity and the associate/joint venture.

Not applicable to Local Government per se;

None

(ac) Rounding of amounts

Unless otherwise indicated, amounts in the financial statements have been rounded off to the nearest thousand dollars.

(ad) Comparative Figures

To ensure comparability with the current reporting period's figures, some comparative period line items and amounts may have been reclassified or individually reported for the first time within these financial statements and/or the notes.

(ae) Disclaimer

Nothing contained within these statements may be taken to be an admission of any liability to any person under any circumstance.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 2(a). Council Functions / Activities - Financial Information

Functions/Activities	Income, Expenses and Assets have been directly attributed to the following Functions / Activities. Details of these Functions/Activities are provided in Note 2(b).												
	Income from Continuing Operations			Expenses from Continuing Operations			Operating Result from Continuing Operations			Grants included in Income from Continuing Operations		Total Assets held (Current & Non-current)	
	Original Budget 2015	Actual 2015	Actual 2014	Original Budget 2015	Actual 2015	Actual 2014	Original Budget 2015	Actual 2015	Actual 2014	Actual 2015	Actual 2014	Actual 2015	Actual 2014
Planning and Engagement	8,989	14,927	10,100	24,240	22,035	19,249	(15,251)	(7,108)	(9,149)	521	248	257,630	255,163
Environment	45,935	45,843	45,885	60,707	57,255	54,698	(14,772)	(11,412)	(8,813)	1,925	2,630	343,524	355,677
Transport Services/Infrastructure	27,081	9,675	16,967	39,103	42,361	44,965	(12,022)	(32,686)	(27,998)	7,271	12,994	366,169	308,927
Community Services/Facilities	7,572	8,752	8,523	32,099	29,788	32,561	(24,527)	(21,036)	(24,038)	4,575	4,478	30,747	30,806
Recreation and Open Space	9,742	10,468	10,332	43,104	41,945	42,954	(33,362)	(31,477)	(32,622)	88	16	85,287	84,035
Regulatory Services and Safety	7,049	8,001	7,416	16,856	16,764	16,368	(9,807)	(8,763)	(8,952)	529	542	1,732	1,733
Governance & Internal Services	10,475	17,109	10,249	34,983	31,476	32,965	(24,508)	(14,367)	(22,716)	1,136	1,122	1,347,342	1,326,343
Contributed Assets	-	1,909	8,167	-	-	-	-	1,909	8,167	-	-	-	-
Total Functions & Activities	116,843	116,684	117,639	251,092	241,624	243,760	(134,249)	(124,940)	(126,121)	16,045	22,030	2,432,431	2,362,684
Share of gains/(losses) in Associates & Joint Ventures (using the Equity Method)	-	-	198	-	22	-	-	(22)	198	-	-	1,160	1,181
General Purpose Income ¹	157,514	156,555	138,034	-	-	-	157,514	156,555	138,034	19,142	10,222	-	-
Operating Result from Continuing Operations	274,357	273,239	255,871	251,092	241,646	243,760	23,265	31,593	12,111	35,187	32,252	2,433,591	2,363,865

1. Includes: Rates & Annual Charges (incl. Ex-Gratia), Untied General Purpose Grants & Unrestricted Interest & Investment Income.

2. Amount for joint ventures will be included when available.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 2(b). Council Functions / Activities - Component Descriptions

Details relating to the Council's functions / activities as reported in Note 2(a) are as follows:

Planning and Engagement

Infrastructure Planning and Support, City Centre Management, Land Use Planning, Public Relations, Economic Development, Strategy and Planning

Environment

Waste Management, Stormwater Services, Natural Area Management, Environmental Planning and Programs

Transport Services/Infrastructure

Transport Services and Infrastructure works

Community Services/Facilities

Libraries, Cultural Services, Community Facilities, Age and Disability Services, Crematorium and Cemeteries, Community Programs, Youth Services

Recreation and Open Space

Parks and Sports fields, Aquatic Services, Tourist Parks, Leisure Centres, Botanic Gardens

Regulatory Services and Safety

Emergency Management, Development Assessment, Regulatory Control, Public Health

Governance & Internal Services

Governance and Administration, Human Resources, Financial Services, Customer Service, Property Services, Information Technology, Internal Services

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 3. Income from Continuing Operations

\$ '000	Notes	Actual 2015	Actual 2014
(a) Rates & Annual Charges			
Ordinary Rates			
Business		41,020	38,376
Farmland		422	432
Mining		945	904
Residential		90,623	83,798
Abandonments ⁽¹⁾		(32)	(506)
Total Ordinary Rates		132,978	123,004
Special Rates			
City Centre		402	371
Mall		968	946
Total Special Rates		1,370	1,317
Annual Charges (pursuant to s.496, s.496A, s.496B, s.501 & s.611)			
Domestic Waste Management Services		30,753	29,469
Stormwater Management Services		1,750	1,736
Abandonments - Annual Charges ⁽¹⁾		(2)	(17)
Total Annual Charges		32,501	31,188
TOTAL RATES & ANNUAL CHARGES		166,849	155,509

Council has used 2013 year valuations provided by the NSW Valuer General in calculating its rates.

(1) Abandonments refer to amounts owed to Council that have been written off due to the property being exempted of rates, pensioner interest being waived, voluntary Council rebates, postponed rates and voluntary conservation agreements as per the OLG Rating and Revenue Raising Manual 2007.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 3. Income from Continuing Operations (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(b) User Charges & Fees			
Specific User Charges (per s.502 - Specific "actual use" charges)			
Waste Management Services (non-domestic)		10,993	11,348
Total User Charges		10,993	11,348
Other User Charges & Fees			
(i) Fees & Charges - Statutory & Regulatory Functions (per s.608)			
Contestable Building Services		297	407
Inspection Services		536	465
Planning & Building Regulation		2,687	2,252
Registration Fees		230	209
Section 149 Certificates (EPA Act)		611	608
Section 603 Certificates (Rating Certificate)		323	300
Section 611 Charges (Occupation of Land)		168	159
Other		29	17
Total Fees & Charges - Statutory/Regulatory		4,881	4,417
(ii) Fees & Charges - Other (incl. General User Charges) (per s.608)			
Additional Waste Services		75	149
Aquatic Services		546	541
Art Gallery		12	15
Botanic Garden & Nursery		219	202
Car Parking		785	761
Credit Card Payment Processing Fee		156	142
Crematorium & Cemeteries		2,535	2,384
Health Inspections		265	237
Hire Charges		537	505
Leaseback Fees - Council Vehicles		726	669
Leisure Centre		2,963	3,030
Library		55	47
Marketing		33	16
Outdoor Dining		86	48
Parking Meters		1,360	1,389
Parks & Sportfields		431	350
Pre-lodgement Meeting Fees		80	49
Road Opening Permits		242	172
Tourist Parks		5,684	5,576
Tree Management Requests		93	107
Other		94	96
Total Fees & Charges - Other		16,977	16,485
TOTAL USER CHARGES & FEES		32,851	32,250

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 3. Income from Continuing Operations (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(c) Interest & Investment Revenue (incl. losses)			
Interest & Dividends			
- Interest on Overdue Rates & Annual Charges (incl. Special Purpose Rates)		608	633
- Interest earned on Investments (interest & coupon payment income)		4,743	4,912
Fair Value Adjustments			
- Fair Valuation movements in Investments (at FV or Held for Trading)		331	386
Amortisation of Premiums & Discounts			
- Interest Free (& Interest Reduced) Loans provided		7	6
TOTAL INTEREST & INVESTMENT REVENUE		<u>5,689</u>	<u>5,937</u>
Interest Revenue is attributable to:			
Unrestricted Investments/Financial Assets:			
Overdue Rates & Annual Charges (General Fund)		608	633
General Council Cash & Investments		3,827	4,175
Restricted Investments/Funds - External:			
Development Contributions			
- Section 94		619	560
Unexpended Infrastructure Loan		287	478
Other Externally Restricted Assets		348	91
Total Interest & Investment Revenue Recognised		<u>5,689</u>	<u>5,937</u>
(d) Other Revenues			
Diesel Rebate		167	168
Fines		767	847
Fines - Parking		2,368	2,123
Insurance Claim Recoveries		480	682
Legal Fees Recovery - Rates & Charges (Extra Charges)		216	329
Legal Settlements		1,843	61
Outgoings Reimbursements		114	143
Reimbursements		141	53
Rental Income - Investment Properties	14	406	416
Rental Income - Other Council Properties		4,353	3,770
Sales - General		402	423
Sponsorship & Promotional Income		57	257
Other		651	881
TOTAL OTHER REVENUE		<u>11,965</u>	<u>10,153</u>

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 3. Income from Continuing Operations (continued)

\$ '000	2015 Operating	2014 Operating	2015 Capital	2014 Capital
(e) Grants				
General Purpose (Untied)				
Financial Assistance	17,485	8,542	-	-
Pensioners' Rates Subsidies - General Component	1,657	1,680	-	-
Total General Purpose	19,142	10,222	-	-
¹ The Financial Assistance Grant for the comparative 13/14 year reflects a one off timing difference (reduction). This grant ceased being paid in advance in the 13/14 year by up to 50% as had occurred in previous years.				
Specific Purpose				
Arts & Culture	73	65	-	-
Building Better Regional Cities Program	-	-	-	7,924
Buildings	-	-	62	258
Community Development & Support	326	413	-	-
Emergency Services	484	486	-	-
Environmental Management & Enhancement	91	65	-	-
Environmental Protection	54	159	-	-
Floodplain & Stormwater Management	23	-	-	-
Footpaths & Cycleways	-	-	1,275	3,354
HACC Community Transport	2,413	2,161	-	-
Healthy Communities	-	136	-	-
Heritage & Cultural	9	6	-	-
Illawarra Dementia Respite Service	429	409	-	-
Information Technology	-	-	85	290
Infrastructure Renewal	456	-	-	-
Library	465	461	-	-
LIRS Subsidy	979	821	-	-
Local Bus Route Subsidy	82	70	-	-
Natural Area Management	208	117	-	-
Pensioners' Rates Subsidies:				
- Domestic Waste Management	552	546	-	-
People & Learning	66	12	-	-
Playgrounds	-	-	25	-
Recreation & Culture	63	-	-	-
Strategic City Planning	42	108	-	-
Street Lighting	645	460	-	-
Transport (Roads to Recovery)	-	-	679	373
Transport (Other Roads & Bridges Funding)	-	-	4,544	778
Voluntary Purchase Scheme	-	-	615	1,071
Waste Performance Improvement	433	653	-	-
Wollongong Multi Service Outlet	867	834	-	-
Total Specific Purpose	8,760	7,982	7,285	14,048
Total Grants	27,902	18,204	7,285	14,048
Grant Revenue is attributable to:				
- Commonwealth Funding	20,994	13,224	749	11,073
- State Funding	6,908	4,980	6,536	2,975
	27,902	18,204	7,285	14,048

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 3. Income from Continuing Operations (continued)

\$ '000	2015 Operating	2014 Operating	2015 Capital	2014 Capital
(f) Contributions				
Developer Contributions:				
(s93 & s94 - EP&A Act, s64 of the LGA):				
S 94A - Fixed Development Consent Levies	-	-	8,512	2,500
S 94 West Dapto	-	-	3,021	5,041
Total Developer Contributions	17	-	11,533	7,541
Other Contributions:				
Animal Control	14	-	-	-
Community Development & Support	90	40	-	-
Community Services & Facilities	575	678	-	-
Contributed Bushfire Assets	-	-	-	590
Dedications (other than by S94)	-	-	1,906	7,577
Footpaths & Cycleways	2	-	-	29
Heritage/Cultural	-	-	-	22
Parks, Gardens and Sportsfields	46	89	270	252
Pollution Minimisation	37	-	-	-
Roads & Bridges	27	42	1,039	1,302
RMS Contributions (Regional Roads, Block Grant)	1,459	1,410	-	-
Rural Fire Service Operations	149	-	-	-
Strategic City Planning	17	-	-	-
Surf Life Saving NSW	1	-	-	-
Total Other Contributions	2,417	2,259	3,215	9,772
Total Contributions	2,417	2,259	14,748	17,313
TOTAL GRANTS & CONTRIBUTIONS	30,319	20,463	22,033	31,361

(g) Restrictions relating to Grants and Contributions

Certain grants & contributions are obtained by Council on condition that they be spent in a specified manner:	2015	2014
Unexpended at the Close of the Previous Reporting Period	25,568	22,906
add: Grants & contributions recognised in the current period but not yet spent:	13,584	16,489
less: Grants & contributions recognised in a previous reporting period now spent:	(19,063)	(13,827)
Net Increase (Decrease) in Restricted Assets during the Period	(5,479)	2,662
Unexpended and held as Restricted Assets	20,089	25,568
Comprising:		
- Specific Purpose Unexpended Grants	4,855	11,401
- Developer Contributions	15,094	13,953
- Other Contributions	140	214
	20,089	25,568

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 4. Expenses from Continuing Operations

\$ '000	Notes	Actual 2015	Actual 2014
(a) Employee Benefits & On-Costs			
Employee Leave Entitlements (ELE)		13,728	12,928
Fringe Benefit Tax (FBT)		213	202
Payroll Tax		35	38
Protective Clothing		280	271
Salaries and Wages		82,120	80,601
Superannuation		10,421	10,062
Training Costs (other than Salaries & Wages)		668	728
Workers' Compensation Insurance		33	48
Workers Compensation Provision		(2,159)	(28)
Workers Compensation - Self Insurance		2,024	1,942
Other		555	453
Total Employee Costs		107,918	107,245
less: Capitalised Costs		(12,519)	(11,453)
TOTAL EMPLOYEE COSTS EXPENSED		95,399	95,792
Number of "Equivalent Full Time" Employees at year end		1,009	1,008
(b) Borrowing Costs			
(i) Interest Bearing Liability Costs			
Interest on Loans		1,311	1,104
Total Interest Bearing Liability Costs Expensed		1,311	1,104
(ii) Other Borrowing Costs			
Amortisation of Discount on Interest Free (& favourable) Loans to Council		1,004	1,127
Discount adjustments relating to movements in Provisions (other than ELE)			
- Remediation Liabilities	26	1,722	1,758
Total Other Borrowing Costs		2,726	2,885
TOTAL BORROWING COSTS EXPENSED		4,037	3,989

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 4. Expenses from Continuing Operations (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(c) Materials & Contracts			
Auditors Remuneration ⁽¹⁾		105	111
Contractor & Consultancy Costs		93,579	93,280
- Internal Audit		145	145
Legal Expenses:			
- Legal Expenses: Planning & Development		27	94
- Legal Expenses: Other		1,079	733
Operating Leases:			
- Operating Lease Rentals: Minimum Lease Payments ⁽²⁾		100	129
Raw Materials & Consumables		15,780	15,349
Total Materials & Contracts		110,815	109,841
less: Capitalised Costs		(65,168)	(67,156)
TOTAL MATERIALS & CONTRACTS		45,647	42,685

1. Auditor Remuneration

During the year, the following fees were incurred for services provided by the Council's Auditor (& the Auditors of other Consolidated Entities):

Audit and Other Assurance Services

Audit & review of financial statements: Council's Auditor (external)	105	111
Remuneration for audit and other assurance services	105	111
Total Auditor Remuneration	105	111

2. Operating Lease Payments are attributable to:

Other	100	129
	100	129

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 4. Expenses from Continuing Operations (continued)

\$ '000	Notes	Impairment Costs		Depreciation/Amortisation	
		Actual 2015	Actual 2014	Actual 2015	Actual 2014
Asset Reinstatement Costs	9 & 26	-	-	220	220
Buildings - Non Specialised		-	-	6,068	6,653
Buildings - Specialised		-	-	6,396	6,980
Furniture & Fittings		-	-	145	193
Infrastructure:					
- Roads		-	-	20,994	21,682
- Bridges		-	-	1,635	1,252
- Footpaths		-	-	3,709	3,027
- Stormwater Drainage		-	-	9,436	8,906
- Swimming Pools		-	-	597	604
- Other Open Space/Recreational Assets		-	-	3,303	3,328
Intangible Assets	25	-	-	327	274
Office Equipment		-	-	1,421	1,449
Other Structures		-	-	585	651
Plant and Equipment		-	-	4,119	4,129
Other Assets					
- Library Books		-	-	1,031	1,040
- Other		-	-	777	815
TOTAL DEPRECIATION & IMPAIRMENT COSTS EXPENSED		-	-	60,763	61,203

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 4. Expenses from Continuing Operations (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(e) Other Expenses			
Advertising		314	356
Bad & Doubtful Debts		(16)	38
Bank Charges		447	403
Carbon Tax Expense		140	2,164
Contributions/Levies to Other Levels of Government			
- Emergency Services Levy (includes FRNSW, SES, and RFS Levies)		295	273
- NSW Fire Brigade Levy		2,552	2,558
- NSW Rural Fire Service Levy		310	476
- Waste & Environment Levy		14,662	12,091
Council Rates		311	322
Councillor Expenses - Mayoral Fee		78	76
Councillor Expenses - Councillors' Fees		380	366
Councillors' Expenses (incl. Mayor) - Other (excluding fees above)		6	5
Donations, Contributions & Assistance to other organisations (Section 356)			
- City Centre Management		724	624
- Crown St Façade Rejuvenation		424	-
- Illawarra Institute of Sport		35	35
- Illawarra Performing Arts Centre		646	635
- Sponsorship Fund		59	79
- Illawarra Regional Information Service		86	83
- Illawarra Surf Life Saving		52	52
- Neighbourhood Youth Program		199	228
- Southern Councils Group		74	67
- Tourism		960	938
- Other		639	715
Insurance		3,217	2,606
Light, Electricity & Heating		2,114	2,415
Membership Fees		174	131
Postage		331	309
Provision for Self Insurance Claims		180	70
Rental Agreements		245	248
Revaluation Decrements (Fair Valuation of Investment Properties)	14	-	975
Sewerage Charges		230	296
Street Lighting		3,145	3,428
Telephone & Communications		740	803
Valuation Fees		396	402
Volunteer Reimbursements		213	224
Water Rates		868	929
Other		1,340	937
Total Other Expenses		36,569	36,357
less: Capitalised Costs		(792)	(511)
TOTAL OTHER EXPENSES		35,777	35,846

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 5. Gains or Losses from the Disposal of Assets

\$ '000	Notes	Actual 2015	Actual 2014
Property (excl. Investment Property)			
Proceeds from Disposal - Property		9,535	1,773
less: Carrying Amount of Property Assets Sold / Written Off		(4,297)	(3,182)
Net Gain/(Loss) on Disposal		5,238	(1,409)
Plant & Equipment			
Proceeds from Disposal - Plant & Equipment		1,490	1,446
less: Carrying Amount of P&E Assets Sold / Written Off		(1,069)	(1,187)
Net Gain/(Loss) on Disposal		421	259
Infrastructure			
Proceeds from Disposal - Infrastructure		-	-
less: Carrying Amount of Infrastructure Assets Sold / Written Off		(1,971)	(3,095)
Net Gain/(Loss) on Disposal		(1,971)	(3,095)
Financial Assets			
Proceeds from Disposal / Redemptions / Maturities - Financial Assets		57,074	14,088
less: Carrying Amount of Financial Assets Sold / Redeemed / Matured		(57,074)	(14,088)
Net Gain/(Loss) on Disposal		-	-
Non Current Assets Classified as "Held for Sale"			
Proceeds from Disposal - Non Current Assets "Held for Sale"		1,545	-
less: Carrying Amount of 'Held for Sale' Assets Sold / Written Off		(1,700)	-
Net Gain/(Loss) on Disposal		(155)	-
NET GAIN/(LOSS) ON DISPOSAL OF ASSETS		3,533	(4,245)

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 6a. - Cash Assets and Note 6b. - Investments

\$ '000	Notes	2015	2015	2014	2014
		Actual Current	Actual Non Current	Actual Current	Actual Non Current
Cash & Cash Equivalents (Note 6a)					
Cash on Hand and at Bank		1,175	-	3,003	-
Cash-Equivalent Asset: ¹					
- Deposits at Call		32,405	-	30,296	-
Total Cash & Cash Equivalents		33,580	-	33,299	-
Investments (Note 6b)					
- Managed Funds		1,719	-	1,526	-
- Long Term Deposits		91,030	9,000	56,030	21,000
- NCD's, FRN's (with Maturities > 3 months)		4,013	-	1,019	-
- Mortgage Backed Securities		1,736	-	1,765	-
- Other Long Term Financial Assets		3,578	-	3,332	-
Total Investments		102,076	9,000	63,672	21,000
TOTAL CASH ASSETS, CASH EQUIVALENTS & INVESTMENTS		135,656	9,000	96,971	21,000

¹ Those Investments where time to maturity (from date of purchase) is < 3 mths.

Cash, Cash Equivalents & Investments were classified at year end in accordance with AASB 139 as follows:

Cash & Cash Equivalents					
a. "At Fair Value through the Profit & Loss"		33,580	-	33,299	-
Investments					
a. "At Fair Value through the Profit & Loss"					
- "Held for Trading"	6(b-i)	11,046	-	7,642	-
b. "Held to Maturity"	6(b-ii)	91,030	9,000	56,030	21,000
Investments		102,076	9,000	63,672	21,000

Refer to Note 27 - Fair Value Measurement for information regarding the fair value of investments held.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 6b. Investments (continued)

\$ '000	2015	2015	2014	2014
	Actual Current	Actual Non Current	Actual Current	Actual Non Current

Note 6(b-i)**Reconciliation of Investments classified as "At Fair Value through the Profit & Loss"**

Balance at the Beginning of the Year	7,642	-	7,294	-
Revaluations (through the Income Statement)	331	-	386	-
Additions	3,147	-	50	-
Disposals (sales & redemptions)	(74)	-	(88)	-
Balance at End of Year	11,046	-	7,642	-

Comprising:

- Managed Funds	1,719	-	1,526	-
- NCD's, FRN's (with Maturities > 3 months)	4,013	-	1,019	-
- Mortgage Backed Securities	1,736	-	1,765	-
- Other Long Term Financial Assets	3,578	-	3,332	-
Total	11,046	-	7,642	-

Note 6(b-ii)**Reconciliation of Investments classified as "Held to Maturity"**

Balance at the Beginning of the Year	56,030	21,000	-	10,000
Additions	76,000	4,000	60,030	21,000
Disposals (sales & redemptions)	(57,000)	-	(14,000)	-
Transfers between Current/Non Current	16,000	(16,000)	10,000	(10,000)
Balance at End of Year	91,030	9,000	56,030	21,000

Comprising:

- Other Long Term Financial Deposits	91,030	9,000	56,030	21,000
Total	91,030	9,000	56,030	21,000

Note 6(b-iii)**Reconciliation of Investments classified as "Loans & Receivables"**

Nil

Note 6(b-iv)**Reconciliation of Investments classified as "Available for Sale"**

Nil

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 6c. Restricted Cash, Cash Equivalents & Investments - Details

\$ '000	2015	2015	2014	2014
	Actual Current	Actual Non Current	Actual Current	Actual Non Current
Total Cash, Cash Equivalents and Investments	135,656	9,000	96,971	21,000
attributable to:				
External Restrictions (refer below)	68,693	9,000	46,436	21,000
Internal Restrictions (refer below)	41,960	-	22,506	-
Unrestricted	25,003	-	28,029	-
	135,656	9,000	96,971	21,000

2015 \$ '000	Opening Balance	Transfers to Restrictions	Transfers from Restrictions	Closing Balance
-----------------	--------------------	------------------------------	--------------------------------	--------------------

Details of Restrictions

External Restrictions - Included in Liabilities

Nil

External Restrictions - Other

Developer Contributions - General (A)	13,953	12,152	(11,011)	15,094
RMS (formerly RTA) Contributions (B)	214	3,252	(3,326)	140
Specific Purpose Unexpended Grants (C)	11,401	11,202	(17,748)	4,855
Domestic Waste Management (D)	8,081	2,661	(45)	10,697
Stormwater Management (D)	441	1,749	(1,819)	371
Private Contributions	3,342	2,357	(878)	4,821
Unexpended Loan (E)	8,473	287	(1,740)	7,020
Special Rates Levy - Wollongong Mall	240	999	(1,038)	201
Special Rates Levy - City Centre	8	372	(376)	4
Carbon Price	4,458	184	(264)	4,378
Local Infrastructure Renewal Scheme Round 1 (F)	13,361	-	(6,756)	6,605
Local Infrastructure Renewal Scheme Round 2 (F)	3,464	-	(773)	2,691
Local Infrastructure Renewal Scheme Round 3 (F)	-	15,000	-	15,000
West Dapto Home Deposit Assistance Program	-	5,816	-	5,816
External Restrictions - Other	67,436	56,031	(45,774)	77,693
Total External Restrictions	67,436	56,031	(45,774)	77,693

A Development contributions which are not yet expended for the provision of services and amenities in accordance with contributions plans (refer Note 17).

B RMS Contributions which are not yet expended for the provision of services and amenities in accordance with those contributions.

C Grants which are not yet expended for the purposes for which the grants were obtained. (refer Note 1)

D Domestic Waste Management (DWM) & other Special Rates/Levies/Charges are externally restricted assets and must be applied for the purposes for which they were raised.

E State Government interest free loan to be administered on infrastructure as part of the West Dapto development.

F State Government subsidised loans to be administered on infrastructure projects over the local government area.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 6c. Restricted Cash, Cash Equivalents & Investments - Details (continued)

G Following repeal of the carbon price, future year carbon price liabilities associated with waste deposited during 2012-13 and 2013-14 were extinguished. In negotiation with ACCC and the Federal Government a Voluntary Waste Industry Protocol is being developed that looks likely to require early charges collected by Council to be acquitted by way of refund to customers in some circumstances, or by investing in abatement projects, or by purchasing carbon abatement credits and voluntarily transferring them to the Government. All carbon charges collected by Council in anticipation of future liabilities will remain as a Restricted Asset until they are acquitted.

2015 \$ '000	Opening Balance	Transfers to Restrictions	Transfers from Restrictions	Closing Balance
Internal Restrictions				
Car Parking Strategy	203	510	(460)	253
Darcy Wentworth Park	131	33	-	164
Future Projects	5,200	6,008	-	11,208
MacCabe Park Development Property	541	150	-	691
Sports Priority Program	1,483	2,638	-	4,121
Telecommunications Reserve	777	279	(541)	515
Waste Disposal Facility	87	35	(4)	118
West Dapto Development	13,774	3,464	(7,705)	9,533
Property Investment Fund	310	450	(678)	82
Southern Phone Natural Areas	-	7,845	-	7,845
Future Programs	-	519	(30)	489
	-	6,941	-	6,941
Total Internal Restrictions	22,506	28,872	(9,418)	41,960
TOTAL RESTRICTIONS	89,942	84,903	(55,192)	119,653

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 7. Receivables

\$ '000	Notes	2015		2014	
		Current	Non Current	Current	Non Current
Purpose					
Rates & Annual Charges		8,256	-	7,969	-
Interest & Extra Charges		1,455	-	1,444	-
User Charges & Fees		5,044	-	3,465	-
Accrued Revenues					
- Interest on Investments		1,612	-	2,061	-
- Other Income Accruals		2,186	-	1,983	-
Government Grants & Subsidies		2,791	-	4,557	-
Deferred Debtors		-	-	3	-
Net GST Receivable		1,311	-	2,692	-
Total		22,655	-	24,174	-
less: Provision for Impairment					
User Charges & Fees		(546)	-	(366)	-
Total Provision for Impairment - Receivables		(546)	-	(366)	-
TOTAL NET RECEIVABLES		22,109	-	23,808	-
Externally Restricted Receivables					
Nil					
Internally Restricted Receivables					
Nil					
Unrestricted Receivables		22,109	-	23,808	-
TOTAL NET RECEIVABLES		22,109	-	23,808	-

Notes on Debtors above:

- (i) Rates & Annual Charges Outstanding are secured against the property.
- (ii) Doubtful Rates Debtors are provided for where the value of the property is less than the debt outstanding.
An allowance for other doubtful debts is made when there is objective evidence that a receivable is impaired.
- (iii) Interest was charged on overdue rates & charges at 8.50% (2014 9.00%).
Generally all other receivables are non interest bearing.
- (iv) Please refer to Note 15 for issues concerning Credit Risk and Fair Value disclosures.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 8. Inventories & Other Assets

\$ '000	Notes	2015		2014	
		Current	Non Current	Current	Non Current
Inventories					
Real Estate for resale (refer below)		5,734	-	5,734	-
Stores & Materials		306	-	303	-
Total Inventories		6,040	-	6,037	-
Other Assets					
Prepayments		4,313	-	1,646	-
Total Other Assets		4,313	-	1,646	-
TOTAL INVENTORIES / OTHER ASSETS		10,353	-	7,683	-

Externally Restricted Assets

There are no restrictions applicable to the above assets.

Other Disclosures**(a) Details for Real Estate Development**

Residential		5,734	-	5,734	-
Total Real Estate for Resale		5,734	-	5,734	-

(Valued at the lower of cost and net realisable value)

Represented by:

Acquisition Costs		5,734	-	5,734	-
Total Costs		5,734	-	5,734	-
Total Real Estate for Resale		5,734	-	5,734	-

Movements:

Real Estate assets at beginning of the year		5,734	-	8,611	-
- Transfers in from (out to) Note 9		-	-	(2,877)	-
Total Real Estate for Resale		5,734	-	5,734	-

(b) Current Assets not anticipated to be settled within the next 12 months

The following Inventories & Other Assets, even though classified as current are not expected to be recovered in the next 12 months;

	2015	2014
Real Estate for Resale	5,734	5,734
	5,734	5,734

(c) Inventories recognised as an expense for the year included:

- Stores & Materials	1,300	1,361
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Refer to Note 27 - Fair Value Measurement for information regarding the fair value of other assets held.

Wollongong City Council

Notes to the Financial Statements
for the financial year ended 30 June 2015

Note 9a. Infrastructure, Property, Plant & Equipment

\$ '000	as at 30/6/2014					Asset Movements during the Reporting Period										as at 30/6/2015				
	At	At	Accumulated		Carrying	Asset Additions	WDV of Asset Disposals	Depreciation Expense	Impairment Reversal (via Equity)	WIP Transfers	Adjustments & Transfers	Other Movements Change of Life	Revaluation Decrements to Equity (ARR)	Revaluation Increments to Equity (ARR)	At	At	Accumulated		Carrying	
	Cost	Fair Value	Dep'n	Impairment	Value										Cost	Fair Value	Dep'n	Impairment	Value	
Capital Work in Progress	47,266	-	-	-	47,266	26,495	-	-	-	(36,950)	-	-	-	-	36,811	-	-	-	36,811	
Plant & Equipment	-	37,192	17,005	-	20,187	4,588	(1,065)	(4,119)	-	193	12	211	-	-	-	37,403	17,396	-	20,007	
Office Equipment	-	7,452	3,934	-	3,518	258	-	(1,421)	-	-	-	-	-	-	-	7,036	4,681	-	2,355	
Furniture & Fittings	-	1,746	962	-	784	158	(4)	(145)	-	-	6	-	-	-	-	1,513	714	-	799	
Land:																				
- Operational Land	-	181,197	-	-	181,197	194	(4,206)	-	-	-	-	-	-	-	-	177,185	-	-	177,185	
- Community Land	-	373,121	-	-	373,121	1,218	-	-	-	-	-	-	-	-	-	374,339	-	-	374,339	
- Land under Roads (post 30/6/08)	-	26,114	-	-	26,114	675	-	-	-	-	-	-	-	-	-	26,789	-	-	26,789	
Land Improvements - non depreciable	-	67,046	-	-	67,046	-	-	-	-	(67,046)	-	-	-	-	-	-	-	-	-	
Buildings - Non Specialised	-	198,040	106,727	-	91,313	2,940	(7)	(6,068)	-	186	749	-	-	-	-	201,132	112,019	-	89,113	
Buildings - Specialised	-	306,038	186,855	381	118,802	1,963	(39)	(6,396)	-	1,015	(3,147)	-	-	4	-	304,043	191,464	377	112,202	
Other Structures	-	22,920	14,616	-	8,304	168	(45)	(585)	-	-	(1,600)	-	-	-	-	14,061	7,819	-	6,242	
Infrastructure:																				
- Roads	-	1,307,011	774,463	937	531,611	8,585	(1,109)	(20,994)	937	6,209	974	(105)	-	5,094	-	1,330,838	799,636	-	531,202	
- Bridges	-	107,296	43,714	-	63,582	1,188	-	(1,635)	-	86	12,989	(21)	-	2,116	-	124,977	46,672	-	78,305	
- Footpaths	-	235,751	135,684	-	100,067	10,182	(490)	(3,709)	-	15,486	465	(832)	(833)	-	-	255,062	134,726	-	120,336	
- Stormwater Drainage	-	862,601	351,613	-	510,988	5,770	(248)	(9,436)	-	663	2,774	6	(2,342)	-	-	872,896	364,721	-	508,175	
- Swimming Pools	-	30,718	24,534	-	6,184	69	-	(597)	-	-	(392)	-	-	-	-	30,385	25,121	-	5,264	
- Other Open Space/Recreational Assets	-	78,271	47,762	-	30,509	11,396	(124)	(3,303)	-	132	61,844	2,422	-	-	-	152,579	49,703	-	102,876	
Other Assets:																				
- Heritage Collections	-	12,088	-	-	12,088	138	-	-	-	-	(265)	-	-	-	-	11,961	-	-	11,961	
- Library Books	-	6,723	3,031	-	3,692	1,203	-	(1,031)	-	-	-	-	-	-	-	6,832	2,968	-	3,864	
- Other	-	-	-	-	-	9,567	-	(777)	-	12,980	10,499	-	-	-	-	41,342	9,073	-	32,269	
Reinstatement, Rehabilitation & Restoration Assets (refer Note 26):																				
- Tip Assets	-	19,738	8,269	-	11,469	-	-	(220)	-	-	-	-	-	-	-	19,738	8,489	-	11,249	
TOTAL INFRASTRUCTURE, PROPERTY, PLANT & EQUIP.	47,266	3,881,063	1,719,169	1,318	2,207,842	86,755	(7,337)	(60,436)	937	-	17,862	1,681	(3,175)	7,214	36,811	3,990,111	1,775,202	377	2,251,343	

Additions to Buildings & Infrastructure Assets are made up of Asset Renewals (\$48,215) and New Assets (\$38,540). Renewals are defined as the replacement of existing assets (as opposed to the acquisition of new assets).

Refer to Note 27 - Fair Value Measurement for information regarding the fair value of other Infrastructure, Property, Plant & Equipment.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 9b. Externally Restricted Infrastructure, Property, Plant & Equipment

\$ '000

Council has no Externally Restricted Infrastructure, Property, Plant & Equipment.

Note 9c. Infrastructure, Property, Plant & Equipment - Current Year Impairments

	Notes	2015	2014
Council has reversed prior period losses relating to the previous impairment of Mt.Keira Road and RFS Bush Fire			
Reversals of Impairment Losses previously recognised direct to Equity (ARR):			
RFS Bushfire Control Centre		5	-
Mount Keira Road		937	-
Total Impairment Reversals		942	-
IMPAIRMENT of ASSETS - DIRECT to EQUITY (ARR)	20 (ii)	942	-

Council has repaired these assets and they are now in use.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 10a. Payables, Borrowings & Provisions

\$ '000	Notes	2015		2014	
		Current	Non Current	Current	Non Current
Payables					
Goods & Services - operating expenditure		7,325	-	8,645	-
Goods & Services - capital expenditure		10,542	-	10,149	-
Payments Received In Advance		2,872	-	2,273	-
Accrued Expenses:					
- Other Expenditure Accruals		5,374	-	5,568	-
Security Bonds, Deposits & Retentions		2,566	-	1,982	-
Carbon Price		4,174	-	264	4,034
Other		1,186	-	479	-
Total Payables		34,039	-	29,360	4,034
Borrowings					
Loans - Secured ¹		6,369	39,758	3,908	31,459
Total Borrowings		6,369	39,758	3,908	31,459
Provisions					
Employee Benefits;					
Annual Leave		8,599	-	8,288	-
Sick Leave		301	-	563	-
Long Service Leave		33,600	537	30,943	491
Other Leave		884	-	844	-
Sub Total - Aggregate Employee Benefits		43,384	537	40,638	491
Self Insurance - Workers Compensation		1,222	3,282	1,316	5,347
Self Insurance - Claims Incurred		325	325	295	175
Asset Remediation/Restoration (Future Works) ²⁶		2,556	38,410	402	39,170
Total Provisions		47,487	42,554	42,651	45,183
Total Payables, Borrowings & Provisions		87,895	82,312	75,919	80,676

(i) Liabilities relating to Restricted Assets

	2015		2014	
	Current	Non Current	Current	Non Current
Externally Restricted Assets				
Loans	6,369	39,758	3,908	31,459
Carbon Price	4,174	-	264	4,034
Liabilities relating to externally restricted assets	10,543	39,758	4,172	35,493

¹. Loans are secured over the General Rating Income of Council

Disclosures on Liability Interest Rate Risk Exposures, Fair Value Disclosures & Security can be found in Note 15.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 10a. Payables, Borrowings & Provisions (continued)

\$ '000	Actual 2015	Actual 2014
(ii) Current Liabilities not anticipated to be settled within the next 12 months		
The following Liabilities, even though classified as current, are not expected to be settled in the next 12 months.		
Provisions - Employees Benefits	32,458	29,865
Payables - Security Bonds, Deposits & Retentions	2,028	1,463
	34,486	31,328

Note 10b. Description of and movements in Provisions

Class of Provision	2014		2015			Closing Balance as at 30/6/15
	Opening Balance as at 1/7/14	Additional Provisions	Decrease due to Payments	Remeasurement effects due to Discounting	Unused amounts reversed	
Annual Leave	8,288	7,776	(7,457)	(8)	-	8,599
Sick Leave	563	17	(287)	8	-	301
Long Service Leave	31,434	4,692	(2,992)	1,003	-	34,137
Other Leave	844	203	(198)	35	-	884
Self Insurance						
- Workers Compensation	6,663	(2,159)	-	-	-	4,504
- Claims Incurred	470	180	-	-	-	650
Asset Remediation	39,572	1,394	-	-	-	40,966
TOTAL	87,834	12,103	(10,934)	1,038	-	90,041

- Employees Leave Entitlements & On-Costs represents those benefits accrued and payable and an estimate of those that will become payable in the future as a result of past service.
- Self Insurance Provisions represent both (i) Claims Incurred but Not reported and (ii) Claims Reported & Estimated as a result of Council's being a self insurer up to certain levels of Excess. Estimates are derived through a process of claim assessment undertaken internally by Council's Risk Insurance team.
- Asset Remediation, Reinstatement & Restoration Provisions represent the Present Value estimate of future costs Council will incur in order to remove, restore & remediate assets &/or activities as a result of past operations. The calculation has been prepared by Finance using information provided by Council's Waste Services team. The major assumptions are the life of the tip, estimate of future costs, timing of future costs and the discount rate.
- Workers Compensation - Self Insurance Provision represents Wollongong City Council's liability in respect of its self-insured outstanding claims incurred up to 30 June 2015. Accrual estimates were provided by David A Zaman Pty Ltd. Council is a licenced self-insurer under the Workers' Compensation Act in NSW. The licence commenced with effect from June 1983.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 11. Statement of Cash Flows - Additional Information

\$ '000	Notes	Actual 2015	Actual 2014
(a) Reconciliation of Cash Assets			
Total Cash & Cash Equivalent Assets	6a	33,580	33,299
Less Bank Overdraft	10	-	-
BALANCE as per the STATEMENT of CASH FLOWS		33,580	33,299
(b) Reconciliation of Net Operating Result to Cash provided from Operating Activities			
Net Operating Result from Income Statement		31,594	12,111
Adjust for non cash items:			
Depreciation & Amortisation		60,763	61,203
Net Losses/(Gains) on Disposal of Assets		(3,533)	4,245
Non Cash Capital Grants and Contributions		(1,906)	(8,167)
Losses/(Gains) recognised on Fair Value Re-measurements through the P&L:			
- Investments classified as "At Fair Value" or "Held for Trading"		(331)	(386)
- Investment Properties		-	975
Amortisation of Premiums & Discounts			
- Interest Free Advances made by Council		(7)	(6)
- Interest Free Loans received by Council (previously Fair Valued)		1,004	1,127
Unwinding of Discount Rates on Reinstatement Provisions		1,722	1,758
Share of Net (Profits) or Losses of Associates/Joint Ventures		22	(198)
+/- Movement in Operating Assets and Liabilities & Other Cash Items:			
Decrease/(Increase) in Receivables		1,516	1,468
Increase/(Decrease) in Provision for Doubtful Debts		180	32
Decrease/(Increase) in Inventories		(3)	26
Decrease/(Increase) in Other Assets		(2,667)	(761)
Increase/(Decrease) in Payables		(1,320)	1,797
Increase/(Decrease) in other accrued Expenses Payable		(194)	1,954
Increase/(Decrease) in Other Liabilities		1,766	34
Increase/(Decrease) in Employee Leave Entitlements		2,792	2,602
Increase/(Decrease) in Other Provisions		(2,307)	1,538
NET CASH PROVIDED FROM/(USED IN) OPERATING ACTIVITIES from the STATEMENT of CASH FLOWS		89,091	81,352

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 11. Statement of Cash Flows - Additional Information (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(c) Non-Cash Investing & Financing Activities			
Other Dedications		1,906	7,577
Contributed Bush Fire Assets		-	590
Total Non-Cash Investing & Financing Activities		1,906	8,167
(d) Financing Arrangements			
(i) Unrestricted access was available at balance date to the following lines of credit:			
Bank Overdraft Facilities ⁽¹⁾		300	300
Credit Cards / Purchase Cards		835	835
Total Financing Arrangements		1,135	1,135
Amounts utilised as at Balance Date:			
- Credit Cards / Purchase Cards		60	57
Total Financing Arrangements Utilised		60	57

1. The Bank overdraft facility may be drawn at any time and may be terminated by the bank without notice.
Interest rates on overdrafts are Interest Rates on Loans & Other Payables are disclosed in Note 15.

(ii) Secured Loan Liabilities

Loans are secured by a mortgage over future years Rate Revenue only.

(e) Bank Guarantees

Council has provided security to Work Cover for outstanding workers compensation claims liability in the form of a bank guarantee to the sum of \$8,646,464.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 12. Commitments for Expenditure

\$ '000	Notes	Actual 2015	Actual 2014
(a) Capital Commitments (exclusive of GST)			
Capital expenditure committed for at the reporting date but not recognised in the financial statements as liabilities:			
Property, Plant & Equipment			
Buildings		3,599	223
Plant & Equipment		317	-
Infrastructure		1,479	11,889
Total Commitments		5,395	12,112
These expenditures are payable as follows:			
Within the next year		5,395	12,112
Total Payable		5,395	12,112
Sources for Funding of Capital Commitments:			
Unrestricted General Funds		4,074	3,694
Sect 64 & 94 Funds/Reserves		220	515
Unexpended Grants		-	6,981
Unexpended Loans		1,101	922
Total Sources of Funding		5,395	12,112

Details of Capital Commitments

Buildings include Thomas Dalton Park Amenities, Nicholson Park Amenities, North Beach Kiosk, Berkeley Community Centre, Wollongong Youth Centre & Corrimal Surf Life Saving Club. Infrastructure includes Blue Mile Walk, Kenny Street Traffic Signals, Grand Pacific Walk, Auburn Street Traffic Signals & Wombara Rock Pool Sea Wall Plant includes Port Kembla Pool Intake Pipe & Beaton Park Pool Air Management System.

(b) Finance Lease Commitments

Nil

(c) Operating Lease Commitments (Non Cancellable)

a. Commitments under Non Cancellable Operating Leases at the Reporting date, but not recognised as Liabilities are payable:

Within the next year	97	97
Later than one year and not later than 5 years	388	388
Later than 5 years	872	970
Total Non Cancellable Operating Lease Commitments	1,357	1,455

b. Non Cancellable Operating Leases include the following assets:

Lease of Land for Dapto Ribbonwood Centre

Conditions relating to Operating Leases:

- All Operating Lease Agreements are secured only against the Leased Asset.
- No Lease Agreements impose any financial restrictions on Council regarding future debt etc.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 13a(i). Statement of Performance Measurement - Indicators (Consolidated)

\$ '000	Amounts		Indicator		Prior Periods	
	2015		2015		2014	2013
Local Government Industry Indicators - Consolidated						
1. Operating Performance Ratio						
Total continuing operating revenue ⁽¹⁾						
(excl. Capital Grants & Contributions) - Operating Expenses		<u>5,719</u>				
Total continuing operating revenue ⁽¹⁾		<u>247,342</u>		2.31%	-6.53%	-4.43%
(excl. Capital Grants & Contributions)						
2. Own Source Operating Revenue Ratio						
Total continuing operating revenue ⁽¹⁾						
(excl. ALL Grants & Contributions)		<u>217,023</u>				
Total continuing operating revenue ⁽¹⁾		<u>269,375</u>		80.57%	79.70%	74.09%
3. Unrestricted Current Ratio						
Current Assets less all External Restrictions ⁽²⁾		<u>93,691</u>				
Current Liabilities less Specific Purpose Liabilities ^(3,4)		<u>42,866</u>		2.19x	1.93	2.01
4. Debt Service Cover Ratio						
Operating Result ⁽¹⁾ before capital excluding interest and depreciation / impairment / amortisation		<u>70,519</u>				
Principal Repayments (from the Statement of Cash Flows)		<u>9,281</u>		7.60x	5.87	8.33
+ Borrowing Costs (from the Income Statement)						
5. Rates, Annual Charges, Interest & Extra Charges Outstanding Percentage						
Rates, Annual and Extra Charges Outstanding		<u>9,711</u>				
Rates, Annual and Extra Charges Collectible		<u>177,086</u>		5.48%	5.61%	7.09%
5a. Rates, Annual Charges, Interest & Extra Charges Outstanding Percentage (excl. Pensioner arrears)						
Rates, Annual and Extra Charges Outstanding		<u>6,980</u>				
Rates, Annual and Extra Charges Collectible		<u>177,086</u>		3.94%	4.21%	5.72%
6. Cash Expense Cover Ratio						
Current Year's Cash and Cash Equivalents						
+ All Term Deposits		<u>133,610</u>				
Payments from cash flow of operating and financing activities	x12	<u>16,675</u>		8.01 mths	7.11	7.33

Notes

⁽¹⁾ Excludes fair value adjustments and reversal of revaluation decrements, net gain/(loss) on sale of assets and the net share of interests in joint ventures & associates.

⁽²⁾ Refer Notes 6-8 inclusive.

Also excludes any real estate & land for resale not expected to be sold in the next 12 months

⁽³⁾ Refer to Note 10(a).

⁽⁴⁾ Refer to Note 10(a)(ii) - excludes all payables & provisions not expected to be paid in the next 12 months (incl. ELE).

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 13a(ii). Local Government Industry Indicators - Graphs (Consolidated)



Purpose of Operating Performance Ratio

This ratio measures Council's achievement of containing operating expenditure within operating revenue.

Commentary on 2014/15 Result

2014/15 Ratio 2.31%

This ratio has been impacted positively by settlement of a legal claim and sale of land holdings that are one off events and resulted in a positive ratio. Council has continued a process of reviewing all services currently provided in consultation with the Community. This work aims to determine service levels, create efficiencies and consider funding levels to improve the underlying result in the short term and create a balanced result in future years.

Benchmark: Minimum >=0.00%
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Own Source Operating Revenue Ratio

This ratio measures fiscal flexibility. It is the degree of reliance on external funding sources such as operating grants & contributions.

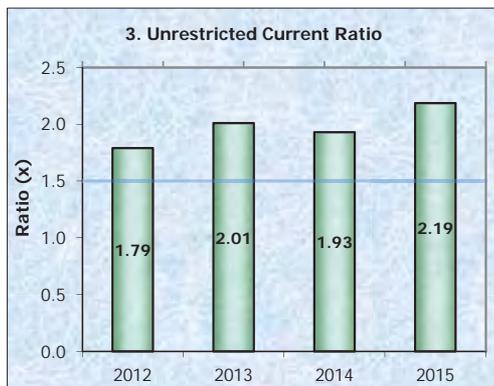
Commentary on 2014/15 Result

2014/15 Ratio 80.57%

This result reflects an improvement on this measure during the reporting period. It is noted that total revenue includes non-cash contributed assets.

Benchmark: Minimum >=60.00%
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Unrestricted Current Ratio

To assess the adequacy of working capital and its ability to satisfy obligations in the short term for the unrestricted activities of Council.

Commentary on 2014/15 Result

2014/15 Ratio 2.19x

- Council's strategy is to maximise the use of available funds and target a lean unrestricted ratio.
- Cash assets held for future waste facility requirements are held in the unrestricted ratio. As the requirements to hold funds for waste facility rehabilitation is significant the measure is expected to increase until payments are required.

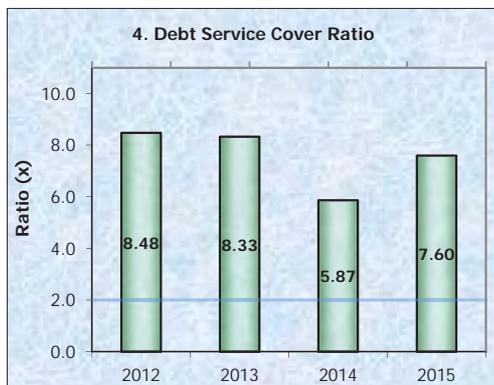
Benchmark: Minimum >=1.50
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 13a(ii). Local Government Industry Indicators - Graphs (Consolidated)



Benchmark: — Minimum ≥ 2.00

Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Purpose of Debt Service Cover Ratio

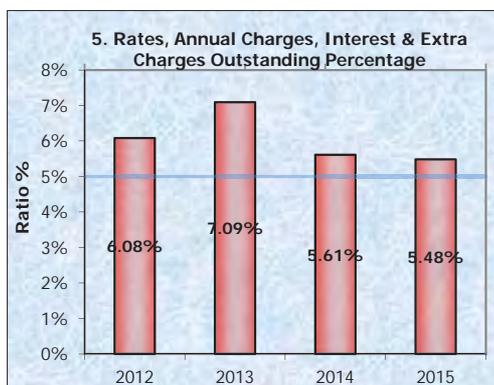
This ratio measures the availability of operating cash to service debt including interest, principal and lease payments

Commentary on 2014/15 Result

2014/15 Ratio 7.60x

The result provides an indication that Council can adequately service its outstanding debt.

Ratio is within Benchmark
 Ratio is outside Benchmark



Benchmark: — Maximum $< 5.00\%$

Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Purpose of Rates & Annual Charges Outstanding Ratio

To assess the impact of uncollected rates and annual charges on Council's liquidity and the adequacy of recovery efforts.

Commentary on 2014/15 Result

2014/15 Ratio 5.48%

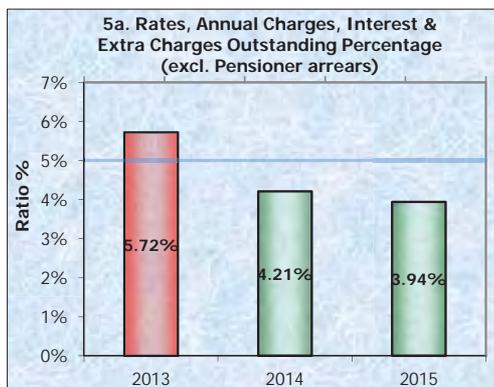
An improved debt recovery process was implemented in 2013/14. The process has continued to generate positive implications on 2014/15 results.

Ratio is within Benchmark
 Ratio is outside Benchmark

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 13a(ii). Local Government Industry Indicators - Graphs (Consolidated)



Purpose of Rates & Annual Charges Outstanding Ratio (excl. Pensioner arrears)

To assess the impact of uncollected rates and annual charges (excluding pensioner arrears) on Council's liquidity and the adequacy of recovery efforts.

Commentary on 2014/15 Result

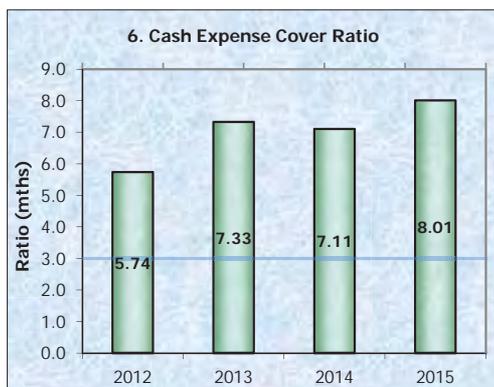
2014/15 Ratio 3.94%

The Rates, Annual Charges, Interest & Extra Charges Outstanding Percentage is negatively impacted by Council's policy to exempt pensioners from debt recovery proceedings. The value of pensioner arrears has been removed the results of this graph.

Benchmark: ——— Maximum 5.00%

Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

 Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Cash Expense Cover Ratio

This liquidity ratio indicates the number of months a Council can continue paying for its immediate expenses without additional cash inflow.

Commentary on 2014/15 Result

2014/15 Ratio 8.01 mths

The result of this measure reflects the short term position of Council's investment portfolio at the end of 2014/15.

Benchmark: ——— Minimum >=3.00

Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

 Ratio is within Benchmark
 Ratio is outside Benchmark

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 14. Investment Properties

\$ '000	Notes	Actual 2015	Actual 2014
(a) Investment Properties at Fair value			
<u>Investment Properties on Hand</u>		<u>2,750</u>	<u>2,750</u>
Reconciliation of Annual Movement:			
Opening Balance		2,750	3,725
- Net Gain/(Loss) from Fair Value Adjustments		-	(975)
CLOSING BALANCE - INVESTMENT PROPERTIES		<u>2,750</u>	<u>2,750</u>

(b) Valuation Basis

The basis of valuation of Investment Properties is Fair Value, being the amounts for which the properties could be exchanged between willing parties in arms length transaction, based on current prices in an active market for similar properties in the same location and condition and subject to similar leases.

The 2015 revaluations are not based on an Independent Assessment and Valuation.

The Property Services Manager of Wollongong City Council assessed there has been no movement in the value of Council's investment property.

(c) Contractual Obligations at Reporting Date

Refer to Note 12 for disclosures relating to any Capital and Service obligations that have been contracted.

(d) Leasing Arrangements

Details of leased Investment Properties are as follows;

Future Minimum Lease Payments receivable under non-cancellable Investment Property Operating Leases not recognised in the Financial Statements are receivable as follows:

Within 1 year	287	213
Later than 1 year but less than 5 years	391	388
Total Minimum Lease Payments Receivable	<u>678</u>	<u>601</u>

(e) Investment Property Income & Expenditure - summary

Rental Income from Investment Properties:		
- Minimum Lease Payments	406	416
Direct Operating Expenses on Investment Properties:		
- that generated rental income	(123)	(166)
Net Revenue Contribution from Investment Properties	<u>283</u>	<u>250</u>
plus:		
Fair Value Movement for year	<u>-</u>	<u>(975)</u>
Total Income attributable to Investment Properties	<u>283</u>	<u>(725)</u>

Refer to Note 27- Fair Value Measurement for information regarding the fair value of investment properties held.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 15. Financial Risk Management

\$ '000

Risk Management

Council's activities expose it to a variety of financial risks including **(1)** price risk, **(2)** credit risk, **(3)** liquidity risk and **(4)** interest rate risk.

The Council's overall risk management program focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the financial performance of the Council.

Council does not engage in transactions expressed in foreign currencies and is therefore not subject to foreign currency risk.

Financial risk management is carried out by Council's Finance Section under policies approved by the Council.

A comparison by category of the carrying amounts and fair values of Council's Financial Assets & Financial Liabilities recognised in the financial statements is presented below.

	Carrying Value		Fair Value	
	2015	2014	2015	2014
Financial Assets				
Cash and Cash Equivalents	33,580	33,299	33,580	33,299
Investments				
- "Held for Trading"	11,046	7,642	11,046	7,642
- "Held to Maturity"	100,030	77,030	100,030	77,030
Receivables	22,109	23,808	22,110	23,808
Total Financial Assets	166,765	141,779	166,766	141,779
Financial Liabilities				
Payables	31,167	31,121	31,167	31,121
Loans / Advances	46,127	35,367	46,127	35,367
Total Financial Liabilities	77,294	66,488	77,294	66,488

Fair Value is determined as follows:

- **Cash & Cash Equivalents, Receivables, Payables** - are estimated to be the carrying value which approximates mkt value.
- **Borrowings & Held to Maturity Investments** - are based upon estimated future cash flows discounted by the current market interest rates applicable to assets & liabilities with similar risk profiles, unless quoted market prices are available.
- Financial Assets classified (i) "**at fair value through profit & loss**" or (ii) **Available for Sale** - are based upon quoted market prices (in active markets for identical investments) at the reporting date or independent valuation.

Refer to Note 27 - Fair Value Measurement for information regarding the fair value of financial assets & liabilities

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 15. Financial Risk Management (continued)

\$ '000

(a) Cash & Cash Equivalents, Financial assets 'at fair value through the profit & Loss' "Available-for-sale" financial assets & "Held-to-maturity" Investments

Council's objective is to maximise its return on cash & investments whilst maintaining an adequate level of liquidity and preserving capital.

Council's Finance area manages the Cash & Investments portfolio with the assistance of independent consultants.

Council has an Investment Policy which complies with the Local Government Act & Minister's Investment Order. This Policy is regularly reviewed by Council and its staff and an Investment Report is tabled before Council on a monthly basis setting out the portfolio breakup and its performance.

The risks associated with the investments held are:

- **Price Risk** - the risk that the capital value of Investments may fluctuate due to changes in market prices, whether there changes are caused by factors specific to individual financial instruments or their issuers or are caused by factors affecting similar instruments traded in a market.

The investment types primarily affected by price risk at balance date are Council's FRN, MBS and T-Corp holdings. Council views market adjustments made to these securities as the result of the global credit crisis which has highlighted the lack of liquidity in the market. This subsequently led to rating downgrades to some of these assets.

- **Interest Rate Risk** - the risk that movements in interest rates could affect returns and income.

Council manages interest rate risk by investing in a range of short term fixed rate and longer term variable rate deposits. Interest rate risk is mimimised as short term fixed deposits allow regular reinvestment in line with interest rate movements whilst the variable deposits reset on a quarterly basis in line with published interest rates.

- **Credit Risk** - the risk that the investment counterparty) will not complete their obligations particular to a financial instrument, resulting in a financial loss to Council - be it of a capital or income nature.

Council manages these risks (amongst other measures) by diversifying its portfolio and only purchasing investments with high credit ratings or capital guarantees.

The following represents a summary of the sensitivity of Council's Income Statement and Accumulated Surplus (for the reporting period) due to a change in either the price of a financial asset or the interest rates applicable.

It is assumed that the change in interest rates would have been constant throughout the reporting period.

	Increase of Values/Rates		Decrease of Values/Rates	
	Profit	Equity	Profit	Equity
2015				
Possible impact of a 10% movement in Market Values	1,105	1,105	(1,105)	(1,105)
Possible impact of a 1% movement in Interest Rates	1,336	1,336	(1,336)	(1,336)
2014				
Possible impact of a 10% movement in Market Values	764	764	(764)	(764)
Possible impact of a 1% movement in Interest Rates	1,103	1,103	(1,103)	(1,103)

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 15. Financial Risk Management (continued)

\$ '000

(b) Receivables

Council's major receivables comprise (i) Rates & Annual charges and (ii) User Charges & Fees.

The major risk associated with these receivables is credit risk - the risk that debts due and payable to Council may not be repaid in full.

Council manages this risk by monitoring outstanding debt and employing stringent debt recovery procedures. It also encourages ratepayers to pay their rates by the due date through incentives.

Credit risk on rates and annual charges is minimised by the ability of Council to secure a charge over the land relating to the debts - that is, the land can be sold to recover the debt. Council is also able to charge interest on overdue rates & annual charges at higher than market rates which further encourages the payment of debt.

There are no significant concentrations of credit risk, whether through exposure to individual customers, specific industry sectors and/or regions.

The level of outstanding receivables is reported to Council monthly and benchmarks are set and monitored for acceptable collection performance.

Council makes suitable provision for doubtful receivables as required and carries out credit checks on most non-rate debtors.

There are no material receivables that have been subjected to a re-negotiation of repayment terms.

A profile of Council's receivables credit risk at balance date follows:

	2015	2015	2014	2014
	Rates & Annual Charges	Other Receivables	Rates & Annual Charges	Other Receivables
(i) Ageing of Receivables - %				
Current (not yet overdue)	49%	43%	38%	65%
Overdue	51%	57%	62%	35%
	100%	100%	100%	100%

		2015	2015	2014	2014
	Rates & Annual Charges	Other Receivables	Rates & Annual Charges	Other Receivables	Other Receivables
(ii) Ageing of Receivables - value					
Rates & Annual Charges	Other Receivables				
Current	Current	4,746	7,835	2,995	12,159
< 1 year overdue	0 - 30 days overdue	1,638	3,345	1,641	2,777
1 - 2 years overdue	30 - 60 days overdue	1,041	592	1,043	383
2 - 5 years overdue	60 - 90 days overdue	747	83	748	57
> 5 years overdue	> 90 days overdue	1,539	1,089	1,542	829
		9,711	12,944	7,969	16,205

(iii) Movement in Provision for Impairment of Receivables

Balance at the beginning of the year	2015	2014
	366	334
+ new provisions recognised during the year	206	39
- previous impairment losses reversed	(26)	(7)
Balance at the end of the year	546	366

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 15. Financial Risk Management (continued)

\$ '000

(c) Payables & Borrowings

Payables & Borrowings are both subject to liquidity risk - the risk that insufficient funds may be on hand to meet payment obligations as and when they fall due.

Council manages this risk by monitoring its cash flow requirements and liquidity levels and maintaining an adequate cash buffer.

Payment terms can (in extenuating circumstances) also be extended & overdraft facilities utilised as required.

The contractual undiscounted cash outflows (ie. principal and interest) of Council's Payables & Borrowings are set out in the maturity table below:

\$ '000	Subject to no maturity	payable in:						Total Cash Outflows	Actual Carrying Values
		≤ 1 Year	1-2 Yrs	2-3 Yrs	3-4 Yrs	4-5 Yrs	> 5 Yrs		
2015									
Trade/Other Payables	2,566	28,601	-	-	-	-	-	31,167	31,167
Loans & Advances	-	8,051	8,051	8,051	8,051	5,151	15,807	53,162	46,127
Total Financial Liabilities	2,566	36,652	8,051	8,051	8,051	5,151	15,807	84,329	77,294
2014									
Trade/Other Payables	1,982	29,139	-	-	-	-	-	31,121	31,121
Loans & Advances	-	6,023	6,163	6,163	6,163	6,163	11,046	41,721	35,367
Total Financial Liabilities	1,982	35,162	6,163	6,163	6,163	6,163	11,046	72,842	66,488

Borrowings are also subject to interest rate risk - the risk that movements in interest rates could adversely affect funding costs & debt servicing requirements. Council manages this risk through the diversification of borrowing types, maturities & interest rate structures.

The following interest rates were applicable to Council's Borrowings at balance date:

	2015		2014	
	Carrying Value	Average Interest Rate	Carrying Value	Average Interest Rate
Trade/Other Payables	31,167	0.0%	31,121	0.0%
Loans & Advances - Fixed Interest Rate	46,127	1.5%	35,367	1.5%
	<u>77,294</u>		<u>66,488</u>	

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 16. Material Budget Variations

\$ '000

Council's Original Financial Budget for 14/15 was adopted by the Council on 23 June 2014.

While the Income Statement included in this General Purpose Financial Report must disclose the Original Budget adopted by Council, the Local Government Act requires Council to review its Financial Budget on a Quarterly Basis, so that it is able to manage the various variations between actuals versus budget that invariably occur throughout the year.

This Note sets out the details of MATERIAL VARIATIONS between Council's Original Budget and its Actual results for the year as per the Income Statement - even though such variations may have been adjusted for during each Quarterly Budget Review.

Note that for Variations* of Budget to Actual :

Material Variations represent those variances that amount to **10%** or more of the original budgeted figure.

F = Favourable Budget Variation, **U** = Unfavourable Budget Variation

\$ '000	2015 Budget	2015 Actual	2015 Variance*		
REVENUES					
Rates & Annual Charges	165,699	166,849	1,150	1%	F
User Charges & Fees	32,487	32,851	364	1%	F
Interest & Investment Revenue	5,238	5,689	451	9%	F
Other Revenues	9,143	11,965	2,822	31%	F
This variation is due to the settlement of a large legal claim relating to advisory services (\$1.8M), reimbursement for prior year insurance claims including events underwritten by HIH post liquidation (\$0.6M), payments for accumulated leave entitlements for staff coming from other councils (\$0.2M) and a range of smaller variances across multiple income streams.					
Operating Grants & Contributions	28,146	30,319	2,173	8%	F
Capital Grants & Contributions	32,604	22,033	(10,571)	(32%)	U
Capital grant & contribution income is impacted by timing and progress of major projects. The reduced level of income in 2014/15 compared to budget is partly due to the early receipt of grants in the prior year (\$7.9M) for the City Centre project and change in timing of aspects of the West Dapto Access projects to future years (\$9.0M). This negative variance has been offset by increased income from developer contributions (\$3.9M), recognition of value of contributed assets (\$1.9M), receipt of grants associated with pathway/cycleway works (\$0.5M) and other more minor variations.					
Net Gains from Disposal of Assets	1,040	3,533	2,493	240%	F
This budget variation is a result of profit on land sales (\$4.0M) and disposal of plant (\$0.4M) offset by write off of residual values on assets that were replaced during the year (2.0M).					

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 16. Material Budget Variations (continued)

\$ '000	2015 Budget	2015 Actual	2015 ----- Variance* -----		
EXPENSES					
Employee Benefits & On-Costs	96,607	95,399	1,208	1%	F
Borrowing Costs	3,830	4,037	(207)	(5%)	U
Materials & Contracts	49,396	45,647	3,749	8%	F
Depreciation & Amortisation	61,767	60,763	1,004	2%	F
Other Expenses	39,492	35,777	3,715	9%	F

Budget Variations relating to Council's Cash Flow Statement include:

Cash Flows from Operating Activities	88,638	89,091	453	0.5%	F
Cash Flows from Investing Activities	(80,881)	(98,566)	(17,685)	21.9%	U
This is primarily due to an increase in the purchase of long term deposits than originally anticipated. This amount is offset by a similar reduction in cash and cash equivalents.					
Cash Flows from Financing Activities	(4,914)	9,756	14,670	(298.5%)	F
The variation is primarily the result of the LIRS 3 drawdown that occurred during the reporting period.					

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 17. Statement of Developer Contributions

\$ '000

Council recovers contributions, raises levies & enters into planning agreements on development works that are subject to a development consent issued by Council. All contributions must be spent/utilised for the specific purpose they were levied and any interest applicable to unspent funds must be attributed to remaining funds.

The following tables detail the receipt, interest and use of the above contributions & levies and the value of all remaining funds which are "restricted" in their future use.

SUMMARY OF CONTRIBUTIONS & LEVIES

PURPOSE	Opening Balance	Contributions received during the Year		Interest earned in Year	Expenditure during Year	Internal Borrowing (to)/from	Held as Restricted Asset	Projections		
		Cash	Non Cash					Future income	Exp still outstanding	Over or (under) Funding
Drainage	1,955	999	-	90	-	-	3,044	81,745	(90,310)	(5,521)
Roads	7,875	1,376	-	308	(7,898)	-	1,661	272,678	(542,848)	(268,509)
Open Space	1,978	392	-	79	-	-	2,449	102,616	(103,181)	1,884
Community Facilities	410	81	-	17	-	-	508	18,940	(16,833)	2,615
Administration	109	107	-	6	(12)	-	210	8,350	(7,648)	912
Public Transport	298	66	-	12	-	-	376	19,297	(16,215)	3,458
S94 Contributions - under a Plan	12,625	3,021	-	512	(7,910)	-	8,248	503,626	(777,035)	(265,161)
S94A Levies - under a Plan	1,328	8,512	-	107	(3,101)	-	6,846			
Total S94 Revenue Under Plans	13,953	11,533	-	619	(11,011)	-	15,094			
Total Contributions	13,953	11,533	-	619	(11,011)	-	15,094	503,626	(777,035)	(265,161)

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 17. Statement of Developer Contributions (continued)

\$ '000

S94 CONTRIBUTIONS - UNDER A PLAN

CONTRIBUTION PLAN - WEST DAPTO

PURPOSE	Opening Balance	Contributions received during the Year		Interest earned in Year	Expenditure during Year	Internal Borrowing (to)/from	Held as Restricted Asset	Projections		
		Cash	Non Cash					Future income	Exp still outstanding	Over or (under) Funding
Drainage	1,955	999	-	90	-	-	3,044	81,745	(90,310)	(5,521)
Roads	7,875	1,376	-	308	(7,898)	-	1,661	272,678	(542,848)	(268,509)
Open Space	1,978	392	-	79	-	-	2,449	102,616	(103,181)	1,884
Community Facilities	410	81	-	17	-	-	508	18,940	(16,833)	2,615
Administration	109	107	-	6	(12)	-	210	8,350	(7,648)	912
Public Transport	298	66	-	12	-	-	376	19,297	(16,215)	3,458
Total	12,625	3,021	-	512	(7,910)	-	8,248	503,626	(777,035)	(265,161)

A Figures provided above relate to the Draft West Dapto S94 Plan. This plan is currently on public exhibition until 21 August 2015.

B Projections show 50 years of projected income and expenditure in today's dollars that is published in the Section 94 Plan.

C Council is undertaking a process to review the Plan, which will address the funding gap, consider development yields, current cap on contributions and planned expenditure.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 17. Statement of Developer Contributions (continued)

\$ '000

S94A LEVIES - UNDER A PLAN

CONTRIBUTION PLAN - WOLLONGONG

PURPOSE	Opening Balance	Contributions received during the Year		Interest earned in Year	Expenditure during Year	Internal Borrowing (to)/from	Held as Restricted Asset	Projections		
		Cash	Non Cash					Future income	Exp still outstanding	Over or (under) Funding
City Wide	7,384	4,839	-	332	(2,476)	-	10,079	279	(5,952)	4,406
City Centre	(6,056)	3,673	-	(225)	(625)	-	(3,233)	13,929	(10,222)	474
Total	1,328	8,512	-	107	(3,101)	-	6,846	14,208	(16,174)	4,880

- A** The Wollongong S94A plan is a levy based plan that reflects development activity in the CBD area.
- B** Figures provided include amounts collected under the Section 94A Plan as well as contributions received from relevant development consents approved prior to 2006 that contained conditions for contributions to be made, under now repealed Section 94 plans. These are transferred and applied towards items within the Section 94A Plan Works schedule as the Section 94A is the replacement for the plans repealed in June 2006.
- C** Projections provided at left show 10 years of projected income and expenditure from Council's adopted long term budget.
- D** Projected income includes interest accrued if the restricted fund is in surplus.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 18. Contingencies & Other Assets/Liabilities Not Recognised

\$ '000

The following assets and liabilities do not qualify for recognition in the Balance Sheet, but their knowledge & disclosure is considered relevant to the users of Council's Financial Report.

LIABILITIES NOT RECOGNISED:

1. Bank Guarantees

Council has provided Bank Guarantees totalling \$935,464 as security over damages for work that may impact a third party.

Council is also Guarantor on a mortgage for a third party of \$200,000.

2. Third Party Claims

The Council is involved from time to time in various claims incidental to the ordinary course of business including claims for damages relating to its services.

Council believes that it is appropriately covered for all claims through its Insurance Coverage and does not expect any material liabilities to eventuate.

3. S94 Plans

Council levies Section 94/94A Contributions upon various development across the Council area through the required Contributions Plans. As part of these Plans, Council has received funds for which it will be required to expend the monies in accordance with those Plans.

As well, these Plans indicate proposed future expenditure to be undertaken by Council, which will be funded by making levies and receipting funds in

3. S94 Plans (continued)

future years or where a shortfall exists by the use of Council's General Funds.

These future expenses do not yet qualify as liabilities as of the Reporting Date, but represent Councils intention to spend funds in the manner and timing set out in those Plans.

4. Defined Benefit Superannuation Contribution Plans

Council participates in an employer sponsored Defined Benefit Superannuation Scheme, and makes contributions as determined by the Superannuation Scheme's Trustees.

Member Councils bear responsibility of ensuring there are sufficient funds available to pay out the required benefits as they fall due.

The Schemes most recent full actuarial review indicated that the Net Assets of the Scheme were not sufficient to meet the accrued benefits of the Schemes Defined Benefit member category with member Councils required to make a higher contribution during the reporting period. This amounted to \$1.763M for Council in 2014/15 which is consistent with the amount paid in 2013/14.

The Local Government Superannuation Scheme however is unable to provide Council with an accurate estimate of its share of the net deficit and accordingly Council has not recorded any net liability from its Defined Benefit Scheme obligations in accordance with AASB 119.

Future contributions made to the defined benefit scheme to rectify the net deficit position will be recognised as an expense when they become payable - similar to the accounting for Defined Contributions Plans.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 18. Contingencies & Other Assets/Liabilities Not Recognised (continued)

\$ '000

ASSETS NOT RECOGNISED:

1. Liability Insurance - Independent Insurance Company

Council placed its liability insurance with Independent Insurance Company of London (Independent) in 1996. During 2000/2001 Independent went into liquidation. Independent remains responsible for payment of their portion of each Council claim incurred which exceeded Council's insurance excess. The total of Council's unrecovered liability claims is currently estimated at \$3,715,488. At this time, the liquidator is unable to determine how much of Council's claims will be recovered from the remaining assets of Independent, and has not yet established a Scheme of Arrangement.

2. Various Insurance - HIH & CIC

Council placed or was a party to various liability, property and workers compensation insurance policies with HIH & CIC. During 2000/2001 HIH & CIC went into liquidation. Both HIH & CIC remain responsible for payment of their portion of each Council claim incurred which exceeded Council's insurance excess. Council has recovered \$1,040,444 to date. The total of Council's unrecovered claims is currently \$1,257,058.

At this time, the liquidator is unable to determine how much of Council's claims will be recovered from the remaining assets of HIH & CIC.

3. Land Under Roads

As permitted under AASB 1051, Council has elected not to bring to account Land Under Roads that it owned or controlled up to & including 30/6/08.

4. Fit for Future

On 22 June 2015 Council resolved to endorse a submission to the Office of Local Government outlining Council's Improvement Proposal as a result of the Fit for Future program. The improvement proposal builds upon the Independent Local Government Review Panel's position that the Council has enough scale and capacity to maintain its operations as an independent Council, yet seeks to strengthen its relationships with other Councils in the Illawarra region.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 19. Interests in Other Entities

\$ '000

Council's objectives can and in some cases are best met through the use of separate entities & operations.

These operations and entities range from 100% ownership and control through to lower levels of ownership and control via co-operative arrangements with other Councils, Bodies and other Outside Organisations.

The accounting and reporting for these various entities, operations and arrangements varies in accordance with accounting standards, depending on the level of Councils (i) interest and (ii) control and the type (form) of entity/operation, as follows;

Controlled Entities (Subsidiaries)

Note 19(a)

Operational arrangements where Council's control (but not necessarily interest) exceeds 50%.

Joint Ventures & Associates

Note 19(b)

Joint Ventures are operational arrangements where the parties that have joint control have rights to the net assets of the arrangement.

Associates are separate entities where Council has significant influence over the operations (but neither controls nor jointly controls them).

Joint Operations

Note 19(c)

Operational arrangements where the parties that have joint control have rights to specific assets and obligations for specific liabilities relating to the arrangement rather than a right to the net assets of the arrangement.

Unconsolidated Structured Entities

Note 19(d)

Unconsolidated Structured Entities represent "special vehicles" that Council has an interest in but which are not controlled by Council and therefore not consolidated as a Subsidiary, Joint Arrangement or Associate. Attributes of Structured Entities include restricted activities, a narrow and well-defined objective and insufficient equity to finance its activities without financial support.

Subsidiaries, Joint Arrangements and Associates not recognised

Note 19(e)

Accounting Recognition:

(i) Subsidiaries disclosed under Note 19(a) and Joint Operations disclosed at Note 19(c) are accounted for on a "line by line" consolidation basis within the Income Statement and Statement of Financial Position.

(ii) Joint Ventures and Associates as per Notes 19(b)(i) & (ii) are accounted for using the Equity Accounting Method and are disclosed as a 1 line entry in both the Income Statement and Statement of Financial Position.

	Council's Share of Net Income		Council's Share of Net Assets	
	Actual 2015	Actual 2014	Actual 2015	Actual 2014
Joint Ventures	(22)	198	1,160	1,181
Total	(22)	198	1,160	1,181

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 19. Interests in Other Entities (continued)

\$ '000

(a) Controlled Entities (Subsidiaries) - being entities & operations controlled by Council

Council has no interest in any Controlled Entities (Subsidiaries).

(b) Joint Ventures and Associates

Council has incorporated the following Joint Ventures and Associates into its consolidated Financial Statements.

(a) Net Carrying Amounts - Council's Share

Name of Entity	Nature of Relationship	Measurement Method	2015	2014
Westpool	Joint Venture	Equity	146	269
United Independent Pools (UIP)	Joint Venture	Equity	1,014	912
Total Carrying Amounts - Material Joint Ventures and Associates			1,160	1,181

(b) Details

Name of Entity	Principal Activity
Westpool	Insurance
United Independent Pools (UIP)	Insurance

(c) Relevant Interests & Fair Values

Name of Entity	Quoted Fair Value		Interest in Outputs		Interest in Ownership		Proportion of Voting Power	
	2015	2014	2015	2014	2015	2014	2015	2014
Westpool	146	269	1%	1%	1%	1%	10%	11%
United Independent Pools (UIP)	1,014	912	14%	13%	14%	13%	5%	6%

(d) Summarised Financial Information for Joint Ventures & Associates

Statement of Financial Position	Westpool		United Independent Pools (UIP)	
	2015	2014	2015	2014
Current Assets				
Other Current Assets	8,684	29,101	6,027	8,097
Total Current Assets	8,684	29,101	6,027	8,097
Non-Current Assets	48,487	22,700	5,761	2,000
Current Liabilities				
Other Current Liabilities	4,742	23,790	1,808	1,157
Total Current Liabilities	4,742	23,790	1,808	1,157
Non-Current Liabilities	22,486	-	2,462	2,034
Net Assets	29,943	28,011	7,518	6,906

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 19. Interests in Other Entities (continued)

\$ '000

(b) Joint Ventures and Associates (continued)

	Westpool		United Independent Pools (UIP)	
	2015	2014	2015	2014
Reconciliation of the Carrying Amount				
Opening Net Assets (1 July)	28,011	23,591	6,906	6,406
Profit/(Loss) for the period	4,333	4,420	611	500
Dividends Paid	(2,401)	-	-	-
Closing Net Assets	29,943	28,011	7,517	6,906
Council's share of Net Assets (%)	0.5%	1.0%	13.5%	13.2%
Council's share of Net Assets (\$)	146	269	1,014	912
	Westpool		United Independent Pools (UIP)	
	2015	2014	2015	2014
Statement of Comprehensive Income				
Income	11,337	9,728	9,083	9,053
Other Expenses	(7,003)	(5,307)	(8,472)	(8,553)
Profit/(Loss) from Continuing Operations	4,334	4,421	611	500
Profit/(Loss) from Discontinued Operations	-	-	-	-
Profit/(Loss) for Period	4,334	4,421	611	500
Other Comprehensive Income	-	-	-	-
Total Comprehensive Income	4,334	4,421	611	500
Council's share of Income (%)	-2.8%	2.7%	16.6%	15.7%
Council's share of Profit/(Loss) (\$)	(123)	119	101	79
Council's share of Comprehensive Income (\$)	(123)	119	101	79

(c) Joint Operations

Council has no interest in any Joint Operations.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 19. Interests in Other Entities (continued)

\$ '000

(d) Unconsolidated Structured Entities

Council did not consolidate the following Structured Entities:

1. Southern Council's Group

Southern Council's Group is an organisation which aims to promote regional leadership, regional forum, strategic partnerships and regional programs and projects. The association is made up of six member councils who each contribute to the expenditure of the association.

Nature of Risks relating to the Unconsolidated Structured Entity

There is a risk that the entity will not be able to deliver the programs and projects proposed resulting in Council having to provide further financial assistance.

	2015	2014
Losses (or expenses) incurred by Council relating to the Structured Entity	74	67

Current Intention to provide financial support

As at the 1st July 2015 the Southern Council's Group will be transitioning to the Illawarra Pilot Joint Organisation. This organisation will have a similar structure to the Southern Council's Group.

2. Wollongong City of Innovation Limited (trading as Destination Wollongong)

Destination Wollongong is an independent company limited by guarantee. This entity is charged with delivering visitor economy growth by positioning Wollongong as a premier regional tourism, events and conference destination. The activities completed by this entity include destination marketing, visitor information services, business events and conferences, and major event acquisition.

Nature of Risks relating to the Unconsolidated Structured Entity

Although Council has no obligation to assist it may be asked to provide further financial assistance to deliver the service. Council may have to provide the service if Destination Wollongong is no longer able to.

	2015	2014
Losses (or expenses) incurred by Council relating to the Structured Entity	960	938

Current Intention to provide financial support

The agreement between Wollongong City Council and Destination Wollongong requires Council to provide funding to Destination Wollongong in exchange for the completion of services including visitor and business information. Council's intentions are to provide financial support as per the agreement unless Destination Wollongong fails to comply with performance measures set out within the agreement.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 19. Interests in Other Entities (continued)

\$ '000

(d) Unconsolidated Structured Entities (continued)

3. Illawarra Performing Arts Centre Limited (trading as Merringong Theatre Company)

Merringong Theatre Company is an independent company incorporated by guarantee. This entity manages the Illawarra Performing Arts Centre and the Wollongong Town Hall, and produces, presents and supports a range of productions.

Nature of Risks relating to the Unconsolidated Structured Entity

Although Council has no obligation to assist it may be asked to provide further financial assistance to deliver the service. Council may have to provide the service if Merringong is no longer able to.

	2015	2014
Losses (or expenses) incurred by Council relating to the Structured Entity	646	635

Current Intention to provide financial support

The agreement between Wollongong City Council and Merringong Theatre Company requires Council to provide funding to Merringong in exchange for the delivery of a program of activities designed to contribute to the strategic outcomes sought by Council. Council's current intentions are to provide financial support as per the agreement unless Merringong fails to meet their obligations under the agreement.

(e) Subsidiaries, Joint Arrangements & Associates not recognised

All Subsidiaries, Joint Arrangements and Associates have been recognised in this Financial Report.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 20. Equity - Retained Earnings and Revaluation Reserves

\$ '000	Notes	Actual 2015	Actual 2014
(a) Retained Earnings			
Movements in Retained Earnings were as follows:			
Balance at beginning of Year (from previous years audited accounts)		1,193,467	1,163,160
a. Correction of Prior Period Errors	20 (c)	19,544	10,293
b. Net Operating Result for the Year		31,594	12,111
c. Transfers between Equity		7,713	7,903
Balance at End of the Reporting Period		<u>1,252,318</u>	<u>1,193,467</u>
(b) Reserves			
(i) Reserves are represented by:			
- Infrastructure, Property, Plant & Equipment Revaluation Reserve		1,011,066	1,013,803
Total		<u>1,011,066</u>	<u>1,013,803</u>
(ii) Reconciliation of movements in Reserves:			
Infrastructure, Property, Plant & Equipment Revaluation Reserve			
- Opening Balance		1,013,803	1,226,812
- Revaluations for the year	9(a)	4,039	(205,106)
- (Impairment of revalued assets) / Impairment reversals	9(a),(c)	937	-
- Transfer to Retained Earnings for Asset disposals		(7,713)	(7,903)
- Balance at End of Year		<u>1,011,066</u>	<u>1,013,803</u>
TOTAL VALUE OF RESERVES		<u>1,011,066</u>	<u>1,013,803</u>
(iii) Nature & Purpose of Reserves			
Infrastructure, Property, Plant & Equipment Revaluation Reserve			
- The Infrastructure, Property, Plant & Equipment Revaluation Reserve is used to record increments/decrements of Non Current Asset values due to their revaluation.			

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 20. Equity - Retained Earnings and Revaluation Reserves (continued)

\$ '000	Notes	Actual 2015	Actual 2014
(c) Correction of Error/s relating to a Previous Reporting Period			
Correction of errors as disclosed in last year's financial statements:			
Council reassessed the useful life of its IPPE and as a result was found to have understated these assets depreciation.			
It also found that IPPE that Council owned had not been recognised and IPPE that had been recognised was disposed of in previous years. A revaluation exercise in 2015 has identified the errors and an adjustment has been made against the current year balances of IPPE and retained earnings to correct the errors because it was found to be impractical to restate the prior year comparatives.			
Details of the amounts and the financial statement lines affected are outlined below:			
- Depreciation Adjustment as a result of an assessment of useful lives		1,681	2,363
- Artworks not recognised in previous years			63
- Buildings not recognised in previous years		-	3,316
- Operating Land not recognised in previous years		-	516
- Roads not recognised in previous years		1,684	5,005
- Footpaths not recognised in previous years		1,097	-
- Bridges not recognised in previous years		8,480	-
- Kerb & Gutter not recognised in previous years		23	-
- Other Structures not recognised in previous years		37	-
- Other Infrastructure not recognised in previous years		2,095	-
- Car Parks not recognised in previous years		744	-
- Cycleways not recognised in previous years		350	-
- Stormwater not recognised in previous years		3,544	4,113
- Recreation Assets not recognised in previous years		13	-
- Artwork disposed of in previous years but still recorded		(64)	-
- Other Infrastructure disposed of in previous years but still recorded		(7)	-
- Other Structures disposed of in previous years but still recorded		(5)	-
- Cycleways disposed of in previous years but still recorded		(26)	-
- Transport disposed of in previous years but still recorded		-	(1,282)
- Buildings disposed of in previous years but still recorded		(87)	(727)
- Stormwater disposed of in previous years		(15)	(3,074)
These amounted to the following Equity Adjustments:			
- Adjustments for the 30/06/14 reporting year end		-	10,293
- Adjustments for the 30/06/15 reporting year end (relating to adjustments for the 30/6/14 year end)		19,544	-
Total Prior Period Adjustments - Prior Period Errors		19,544	10,293

(d) Voluntary Changes in Accounting Policies

Council made no voluntary changes in any accounting policies during the year.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 21. Financial Result & Financial Position by Fund

\$ '000

Council utilises only a General Fund for its operations.

Note 22. "Held for Sale" Non Current Assets & Disposal Groups

\$ '000	2015	2015	2014	2014
	Current	Non Current	Current	Non Current

(i) Non Current Assets & Disposal Group Assets

Non Current Assets "Held for Sale"

Land	-	-	1,700	-
Total Non Current Assets "Held for Sale"	-	-	1,700	-

Disposal Group Assets "Held for Sale"

None

\$ '000	Assets "Held for Sale"	
	2015	2014

(ii) Reconciliation of Non Current Assets "Held for Sale" & Disposal Groups - i.e. Discontinued Operations

Opening Balance	1,700	-
less: Carrying Value of Assets/Operations Sold	(1,700)	-
Balance still unsold after 12 months:	-	-
plus New Transfers in:		
- Assets "Held for Sale"	-	1,700
Closing Balance of "Held for Sale"		
Non Current Assets & Operations	-	1,700

Refer to Note 27 - Fair Value Measurement for fair value measurement information.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 23. Events occurring after the Reporting Date

\$ '000

Events that occur between the end of the reporting period (ending 30 June 2015) and the date when the financial statements are "authorised for issue" have been taken into account in preparing these statements.

Council has adopted the date of receipt of the Auditors' Report as the applicable "authorised for issue" date relating to these General Purpose Financial Statements.

Accordingly, the "authorised for issue" date is 20/10/15.

Events that occur after the Reporting Period represent one of two types:

(i) Events that provide evidence of conditions that existed at the Reporting Period

These financial statements (and the figures therein) incorporate all "adjusting events" that provided evidence of conditions that existed at 30 June 2015.

(ii) Events that provide evidence of conditions that arose after the Reporting Period

These financial statements (& figures therein) do not incorporate any "non-adjusting events" that have occurred after 30 June 2015 and which are only indicative of conditions that arose after 30 June 2015.

Council is unaware of any material or significant "non-adjusting events" that should be disclosed.

Note 24. Discontinued Operations

Council has not classified any of its Operations as "Discontinued".

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 25. Intangible Assets

\$ '000	Actual 2015	Actual 2014
Intangible Assets represent identifiable non-monetary asset without physical substance.		
Intangible Assets are as follows;		
Opening Values:		
Gross Book Value (1/7)	1,701	1,165
Accumulated Amortisation (1/7)	(771)	(801)
Net Book Value - Opening Balance	930	364
Movements for the year		
- Purchases	617	829
- Amortisation charges	(327)	(274)
- Gross Book Value written off	(682)	(293)
- Accumulated Amortisation charges written off	682	304
Closing Values:		
Gross Book Value (30/6)	1,636	1,701
Accumulated Amortisation (30/6)	(416)	(771)
TOTAL INTANGIBLE ASSETS - NET BOOK VALUE ¹	1,220	930

¹ The Net Book Value of Intangible Assets represent:

- Software	1,220	930
	1,220	930

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 26. Reinstatement, Rehabilitation & Restoration Liabilities

\$ '000

Council has legal/public obligations to make restore, rehabilitate and reinstate the following assets/operations:

Asset/Operation	Estimated year of restoration	NPV of Provision	
		2015	2014
Waste Facility Remediation - Whytes Gully/Helensburgh	2054	40,669	39,170
Flinders Street Land Remediation		297	402
Balance at End of the Reporting Period	10(a)	40,966	39,572

Under AASB 116 - Property, Plant & Equipment, where the use of an asset results in the obligation to dismantle or remove the asset and restore the site on which the asset stands, an estimate of such costs is required to be included in the cost of the asset.

An equivalent liability must be recognised under AASB 137 - Provisions, Contingent Liabilities and Contingent Assets.

The provision has been calculated by determining the present value of the future expenditures expected to be incurred. The discount rate used is the risk free borrowing rate applicable to Council.

Reconciliation of movement in Provision for year:

Balance at beginning of year	39,572	38,482
Amounts capitalised to new or existing assets:		
Flinders Street Land Remediation	-	2,786
Amortisation of discount (expensed to borrowing costs)	1,722	1,758
Expenditure incurred attributable to Provisions	(328)	(3,454)
Total - Reinstatement, rehabilitation and restoration provision	40,966	39,572

Amount of Expected Reimbursements

Of the above Provisions for Reinstatement, Rehabilitation and Restoration works, those applicable to Garbage Services & Waste Management are able to be funded through future charges incorporated within Council's Annual Domestic Waste Management Charge.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 26. Reinstatement, Rehabilitation & Restoration Liabilities (continued)

\$ '000

Provisions for close down and restoration and for environmental clean up costs – Tips and Quarries

Restoration

Close down and restoration costs include the dismantling and demolition of infrastructure and the removal of residual materials and remediation of disturbed areas. Estimated close down and restoration costs are provided for in the accounting period when the obligation arising from the related disturbance occurs, whether this occurs during the development or during the operation phase, based on the net present value of estimated future costs.

Provisions for close down and restoration costs do not include any additional obligations which are expected to arise from future disturbance. The costs are estimated on the basis of a closure plan. The cost estimates are calculated annually during the life of the operation to reflect known developments, eg updated cost estimates and revisions to the estimated lives of operations, and are subject to formal review at regular intervals

Close down and restoration costs are a normal consequence of tip and quarry operations, and the majority of close down and restoration expenditure is incurred at the end of the life of the operations. Although the ultimate cost to be incurred is uncertain, Council estimates the respective costs based on feasibility and engineering studies using current restoration standards and techniques.

Other movements in the provisions for close down and restoration costs, including those resulting from new disturbance, updated cost estimates, changes to the estimated lives of operations and revisions to discount rates are capitalised within property, plant and equipment. These costs are then depreciated over the lives of the assets to which they relate.

Rehabilitation

Where rehabilitation is conducted systematically over the life of the operation, rather than at the time of closure, provision is made for the estimated outstanding continuous rehabilitation work at each reporting date and the cost is charged to the income statement.

Provision is made for the estimated present value of the costs of environmental clean up obligations outstanding at the reporting date. These costs are charged to the income statement. Movements in the environmental clean up provisions are presented as an operating cost, except for the unwinding of the discount which is shown as a borrowing cost.

Remediation procedures generally commence soon after the time the damage, remediation process and estimated remediation costs become known, but may continue for many years depending on the nature of the disturbance and the remediation techniques.

As noted above, the ultimate cost of environmental remediation is uncertain and cost estimates can vary in response to many factors including changes to the relevant legal requirements, the emergence of new restoration techniques or experience at other locations. The expected timing of expenditure can also change, for example in response to changes in quarry reserves or production rates. As a result there could be significant adjustments to the provision for close down and restoration and environmental clean up, which would affect future financial results.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

\$ '000

The Council measures the following asset and liability classes at fair value on a recurring basis:

- Infrastructure, Property, Plant and Equipment
- Investment Property
- Financial Assets & Liabilities

The fair value of assets and liabilities must be estimated in accordance with various Accounting Standards for either recognition and measurement requirements or for disclosure purposes.

AASB 13 Fair Value Measurement requires all assets and liabilities measured at fair value to be assigned to a "level" in the fair value hierarchy as follows:

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.

Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

(1) The following table presents all assets and liabilities that have been measured & recognised at fair values:

2015	Date of latest Valuation	Fair Value Measurement Hierarchy			Total
		Level 1 Quoted prices in active mkts	Level 2 Significant observable inputs	Level 3 Significant unobservable inputs	
Recurring Fair Value Measurements					
Financial Assets					
Investments					
- "Designated At Fair Value on Initial Recognition"	30/06/15	-	-	11,046	11,046
Total Financial Assets		-	-	11,046	11,046
Investment Properties					
Commercial Building	30/06/14	-	-	2,750	2,750
Total Investment Properties		-	-	2,750	2,750
Infrastructure, Property, Plant & Equipment					
Roads	30/06/15	-	-	531,202	531,202
Bridges	30/06/15	-	-	78,305	78,305
Footpaths	30/06/15	-	-	120,336	120,336
Stormwater	30/06/15	-	-	508,175	508,175
Plant & Equipment	30/06/15	-	-	20,007	20,007
Office Equipment	30/06/15	-	-	2,355	2,355
Furniture & Fittings	30/06/15	-	-	799	799
Operational Land	30/06/14	-	-	177,185	177,185
Community Land	30/06/11	-	-	374,339	374,339
Land Under Roads	30/06/14	-	-	26,789	26,789
Buildings	30/06/14	-	-	201,315	201,315
Other Structures	30/06/14	-	-	6,242	6,242
Swimming Pools	30/06/11	-	-	5,264	5,264
Library Books	30/06/15	-	-	3,864	3,864
Other Open Space / Recreational Assets	30/06/11	-	-	102,876	102,876
Tip Asset	30/06/15	-	-	11,249	11,249
Works in Progress	30/06/15	-	-	36,811	36,811
Artworks	30/06/15	-	-	11,961	11,961
Other	30/06/15	-	-	32,269	32,269
Total Infrastructure, Property, Plant & Equipment		-	-	2,251,343	2,251,343

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement (continued)

\$ '000

(1) The following table presents all assets and liabilities that have been measured & recognised at fair values (continued):

2014	Date of latest Valuation	Fair Value Measurement Hierarchy			Total
		Level 1 Quoted prices in active mkts	Level 2 Significant observable inputs	Level 3 Significant unobservable inputs	
Recurring Fair Value Measurements					
Financial Assets					
Investments					
- "Designated At Fair Value on Initial Recognition"	30/06/14	-	-	7,642	7,642
Total Financial Assets		-	-	7,642	7,642
Investment Properties					
Commercial Building	30/06/14	-	-	2,750	2,750
Total Investment Properties		-	-	2,750	2,750
Infrastructure, Property, Plant & Equipment					
Roads	30/06/14	-	-	531,611	531,611
Bridges	30/06/14	-	-	63,582	63,582
Footpaths	30/06/14	-	-	100,067	100,067
Stormwater	30/06/14	-	-	510,988	510,988
Plant & Equipment	30/06/14	-	-	20,187	20,187
Office Equipment	30/06/14	-	-	3,518	3,518
Furniture & Fittings	30/06/14	-	-	784	784
Operational Land	30/06/14	-	-	181,197	181,197
Community Land	30/06/11	-	-	373,121	373,121
Land Under Roads	30/06/14	-	-	26,114	26,114
Buildings	30/06/14	-	-	210,115	210,115
Other Structures	30/06/14	-	-	8,304	8,304
Land Improvements Non Depreciable	30/06/14	-	-	67,046	67,046
Swimming Pools	30/06/11	-	-	6,184	6,184
Library Books	30/06/14	-	-	3,692	3,692
Other Open Space / Recreational Assets	30/06/11	-	-	30,509	30,509
Tip Asset	30/06/14	-	-	11,469	11,469
Works in Progress	30/06/14	-	-	47,266	47,266
Artworks	30/06/14	-	-	12,088	12,088
Total Infrastructure, Property, Plant & Equipment		-	-	2,207,842	2,207,842
Non-recurring Fair Value Measurements					
Non Current Assets classified as "Held for Sale"					
Lot 1 & 2 Mulda Street Dapto	30/06/14	-	-	1,700	1,700
Total NCA's classified as "Held for Sale"		-	-	1,700	1,700

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

(2) Valuation techniques used to derive Level 2 and Level 3 Fair Values

Where Council is unable to derive Fair Valuations using quoted market prices of identical assets (i.e. Level 1 inputs), Council instead utilises a spread of both observable inputs (Level 2 inputs) and unobservable inputs (Level 3 inputs).

Level 2 inputs include;

- quoted prices for similar assets in active markets,
- quoted prices for identical or similar assets in markets that are not active,
- inputs other than quoted prices that are observable (e.g. interest rates, credit spreads etc.) and
- market corroborated inputs.

Level 3 inputs are unobservable inputs. If an observable input (Level 2) requires an adjustment using an unobservable input and that adjustment results in a significantly higher or lower fair value measurement, the resulting measurement is categorised within Level 3 of the fair value hierarchy. Council uses unobservable inputs to the extent relevant observable inputs are not available. But the objective remains the same; i.e. an exit price from the perspective of market participants. Therefore, unobservable inputs reflect the assumptions market participants would use when pricing, including assumptions about risk. Assumptions about risk include risk inherent in a particular valuation technique and risk inherent in inputs to the technique. Such an adjustment may be necessary if there is a significant measurement uncertainty.

Unobservable inputs have been developed using the best information available, which includes Council's own data. In some cases Council adjusts its own data if reasonable available information indicates other market participants would use different data or if there is an entity specific synergy (i.e. not available to other market participants).

Level 3 inputs include;

- Unit Rates,
- Unit Price,
- Asset Condition,
- Remaining Useful Life,
- Future Demands,
- Borrowing Rates

The Fair Valuation techniques Council has employed while utilising Level 2 and Level 3 inputs are as follows:

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Financial Assets

Valuation Technique – A portion of Council's investment portfolio is measured at fair value (i.e. market approach).

Fair Value Hierarchy – the fair value has been derived from the current price in an active market for similar assets. Emerald Reverse Mortgage investment securities form part of this portion of Council's portfolio. The market for Australian mortgage backed securities, regardless of the robustness of the structure, is highly illiquid as a direct consequence of the global financial crisis. This has caused difficulties in valuing the security as there is limited "price discovery" in the market. As such the level of valuation input for Council's fair valued investments was considered a Level 3.

Investment Property

Valuation Technique – Council's Investment Property is measured using sales direct comparison based on a market selling approach (i.e. market approach).

Fair Value Hierarchy - the fair value has been derived from the sales prices of comparable properties after adjusting for differences in key attributes such as property size. The most significant inputs into this valuation approach are rental yields and price per square metre.

The level of evidence to support the critical assumptions of Council's investment property valuation was considered to be significant due to high levels of variability in the market for rental yields and future demands. As such the level of valuation input for these properties was considered level 3.

Infrastructure, Property, Plant & Equipment

Infrastructure – Council's Infrastructure incorporates;

- Roads - Surface and bases, Car Parks, Kerb and Guttering and Traffic Facilities (speed humps, bollards and signs),
- Bridges – Road, Pedestrian and Jetties,
- Footpaths including shared pathways and
- Stormwater Drainage

Valuation Technique – Infrastructure assets are recognised using the cost method, which equates to the current replacement cost of a modern equivalent asset. The cost to replace the asset is to equal the amount that a market participant buyer of that asset would pay to acquire it.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Fair Value Hierarchy - the general valuation approach to determine the fair value of Council's infrastructure inventory is to determine a unit rate based on square metres or an appropriate unit corroborated by market evidence (Level 2 input). A process is then undertaken to compare these rates with internal unit rates derived by Council as a result of specific projects that have been undertaken. Further to this other inputs such as asset condition and useful life require a significant level of professional judgement and can impact significantly on the fair value. As such the level of valuation input for these assets was considered level 3.

Property Plant & Equipment, Office Equipment & Furniture & Fittings incorporate:

- Property, Plant & Equipment - Trucks, Tractors, Graders, Rollers, Buses, Vans, Passenger Vehicles, Mobile Equipment (i.e. generators, hand mowers, tools), Fluid storage units (i.e. septic tanks, water tanks),
- Office Equipment – Electronic Whiteboards, Printing Equipment, Safes and I.T. equipment such as computers, printers and scanners,
- Furniture & Fittings - Chairs, Tables, Filing Cabinets, Bookshelves, Compactuses,

Valuation Technique – These assets are recognised at depreciated historical cost as an acceptable substitute for fair value because any difference between fair value and depreciated historical cost is unlikely to be material.

Fair Value Hierarchy – The key unobservable unit to the valuation of this category is asset condition and useful life. The condition of assets is reviewed on an annual basis and an assessment of remaining life undertaken based on these results.

Operational Land

Valuation Technique – Council's Operational Land is measured using a comparative market selling approach (i.e. market approach).

Fair Value Hierarchy - the fair value has been derived from the sales prices of comparable properties after adjusting for differences in key attributes such as property size. The most significant inputs into this valuation approach is price per square metre. The level of evidence to support the critical assumptions of Council's operational land valuation was considered to be significant due to high levels of variability in the market for similar properties and future demands. As such the level of valuation input for these properties was considered level 3.

Community Land

Valuation Technique – Council's Community Land is measured using comparative Land Values (LV) provided by the Valuer General (VG) or an average unit rate based on a comparable LV for similar properties (i.e. market approach).

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Fair Value Hierarchy - the fair value has been derived from the LV's provided by the Valuer General or an average unit rate based on the LV for similar properties where the Valuer General did not provide a LV. The most significant input into this valuation approach is price per square metre. Valuations provided by the Valuer General are not in the public domain and the application of an average rate requires a level of professional judgement. As such the level of valuation input for these properties was considered level 3.

Land Under Roads

Valuation Technique – Land is generally valued using comparative Land Values (LV) provided by the Valuer General (VG) or an average unit rate based on a comparable LV for similar properties (i.e. market approach).

Fair Value Hierarchy - The existing use fair value of land under roads is best expressed as undeveloped or en globo land (pre-subdivision). However, as sufficient sales evidence of en globo land with similar features to the land being valued is generally not available, it is appropriate to use a proxy to estimate the en globo value. Community land value is used as a reasonable proxy to value land under roads, as such land generally has no feasible alternative use, and it is undeveloped and is publicly accessible. As such the level of valuation input for these properties was considered level 3.

Buildings – Non Specialised and Specialised

Valuation Technique - Buildings are recognised using the cost method, which equates to the current replacement cost of a modern equivalent asset. The cost to replace the asset is equal to the amount that a market participant buyer of that asset would pay to acquire it.

Fair Value Hierarchy – Specialised and Non Specialised buildings are generally assessed at level 3 of the fair value hierarchy due to lack of market evidence. Key inputs are unit rates and remaining useful life. The exception is non specialised residential properties which have been valued using sale prices of comparable properties (level 2). The most significant input into this valuation approach is price per square metre. The level of evidence to support the critical assumptions of Council's residential property valuation was considered to be significant due to high levels of variability in the market for rental yields and future demands. As such the level of valuation input for all buildings was considered level 3.

Intangible Assets

Valuation Technique – These assets are recognised at depreciated historical cost as an acceptable substitute for fair value because any difference between fair value and depreciated historical cost is unlikely to be material.

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Fair Value Hierarchy – The key unobservable unit to the valuation of this category is asset condition and useful life. The condition of assets is reviewed on an annual basis and an assessment of remaining life undertaken based on these results.

Other Structures

Other Structures incorporates Bus Shelters, Shade Structures, Picnic Shelters and BBQ Shelters.

Valuation Technique – Other Structures are recognised at depreciated historical cost as an acceptable substitute for fair value because any difference between fair value and depreciated historical cost is unlikely to be material.

Fair Value Hierarchy -- The key unobservable unit to the valuation of this category is asset condition and useful life. The condition of assets is reviewed on an annual basis and an assessment of remaining life undertaken based on these results.

Other Open Space / Recreational Assets

Other Open Space/Recreational Assets incorporate Off-road Footpaths, Park Assets including Playgrounds, Skateboard Facilities, Tennis Courts, Furniture and Landscaping and Power Poles.

Valuation Technique - Other Open Space/Recreational Assets are recognised using the cost method (e.g. Off-Road Footpaths).

Fair Value Hierarchy – while some elements of the cost method can be supported by market evidence (Level 2) others factors require professional judgement such as asset condition and useful life. As these inputs can have a significant impact on the fair value the valuation input all Other Open Space / Recreational Assets were considered level 3.

Swimming Pools - Structures

Valuation Technique – Swimming Pools and Rock Pools are valued using the cost approach, which equates to the current replacement cost of a modern equivalent asset. The cost to replace the asset is to equal the amount that a market participant buyer of that asset would pay to acquire it. External Valuer Ninnes Fong undertook the original valuation in 2009.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Fair Value Hierarchy - the general valuation approach to determine the fair value of Council's swimming pool inventory is to determine a unit rate based on square metres corroborated by market evidence (Level 2 input). A process is then undertaken to compare these rates with internal unit rates derived by Council as a result of specific work that has been undertaken. Further to this other inputs such as asset condition and useful life require a significant level of professional judgement and can impact significantly on the fair value. As such the level of valuation input for these properties was considered level 3.

Artworks

Valuation Technique – Art Works are valued using the cost approach, which equates to the current replacement cost of a modern equivalent asset. The cost to replace the asset is to equal the amount that a market participant buyer of that asset would pay to acquire it.

Fair Value Hierarchy - the general valuation approach to determine the fair value of Council's Artworks is to use the market price or purchase price of the original transaction or if the work is in the form of a donation an external valuation is undertaken corroborated by market evidence (Level 2 input). It is noted that the valuation process requires a significant level of professional judgement and this can impact significantly on the fair value. As such the level of valuation input for artworks was considered level 3.

Library Books

Valuation Technique – These assets are recognised at depreciated historical cost as an acceptable substitute for fair value because any difference between fair value and depreciated historical cost is unlikely to be material.

Fair Value Hierarchy – The key unobservable unit to the valuation of this category is asset condition and useful life. The condition of assets is reviewed on an annual basis and an assessment of remaining life undertaken based on these results.

Other Assets

Other Assets is a catch all for the remaining assets held by Council and includes Waste Assets such as Cell Development and Liners, Public Art, Power Poles and Crematorium and Cemetery Beams and Walls.

Valuation Technique - Other Assets are recognised using the cost method.

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Fair Value Hierarchy – while some elements of the cost method can be supported by market evidence (Level 2) others factors require professional judgement such as asset condition and useful life. As these inputs can have a significant impact on the fair value the valuation input all Other Assets were considered level 3.

Tip Remediation Asset

Valuation Technique – Council's Tip Remediation Asset is measured at fair value (i.e. market approach).

Fair Value Hierarchy – Whytes Gully Waste Disposal Depot will require remediation works to be carried out during and at the end of its useful life. The cash outflows relating to these remediation works have been modelled and recognised as an asset in Note 9 of Council's statements. Key unobservable inputs are the discount rate, cost escalation rate, timing of costs and future environmental management requirements. As such the level of valuation input for Council's fair valued loan was considered a Level 3.

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

A summary of the Fair Valuation techniques Council has employed while utilising Level 2 and Level 3 inputs are as follows:

Asset Category	Valuation Frequency	Description of Process	Valuer	Responsibility
Financial Assets	Monthly	Monthly valuation using the current price in an active market for similar assets	External	Finance Division
Investment Properties	3 Years	Full valuation every 3 years or index applied annually if material	External	Property Division
Infrastructure	5 years	Full valuation using current unit rates or index applied annually if material	Internal	Infrastructure & Strategic Planning Division
Property Plant & Equipment, Office Equipment & Furniture & Fittings	Annually	Assessment of remaining useful life undertaken with adjustments to consumption patterns that may impact fair value	Internal	Finance Division
Operational Land	5 Years	Full valuation every 5 years or index applied annually if material	External	Property Division
Community Land	5 Years	Valuer General Land Values or Average Unit Rate for similar properties if not available	Valuer General / Internal	Property / Finance Division
Land Under Roads	5 Years	Valuer General Land Values or Average Unit Rate used as proxy to derive en globo rate	Valuer General / Internal	Finance Division
Buildings – Non Specialised & Specialised	5 Years	Full valuation every 5 years or index applied annually if material	External / Internal	Infrastructure & Strategic Planning Division / Property Division

Wollongong City Council

Notes to the Financial Statements for the financial year ended 30 June 2015

Note 27. Fair Value Measurement

Asset Category	Valuation Frequency	Description of Process	Valuer	Responsibility
Intangibles	Annually	Assessment of remaining useful life undertaken with adjustments to consumption patterns that may impact fair value	Internal	Finance Division
Other Structures	Annually	Assessment of remaining useful life undertaken with adjustments to consumption patterns that may impact fair value	Internal	Infrastructure & Strategic Planning Division
Other Open Space / Recreational Assets	5 years	Full valuation every 5 years or index applied annually if material	Internal	Infrastructure & Strategic Planning Division
Swimming Pools - Structures	5 years	Full valuation every 5 years or index applied annually if material	External / Internal	Infrastructure & Strategic Planning Division
Library Books	Annually	Assessment of remaining useful life undertaken with adjustments to consumption patterns that may impact fair value	Internal	Finance Division
Other Assets	5 years	Full valuation every 5 years or index applied annually if material	Internal	Various
Tip Remediation Asset	Annually	Reassessment of discount rate and application to discounted cash flows if material	Internal	Finance Division

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 27. Fair Value Measurement (continued)

\$ '000

(4). Fair value measurements using significant unobservable inputs (Level 3)

The following tables present the changes in Level 3 Fair Value Asset Classes.

	Held for Sale Assets	Financial Assets	Investment Property	IPP&E	Total
Opening Balance - 1/7/13	-	7,294	3,725	2,376,962	2,387,981
Transfers from/(to) another asset class	1,700	-	-	1,177	2,877
Purchases (GBV)	-	50	-	92,910	92,960
Disposals (WDV)	-	(88)	-	(7,464)	(7,552)
Depreciation & Impairment	-	-	-	(60,929)	(60,929)
FV Gains - Other Comprehensive Income	-	-	-	(205,106)	(205,106)
FV Gains - Income Statement ¹	-	386	-	-	386
FV Loss - Income Statement	-	-	(975)	-	(975)
Adjustments & Transfers	-	-	-	10,292	10,292
Closing Balance - 30/6/14	1,700	7,642	2,750	2,207,842	2,219,934
Purchases (GBV)	-	3,147	-	86,754	89,901
Disposals (WDV)	(1,700)	(74)	-	(7,337)	(9,111)
Depreciation & Impairment	-	-	-	(60,436)	(60,436)
FV Gains - Other Comprehensive Income	-	-	-	4,039	4,039
FV Gains - Income Statement ¹	-	331	-	-	331
Adjustments & Transfers	-	-	-	20,481	20,481
Closing Balance - 30/6/15	-	11,046	2,750	2,251,343	2,265,139

(5). Highest and best use

All of Council's non financial assets are considered as being utilised for their highest and best use.

Wollongong City Council

Notes to the Financial Statements

for the financial year ended 30 June 2015

Note 28. Council Information & Contact Details

Principal Place of Business:

41 Burelli Street
Wollongong NSW 2500

Contact Details

Mailing Address:

Locked Bag 8821
Wollongong NSW 2500

Opening Hours:

Administration Building: 8:30am - 5:00pm

Telephone: (02) 4227 7111

Facsimile: (02) 4227 7277

Internet: www.wollongong.nsw.gov.au

Email: council@wollongong.nsw.gov.au

Officers

GENERAL MANAGER

David Farmer

RESPONSIBLE ACCOUNTING OFFICER

Brian Jenkins

PUBLIC OFFICER

Kylee Cowgill

AUDITORS

PricewaterhouseCoopers

Elected Members

LORD MAYOR

Gordon Bradberry

COUNCILLORS

Leigh Colacino
Janice Kershaw
Jill Merrin
Greg Petty
Michelle Blicavs
David Brown
John Dorahy
George Takacs
Chris Connor
Bede Crasnich
Vicki Curran
Ann Martin

Other Information

ABN: 63 139 525 939

Wollongong City Council

SPECIAL PURPOSE FINANCIAL STATEMENTS
for the year ended 30 June 2015



Wollongong City Council

Special Purpose Financial Statements

for the financial year ended 30 June 2015

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2. Special Purpose Financial Statements:	
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Income Statement - Sewerage Business Activity	n/a
Income Statement - Other Business Activities	3
Statement of Financial Position - Water Supply Business Activity	n/a
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Background

(i) These Special Purpose Financial Statements have been prepared for the use by both Council and the Division of Local Government in fulfilling their requirements under National Competition Policy.

(ii) The principle of competitive neutrality is based on the concept of a "level playing field" between persons/entities competing in a market place, particularly between private and public sector competitors.

Essentially, the principle is that government businesses, whether Commonwealth, State or Local, should operate without net competitive advantages over other businesses as a result of their public ownership.

(iii) For Council, the principle of competitive neutrality & public reporting applies only to declared business activities.

These include **(a)** those activities classified by the Australian Bureau of Statistics as business activities being water supply, sewerage services, abattoirs, gas production and reticulation and **(b)** those activities with a turnover of over \$2 million that Council has formally declared as a Business Activity (defined as Category 1 activities).

(iv) In preparing these financial statements for Council's self classified Category 1 businesses and ABS defined activities, councils must **(a)** adopt a corporatisation model and **(b)** apply full cost attribution including tax equivalent regime payments & debt guarantee fees (where the business benefits from councils borrowing position by comparison with commercial rates).

Wollongong City Council

Special Purpose Financial Statements

for the financial year ended 30 June 2015

Statement by Councillors and Management

made pursuant to the Local Government Code of Accounting Practice and Financial Reporting

The attached Special Purpose Financial Statements have been prepared in accordance with:

- The NSW Government Policy Statement "Application of National Competition Policy to Local Government".
- The Division of Local Government Guidelines "Pricing & Costing for Council Businesses - A Guide to Competitive Neutrality".
- The Local Government Code of Accounting Practice and Financial Reporting.
- The NSW Office of Water (Department of Environment, Climate Change and Water) Guidelines - "Best Practice Management of Water and Sewerage".

To the best of our knowledge and belief, these Financial Statements:

- Present fairly the Operating Result and Financial Position for each of Council's declared Business Activities for the year, and
- Accord with Council's accounting and other records.

We are not aware of any matter that would render these Statements false or misleading in any way.

Signed in accordance with a resolution of Council made on 19 October 2015.

Gordon Bradberry
LORD MAYOR

John Dorahy
DEPUTY LORD MAYOR

David Farmer
GENERAL MANAGER

Brian Jenkins
RESPONSIBLE ACCOUNTING OFFICER

Wollongong City Council

Income Statement of Council's Other Business Activities

for the financial year ended 30 June 2015

\$ '000	Waste Disposal		Tourist Parks	
	Category 1		Category 1	
	Actual 2015	Actual 2014	Actual 2015	Actual 2014
Income from continuing operations				
Access charges	-	-	-	-
User charges	27,598	27,178	5,693	5,580
Fees	-	-	-	-
Interest	-	-	-	-
Grants and contributions provided for non capital purposes	-	-	-	-
Profit from the sale of assets	-	-	13	11
Other income	568	347	178	159
Total income from continuing operations	28,166	27,525	5,884	5,750
Expenses from continuing operations				
Employee benefits and on-costs	1,525	1,512	2,404	2,389
Borrowing costs	1,722	1,758	-	-
Materials and contracts	1,492	1,297	826	765
Depreciation and impairment	635	623	1,021	877
Loss on sale of assets	-	-	-	-
Calculated taxation equivalents	414	399	801	772
EPA Levy	14,230	11,880	-	-
Debt guarantee fee (if applicable)	-	-	-	-
Other expenses	2,193	4,457	1,074	1,026
Total expenses from continuing operations	22,211	21,926	6,126	5,829
Surplus (deficit) from Continuing Operations before capital amounts	5,955	5,599	(242)	(79)
Grants and contributions provided for capital purposes	-	-	-	-
Surplus (deficit) from Continuing Operations after capital amounts	5,955	5,599	(242)	(79)
Surplus (deficit) from discontinued operations	-	-	-	-
Surplus (deficit) from ALL Operations before tax	5,955	5,599	(242)	(79)
less: Corporate Taxation Equivalent (30%) [based on result before capital]	(1,787)	(1,680)	-	-
SURPLUS (DEFICIT) AFTER TAX	4,169	3,919	(242)	(79)
plus Opening Retained Profits	22,506	16,508	7,782	7,089
plus/less: Prior Period Adjustments	-	-	-	-
plus Adjustments for amounts unpaid:				
- Taxation equivalent payments	414	399	801	772
- Debt guarantee fees	-	-	-	-
- Corporate taxation equivalent	1,787	1,680	-	-
add:				
- Subsidy Paid/Contribution To Operations	-	-	-	-
less:				
- TER dividend paid	-	-	-	-
- Dividend paid	-	-	-	-
Closing Retained Profits	28,875	22,506	8,341	7,782
Return on Capital %	34.2%	226.6%	-2.2%	-0.7%
Subsidy from Council	-	-	577	493

Wollongong City Council

Income Statement of Council's Other Business Activities

for the financial year ended 30 June 2015

\$ '000	Health & Fitness		Crematorium & Cemeteries	
	Category 1		Category 1	
	Actual 2015	Actual 2014	Actual 2015	Actual 2014
Income from continuing operations				
Access charges	-	-	-	-
User charges	2,476	2,521	2,579	2,450
Fees	-	-	-	-
Interest	-	-	-	-
Grants and contributions provided for non capital purposes	11	29	-	-
Profit from the sale of assets	-	-	-	-
Other income	28	32	1,369	1,340
Total income from continuing operations	2,515	2,582	3,948	3,790
Expenses from continuing operations				
Employee benefits and on-costs	2,187	2,164	1,493	1,518
Borrowing costs	-	-	-	-
Materials and contracts	311	284	366	377
Depreciation and impairment	14	3	-	-
Loss on sale of assets	-	-	-	-
Calculated taxation equivalents	255	244	111	108
Debt guarantee fee (if applicable)	-	-	-	-
Other expenses	945	1,286	1,920	1,983
Total expenses from continuing operations	3,712	3,981	3,890	3,986
Surplus (deficit) from Continuing Operations before capital amounts	(1,197)	(1,399)	58	(196)
Grants and contributions provided for capital purposes	-	-	-	-
Surplus (deficit) from Continuing Operations after capital amounts	(1,197)	(1,399)	58	(196)
Surplus (deficit) from discontinued operations	-	-	-	-
Surplus (deficit) from ALL Operations before tax	(1,197)	(1,399)	58	(196)
less: Corporate Taxation Equivalent (30%) [based on result before capital]	-	-	(17)	-
SURPLUS (DEFICIT) AFTER TAX	(1,197)	(1,399)	41	(196)
plus Opening Retained Profits	(8,134)	(6,979)	(1,301)	(1,213)
plus/less: Prior Period Adjustments	-	-	-	-
plus Adjustments for amounts unpaid:				
- Taxation equivalent payments	255	244	111	108
- Debt guarantee fees	-	-	-	-
- Corporate taxation equivalent	-	-	17	-
add:				
- Subsidy Paid/Contribution To Operations	-	-	-	-
less:				
- TER dividend paid	-	-	-	-
- Dividend paid	-	-	-	-
Closing Retained Profits	(9,076)	(8,134)	(1,132)	(1,301)
Return on Capital %	-767.3%	-1059.8%	161.1%	-544.4%
Subsidy from Council	1,202	1,446	-	233

Wollongong City Council

Statement of Financial Position - Council's Other Business Activities

as at 30 June 2015

\$ '000	Waste Disposal		Tourist Parks	
	Category 1		Category 1	
	Actual 2015	Actual 2014	Actual 2015	Actual 2014
ASSETS				
Current Assets				
Cash and cash equivalents	-	-	-	-
Investments	9,533	13,774	-	-
Receivables	-	-	-	-
Inventories	-	-	-	-
Other	-	-	-	-
Non-current assets classified as held for sale	-	-	-	-
Total Current Assets	9,533	13,774	-	-
Non-Current Assets				
Investments	-	-	-	-
Receivables	37,599	44,660	1,912	810
Inventories	-	-	-	-
Infrastructure, property, plant and equipment	22,416	3,246	11,083	11,626
Investments accounted for using equity method	-	-	-	-
Investment property	-	-	-	-
Intangible Assets	-	-	-	-
Total Non-Current Assets	60,015	47,906	12,995	12,436
TOTAL ASSETS	69,548	61,680	12,995	12,436
LIABILITIES				
Current Liabilities				
Bank Overdraft	-	-	-	-
Payables	-	-	-	-
Interest bearing liabilities	-	-	-	-
Provisions	-	-	-	-
Total Current Liabilities	-	-	-	-
Non-Current Liabilities				
Payables	-	-	-	-
Interest bearing liabilities	-	-	-	-
Provisions	40,669	39,170	-	-
Other Liabilities	-	-	-	-
Total Non-Current Liabilities	40,669	39,170	-	-
TOTAL LIABILITIES	40,669	39,170	-	-
NET ASSETS	28,879	22,510	12,995	12,436
EQUITY				
Retained earnings	28,875	22,506	8,341	7,782
Revaluation reserves	4	4	4,654	4,654
Council equity interest	28,879	22,510	12,995	12,436
Non-controlling equity interest	-	-	-	-
TOTAL EQUITY	28,879	22,510	12,995	12,436

Wollongong City Council

Statement of Financial Position - Council's Other Business Activities

as at 30 June 2015

\$ '000	Health & Fitness		Crematorium & Cemeteries	
	Category 1		Category 1	
	Actual 2015	Actual 2014	Actual 2015	Actual 2014
ASSETS				
Current Assets				
Cash and cash equivalents	-	-	-	-
Investments	-	-	-	-
Receivables	-	-	-	-
Inventories	-	-	-	-
Other	-	-	-	-
Non-current assets classified as held for sale	-	-	-	-
Total Current Assets	-	-	-	-
Non-Current Assets				
Investments	-	-	-	-
Receivables	-	-	-	-
Inventories	-	-	-	-
Infrastructure, property, plant and equipment	156	132	36	36
Investments accounted for using equity method	-	-	-	-
Investment property	-	-	-	-
Intangible Assets	-	-	-	-
Total Non-Current Assets	156	132	36	36
TOTAL ASSETS	156	132	36	36
LIABILITIES				
Current Liabilities				
Bank Overdraft	-	-	-	-
Payables	-	-	-	-
Interest bearing liabilities	-	-	-	-
Provisions	-	-	-	-
Total Current Liabilities	-	-	-	-
Non-Current Liabilities				
Payables	9,232	8,266	1,168	1,337
Interest bearing liabilities	-	-	-	-
Provisions	-	-	-	-
Other Liabilities	-	-	-	-
Total Non-Current Liabilities	9,232	8,266	1,168	1,337
TOTAL LIABILITIES	9,232	8,266	1,168	1,337
NET ASSETS	(9,076)	(8,134)	(1,132)	(1,301)
EQUITY				
Retained earnings	(9,076)	(8,134)	(1,132)	(1,301)
Revaluation reserves	-	-	-	-
Council equity interest	(9,076)	(8,134)	(1,132)	(1,301)
Non-controlling equity interest	-	-	-	-
TOTAL EQUITY	(9,076)	(8,134)	(1,132)	(1,301)

Wollongong City Council

Special Purpose Financial Statements

for the financial year ended 30 June 2015

Contents of the Notes accompanying the Financial Statements

Note	Details	Page
1	Summary of Significant Accounting Policies	8
2	Water Supply Business Best Practice Management disclosure requirements	n/a
3	Sewerage Business Best Practice Management disclosure requirements	n/a

Wollongong City Council

Notes to the Special Purpose Financial Statements

for the financial year ended 30 June 2015

Note 1. Significant Accounting Policies

These financial statements are a Special Purpose Financial Statements (SPFS) prepared for use by Council and the Office of Local Government.

For the purposes of these statements, the Council is not a reporting not-for-profit entity.

The figures presented in these special purpose financial statements, unless otherwise stated, have been prepared in accordance with:

- the recognition and measurement criteria of relevant Australian Accounting Standards,
- other authoritative pronouncements of the Australian Accounting Standards Board (AASB) &
- Australian Accounting Interpretations.

The disclosures in these special purpose financial statements have been prepared in accordance with:

- the Local Government Act and Regulation, and
- the Local Government Code of Accounting Practice and Financial Reporting.

The statements are also prepared on an accruals basis, based on historic costs and do not take into account changing money values nor current values of non-current assets (except where specifically stated).

Certain taxes and other costs (appropriately described) have been imputed for the purposes of the National Competition Policy.

National Competition Policy

Council has adopted the principle of 'competitive neutrality' to its business activities as part of the national competition policy which is being applied throughout Australia at all levels of government.

The framework for its application is set out in the June 1996 Government Policy statement on the "Application of National Competition Policy to Local Government".

The "Pricing & Costing for Council Businesses A Guide to Competitive Neutrality" issued by the Office of Local Government in July 1997 has also been adopted.

The pricing & costing guidelines outline the process for identifying and allocating costs to activities and provide a standard of disclosure requirements. These disclosures are reflected in Council's pricing and/or financial reporting systems and include taxation equivalents; council subsidies; return on investments (rate of return); and dividends paid.

Declared Business Activities

In accordance with *Pricing & Costing for Council Businesses - A Guide to Competitive Neutrality*, Council has declared that the following are to be considered as business activities:

Category 1

(where gross operating turnover is over \$2 million)

- a. Waste Disposal**
Manages the disposal of solid waste generated within the city.
- b. Tourist Parks**
Operation, management & development of tourist parks at Bulli, Corrimal & Windang.
- c. Health & Fitness**
Responsible for the management and upkeep of Council's Leisure Centres.
- d. Crematorium & Cemeteries**
Provision of quality crematorium, cemetery & memorial facilities & services

Category 2

(where gross operating turnover is less than \$2 million)

None

Monetary Amounts

Amounts shown in the financial statements are in Australian currency and rounded to the nearest one thousand dollars.

(i) Taxation Equivalent Charges

Council is liable to pay various taxes and financial duties in undertaking its business activities. Where this is the case, they are disclosed in these statements as a cost of operations just like all other costs.

Wollongong City Council

Notes to the Special Purpose Financial Statements

for the financial year ended 30 June 2015

Note 1. Significant Accounting Policies

However, where Council is exempt from paying taxes which are generally paid by private sector businesses (such as income tax), equivalent tax payments have been applied to all Council nominated business activities and are reflected in these financial statements.

For the purposes of disclosing comparative information relevant to the private sector equivalent, the following taxation equivalents have been applied to all council nominated business activities (this does not include council's non-business activities):

Notional Rate Applied %

Corporate Income Tax Rate – 30%

Land Tax – The first **\$432,000** of combined land values attracts **0%**. From \$432,001 to \$2,641,000 the rate is **1.6% + \$100**. For the remaining combined land value that exceeds \$2,641,000, a premium marginal rate of **2.0%** applies.

Payroll Tax – **5.45%** on the value of taxable salaries and wages in excess of \$750,000.

Income Tax

An income tax equivalent has been applied on the profits of each reported Business Activity.

Whilst income tax is not a specific cost for the purpose of pricing a good or service, it needs to be taken into account of in terms of assessing the rate of return required on capital invested.

Accordingly, the return on capital invested is set at a pre-tax level (gain/(loss) from ordinary activities before capital amounts) as would be applied by a private sector competitor – that is, it should include a provision equivalent to the corporate income tax rate, currently 30%.

Income Tax is only applied where a positive gain/(loss) from ordinary activities before capital amounts has been achieved.

Since this taxation equivalent is notional - that is, it is payable to the "Council" as the owner of business operations, it represents an internal payment and has no effect on the operations of the council. Accordingly, there is no need for disclosure of internal charges in Council's General Purpose Financial Statements.

The rate applied of 30% is the equivalent company tax rate prevalent as at balance date. No adjustments have been made for variations that have occurred during the year.

Local Government Rates & Charges

A calculation of the equivalent rates and charges payable on all Category 1 businesses has been applied to all land assets owned or exclusively used by the Business Activity.

Loan & Debt Guarantee Fees

The debt guarantee fee is designed to ensure that council business activities face "true" commercial borrowing costs in line with private sector competitors.

In order to calculate a debt guarantee fee, council has determined what the differential borrowing rate would have been between the commercial rate and the council's borrowing rate for its business activities.

(ii) Subsidies

Government policy requires that subsidies provided to customers and the funding of those subsidies must be explicitly disclosed.

Subsidies occur where council provides services on a less than cost recovery basis. This option is exercised on a range of services in order for council to meet its community service obligations.

Accordingly, Subsidies disclosed (in relation to National Competition Policy) represents the difference between revenue generated from 'rate of return' pricing and revenue generated from prices set by the council in any given financial year.

The overall effect of subsidies is contained within the Income Statement of each reported Business Activity.

(iii) Return on Investments (Rate of Return)

The Policy statement requires that councils with Category 1 businesses "would be expected to generate a return on capital funds employed that is comparable to rates of return for private businesses operating in a similar field".

Wollongong City Council

Notes to the Special Purpose Financial Statements for the financial year ended 30 June 2015

Note 1. Significant Accounting Policies

Such funds are subsequently available for meeting commitments or financing future investment strategies.

The Rate of Return on Capital is calculated as follows:

Operating Result before Capital Income + Interest Expense

Written Down Value of I,PP&E as at 30 June

As a minimum, business activities should generate a return equal to the Commonwealth 10 year bond rate which is 3.02% at 30/6/15.

The actual rate of return achieved by each Business Activity is disclosed at the foot of each respective Income Statement.

(iv) Dividends

Council is not required to pay dividends to either itself (as owner of a range of businesses) or to any external entities.

(v) Amendments to comparable figures

A review of the assumptions used to develop these statements was conducted during the financial year. As a result of this the comparable figures from the 2013/14 financial year have been updated in line with these assumptions.

Wollongong City Council

SPECIAL SCHEDULES
for the year ended 30 June 2015



Wollongong City Council

Special Schedules

for the financial year ended 30 June 2015

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- Special Schedule No. 3	Water Supply Operations - incl. Income Statement	n/a
- Special Schedule No. 4	Water Supply - Statement of Financial Position	n/a
- Special Schedule No. 5	Sewerage Service Operations - incl. Income Statement	n/a
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¹ Special Schedules are not audited (with the exception of Special Schedule 9).

Background

- (i) These Special Schedules have been designed to meet the requirements of special purpose users such as;
- the NSW Grants Commission
 - the Australian Bureau of Statistics (ABS),
 - the NSW Office of Water (NOW), and
 - the Office of Local Government (OLG).
- (ii) The financial data is collected for various uses including;
- the allocation of Financial Assistance Grants,
 - the incorporation of Local Government financial figures in national statistics,
 - the monitoring of loan approvals,
 - the allocation of borrowing rights, and
 - the monitoring of the financial activities of specific services.

Wollongong City Council

Special Schedule No. 1 - Net Cost of Services

for the financial year ended 30 June 2015

\$'000

Function or Activity	Expenses from Continuing Operations	Income from continuing operations		Net Cost of Services
		Non Capital	Capital	
Governance	-	-	-	-
Administration	29,759	6,965	85	(22,709)
Public Order and Safety				
Fire Service Levy, Fire Protection, Emergency Services	4,692	646	-	(4,046)
Beach Control	4,947	6	-	(4,941)
Enforcement of Local Govt. Regulations	1,940	2,456	-	516
Animal Control	1,403	680	-	(723)
Other	95	1	-	(94)
Total Public Order & Safety	13,077	3,789	-	(9,288)
Health	1,391	734	-	(657)
Environment				
Noxious Plants and Insect/Vermin Control	-	-	-	-
Other Environmental Protection	6,507	452	615	(5,440)
Solid Waste Management	35,506	43,188	-	7,682
Street Cleaning	4,630	12	-	(4,618)
Drainage	11,566	1,636	-	(9,930)
Stormwater Management	-	-	-	-
Total Environment	58,209	45,288	615	(12,306)
Community Services and Education				
Administration & Education	50	11	-	(39)
Social Protection (Welfare)	4,223	3,038	-	(1,185)
Aged Persons and Disabled	1,131	518	-	(613)
Children's Services	2,912	1,149	-	(1,763)
Total Community Services & Education	8,316	4,716	-	(3,600)
Housing and Community Amenities				
Public Cemeteries	2,410	2,579	-	169
Public Conveniences	690	-	-	(690)
Street Lighting	3,145	645	-	(2,500)
Town Planning	11,831	4,780	11,604	4,553
Other Community Amenities	2,091	1,404	-	(687)
Total Housing and Community Amenities	20,167	9,408	11,604	845
Water Supplies	-	-	-	-
Sewerage Services	-	-	-	-

Wollongong City Council

Special Schedule No. 1 - Net Cost of Services (continued)

for the financial year ended 30 June 2015

\$'000

Function or Activity	Expenses from Continuing Operations	Income from continuing operations		Net Cost of Services
		Non Capital	Capital	
Recreation and Culture				
Public Libraries	11,112	748	-	(10,364)
Museums	-	-	-	-
Art Galleries	2,269	175	-	(2,094)
Community Centres and Halls	4,407	493	-	(3,914)
Performing Arts Venues	1,986	12	-	(1,974)
Other Performing Arts	-	-	-	-
Other Cultural Services	576	60	-	(516)
Sporting Grounds and Venues	4,054	516	235	(3,303)
Swimming Pools	6,648	590	25	(6,033)
Parks & Gardens (Lakes)	17,411	562	35	(16,814)
Other Sport and Recreation	3,233	2,504	-	(729)
Total Recreation and Culture	51,696	5,660	295	(45,741)
Fuel & Energy	-	-	-	-
Agriculture	-	-	-	-
Mining, Manufacturing and Construction				
Building Control	-	-	-	-
Other Mining, Manufacturing & Construction	-	-	-	-
Total Mining, Manufacturing and Const.	-	-	-	-
Transport and Communication				
Urban Roads (UR) - Local	35,825	813	8,170	(26,842)
Urban Roads - Regional	-	-	-	-
Sealed Rural Roads (SRR) - Local	-	-	-	-
Sealed Rural Roads (SRR) - Regional	-	-	-	-
Unsealed Rural Roads (URR) - Local	-	-	-	-
Unsealed Rural Roads (URR) - Regional	-	-	-	-
Bridges on UR - Local	-	-	-	-
Bridges on SRR - Local	-	-	-	-
Bridges on URR - Local	-	-	-	-
Bridges on Regional Roads	-	-	-	-
Parking Areas	2,447	712	-	(1,735)
Footpaths	7,271	-	1,264	(6,007)
Aerodromes	-	-	-	-
Other Transport & Communication	968	-	-	(968)
Total Transport and Communication	46,511	1,525	9,434	(35,552)
Economic Affairs				
Camping Areas & Caravan Parks	5,269	5,820	-	551
Other Economic Affairs	7,228	10,746	-	3,518
Total Economic Affairs	12,497	16,566	-	4,069
Totals – Functions	241,623	94,651	22,033	(124,939)
General Purpose Revenues ⁽²⁾		156,555		156,555
Share of interests - joint ventures & associates using the equity method	22	-		(22)
NET OPERATING RESULT ⁽¹⁾	241,645	251,206	22,033	31,594

(1) As reported in the Income Statement

(2) Includes: Rates & Annual Charges (incl. Ex Gratia, excl. Water & Sewer), Non Capital General Purpose Grants, Interest on Investments (excl. Ext. Restricted Assets) & Interest on overdue Rates & Annual Charges

Special Schedule No. 2(a) - Statement of Long Term Debt (all purpose)
for the financial year ended 30 June 2015

\$'000

Classification of Debt	Principal outstanding at beginning of the year			New Loans raised during the year	Debt redemption during the year		Transfers to Sinking Funds	Interest applicable for Year	Principal outstanding at the end of the year		
	Current	Non Current	Total		From Revenue	Sinking Funds			Current	Non Current	Total
Loans (by Source)											
Commonwealth Government	-	-	-	-	-	-	-	-	-	-	-
Treasury Corporation	-	-	-	-	-	-	-	-	-	-	-
Other State Government	4,912	34,221	39,133	15,000	5,244	-	-	1,311	6,369	42,520	48,889
Public Subscription	-	-	-	-	-	-	-	-	-	-	-
Financial Institutions	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-
Total Loans	4,912	34,221	39,133	15,000	5,244	-	-	1,311	6,369	42,520	48,889
Other Long Term Debt											
Ratepayers Advances	-	-	-	-	-	-	-	-	-	-	-
Government Advances	-	-	-	-	-	-	-	-	-	-	-
Finance Leases	-	-	-	-	-	-	-	-	-	-	-
Deferred Payments	-	-	-	-	-	-	-	-	-	-	-
Total Long Term Debt	-	-	-	-	-	-	-	-	-	-	-
Total Debt	4,912	34,221	39,133	15,000	5,244	-	-	1,311	6,369	42,520	48,889

Notes: Excludes (i) Internal Loans & (ii) Principal Inflows/Outflows relating to Loan Re-Financing.

This Schedule is prepared using the **face value** of debt obligations, rather than **fair value** (which are reported in the GPFS).

Special Schedule No. 7 - Report on Infrastructure Assets
as at 30 June 2015

\$'000

Asset Class	Asset Category	Estimated cost to bring up to a satisfactory standard refer (1)	Required Annual Maintenance refer (2)	Actual Maintenance 2014/15 refer (3)	Written Down Value (WDV) refer (4)	Assets in Condition as a % of WDV				
						1	2	3	4	5
						refer (4) & (5)				
Buildings	Buildings	8,589	5,052	5,209	201,315	2%	22%	75%	1%	0%
	sub total	8,589	5,052	5,209	201,315	2.0%	22.0%	75.0%	1.0%	0.0%
Other Structures	Other Structures	2,672	141	141	6,242	4%	35%	54%	7%	0%
	sub total	2,672	141	141	6,242	4.0%	35.0%	54.0%	7.0%	0.0%
Roads	Roads and Road Related Assets	68,550	5,968	6,542	510,359	8%	18%	73%	1%	0%
	Footpaths and Shared Paths	856	2,551	1,544	120,336	27%	22%	51%	0%	0%
	Bridges, Boardwalks and Jetties	934	312	74	78,305	36%	22%	42%	0%	0%
	Other Transport Assets	1,093	166	69	20,843	10%	45%	44%	1%	0%
	sub total	71,433	8,997	8,229	729,843	14.2%	19.9%	65.2%	0.7%	0.0%
Stormwater Drainage	Stormwater Drainage	87	2,182	1,790	508,175	5%	20%	75%	0%	0%
	sub total	87	2,182	1,790	508,175	5.0%	20.0%	75.0%	0.0%	0.0%
Open Space/ Recreational Assets	Open Space / Recreational Assets	13,241	1,154	1,718	50,459	73%	3%	19%	5%	0%
	sub total	13,241	1,154	1,718	50,459	73.0%	3.0%	19.0%	5.0%	0.0%
TOTAL - ALL ASSETS		96,022	17,526	17,087	1,496,034	11.4%	19.7%	68.3%	0.7%	0.0%

Refer Notes on next page

Special Schedule No. 7 - Report on Infrastructure Assets (continued)

as at 30 June 2015

Notes:

- (1). Cost to bring up to satisfactory standard' refers to estimated cost to replace the nominated percentage of each asset type which is deemed to be below satisfactory standard. Satisfactory standard is generally defined as condition 2 (see Asset Condition Definitions).As identified through Council's Securing our Future community engagement, footpaths and shared paths condition 3. Cost estimates are based on adopted valuation methodologies, and do not generally include the cost of enhancements/upgrades to existing assets. The nominated percentage of each asset type below satisfactory standard is detailed under Condition of Public Works in the Annual Report.
- (2). Required Annual Maintenance is what should be spent to maintain assets in a satisfactory standard and to ensure that the estimated remaining life of the asset is achieved.
- (3). Current Annual Maintenance is what should be spent in the current year to maintainb assets. It does not include operational costs (e.g. energy or water supply, cleaning, administration staff) or capital replacement costs.
- (4). Below is a summary of asset types included in Asset Class:
Buildings : Community Facilities, Cultural Facilities, Childcare Centres, Public Toilets, Exelooos, Grandstands, Surf Life Saving Clubs, Amenities, Office/Shops, Industrial, Residences, Cabins and Leisure Centres
Roads and Road Related Assets : Road seal, base, sub-base, kerb and gutter, guardrails and traffic facilities (roundabouts, speedhumps, medians etc)
Bridge, Boardwalks and Jetties : Road Bridges, Pedestrian Bridges, Boardwalks and Jetties
Footpaths and Cycleways : Footpaths and cycleways (excluding off road footpaths in parks)
Car parks: Surface car parks (not multi-storey) and Boat ramps
Stormwater : Pits, Pipes, Headwalls, Culverts and Riparian Assets
Recreation : Pools, Playgrounds, Sport Courts, Park Furniture, Picnic Shelters and Landscaping. Does not include non-depreciable land and earthworks
- (5). **Condition of Public Assets**
 In accessing the condition of Public Assets, Council has considered the existing condition and function of each asset. The results shown for the condition of assets within each category are an average. Therefore, significant numbers of assets in each category are above and below the average result. Council recognise that the ratings scale used (as outlined below) may be different from those used by other Councils, but has been based on the rating scale in the International Infrastructure Management Manual.

Asset Condition Definitions #

Rating	Status	Definition
1	As new	95 -100% of asset life remaining. Asset is near new and in excellent condition and fit for current usage.
2	Good	75-95% of asset life remaining. Asset is in good condition and fit for current usage.
3	Fair	Between 75% and 5 years of expected life remaining.
4	Poor	Between 1 and 4 years of expected remaining life. Asset is an adequate condition and maintenance requirements are increasing to keep the asset fit for current usage.
5	To be replaced	Asset due to be replaced with one year remaining life expected. Generally these are listed on the current year capital works program

Wollongong City Council

Special Schedule No. 7 - Report on Infrastructure Assets (continued)
as at 30 June 2015

\$'000

Asset Class	Asset Category	Estimated cost to bring up to a satisfactory standard refer (1)	Required Annual Maintenance refer (2)	Actual Maintenance 2014/15 refer (3)	Current Replacement Cost (CRC refer (4))	Assets in Condition as a % of CRC				
						1	2	3	4	5
						refer (4) & (5)				
Buildings	Buildings				505,175	1%	10%	86%	2%	1%
	sub total	-	-	-	505,175	1.0%	10.0%	86.0%	2.0%	1.0%
Other Structures	Other Structures				14,061	2%	18%	50%	26%	4%
	sub total	-	-	-	14,061	2.0%	18.0%	50.0%	26.0%	4.0%
Roads	Roads & Related Assets				1,297,662	3%	8%	81%	7%	1%
	Bridges, Boardwalks & Jetties				124,977	23%	15%	60%	1%	1%
	Footpaths and Shared Paths				255,062	13%	12%	70%	3%	2%
	Other Transport Assets				33,176	6%	31%	57%	6%	0%
	sub total	-	-	-	1,710,877	6.0%	9.6%	77.4%	5.9%	1.1%
Stormwater Drainage	Stormwater Drainage				872,896	3%	14%	83%	0%	0%
	sub total	-	-	-	872,896	3.0%	14.0%	83.0%	0.0%	0.0%
Open Space/ Recreational Assets	Open Space / Recreational Assets				115,402	44%	2%	40%	11%	3%
	sub total	-	-	-	115,402	44.0%	2.0%	40.0%	11.0%	3.0%

Special Schedule No. 7 - Report on Infrastructure Assets (continued)
as at 30 June 2015

Notes:

- (1). Satisfactory is defined as “satisfying expectations or needs, leaving no room for complaint, causing satisfaction, adequate”.
The estimated cost to bring assets to a satisfactory standard is the amount of money that is required to be spent on an asset to ensure that it is in a satisfactory standard.
This estimated cost should not include any planned enhancements (ie.to heighten, intensify or improve the facilities).
- (2). Required Annual Maintenance is “what should be spent to maintain assets in a satisfactory standard.
- (3). Actual Maintenance is what has been spent in the current year to maintain the assets.
Actual Maintenance may be higher or lower than the required annual maintenance due to the timing of when the maintenance actually occurs.
- (4). Please enter the description of the asset values used in this report
- (5). **Infrastructure Asset Condition Assessment "Key"**

1	Excellent	No work required (normal maintenance)
2	Good	Only minor maintenance work required
3	Average	Maintenance work required
4	Poor	Renewal required
5	Very Poor	Urgent renewal/upgrading required

Wollongong City Council

Special Schedule No. 7 - Report on Infrastructure Assets (continued)
for the financial year ended 30 June 2015

\$ '000	Amounts	Indicator	Prior Periods	
	2015	2015	2014	2013
Infrastructure Asset Performance Indicators Consolidated				
1. Building, Infrastructure & Other Structures				
Renewals Ratio				
Asset Renewals				
<u>(Building, Infrastructure & Other Structures) ⁽¹⁾</u>	<u>48,215</u>	91.45%	43.18%	48.97%
Depreciation, Amortisation & Impairment	52,723			
2. Infrastructure Backlog Ratio				
Estimated Cost to bring Assets to a Satisfactory Condition	<u>96,022</u>	6.18%	8.84%	11.00%
Total value ⁽²⁾ of Infrastructure, Building, Other Structures & depreciable Land Improvement Assets	1,553,715			
3. Asset Maintenance Ratio				
Actual Asset Maintenance	<u>17,087</u>	0.97	0.78	0.70
Required Asset Maintenance	17,526			
4. Capital Expenditure Ratio				
Annual Capital Expenditure	<u>79,418</u>	1.31	1.40	1.22
Annual Depreciation	60,763			

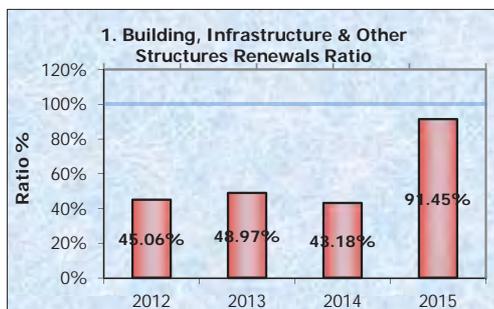
Notes

⁽¹⁾ Asset Renewals represent the replacement &/or refurbishment of existing assets to an equivalent capacity/performance as opposed to the acquisition of new assets (or the refurbishment of old assets) that increases capacity/performance. Asset Renewals include building, infrastructure & Other Structure assets only.

⁽²⁾ Written Down Value

Wollongong City Council

Special Schedule No. 7 - Report on Infrastructure Assets (continued) for the financial year ended 30 June 2015



Purpose of Asset Renewals Ratio

To assess the rate at which these assets are being renewed relative to the rate at which they are depreciating.

Commentary on 2014/15 Result

2014/15 Ratio 91.45%

The method for determining the actual spend on renewal of assets was reviewed during the 2014/15 financial year to achieve a greater level of detail. The expenditure of each project in the capital works program is now allocated a proportion of renewal of assets. The sum total of the renewal component of each infrastructure, building and other structures project is the calculated total amount of asset renewal. The calculation of depreciation of these assets remains the same.

Benchmark: Minimum $\geq 100.00\%$
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Infrastructure Backlog Ratio

This ratio shows what proportion the backlog is against the total value of a Council's infrastructure.

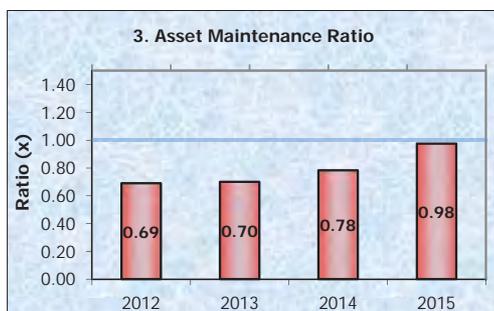
Commentary on 2014/15 Result

2014/15 Ratio 6.18%

The cost to bring to satisfactory is defined as the cost difference of the written down value of assets in condition 4 and 5, to their written down value at condition 2, with the exception of path assets at condition 3. During Councils 'Securing our Future' financial review significant community engagement was undertaken regarding a community accepted level of service for paths, with a level of 3 deemed satisfactory.

Benchmark: Maximum < 0.02
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Asset Maintenance Ratio

Compares actual vs. required annual asset maintenance. A ratio above 1.0 indicates Council is investing enough funds to stop the Infrastructure Backlog growing.

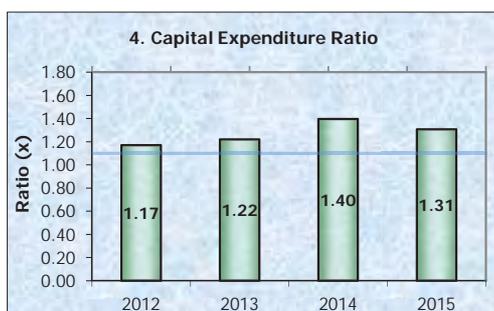
Commentary on 2014/15 Result

2014/15 Ratio 0.97 x

The improvement in this ratio reflects an increase in the actual spend on maintenance of council assets, specifically community buildings. Additionally, the required maintenance expenditure figure has been reviewed on all asset types during 2014/15, with the amount required for bridges and stormwater assets slightly decreased. For bridges, this better represents the real expenditure on pedestrian bridges while for stormwater, an acknowledgment that the stock is in condition 1-3.

Benchmark: Minimum > 1.00
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark



Purpose of Capital Expenditure Ratio

To assess the extent to which a Council is expanding its asset base thru capital expenditure on both new assets and the replacement and renewal of existing assets.

Commentary on 2014/15 Result

2014/15 Ratio 1.31 x

Council maintains its strong capital expenditure position with allocation of the first instalment of Special Rate Variation income increasing. Annual capital expenditure was very similar to 2013/14, the slight decrease in the ratio is due to a lower value of contributed assets in 2014/15.

In coming years Council expects this ratio to remain strong, specifically with construction of new major road and bridge assets supporting the West Dapto Urban Release Area.

Benchmark: Minimum > 1.10
Source for Benchmark: Code of Accounting Practice and Financial Reporting #23

Ratio is within Benchmark
 Ratio is outside Benchmark

Wollongong City Council

Special Schedule No. 9 - Permissible Income Calculation

for the financial year ended 30 June 2016

\$'000		Calculation 2014/15	Calculation 2015/16
Notional General Income Calculation ⁽¹⁾			
Last Year Notional General Income Yield	a	128,911	137,844
Plus or minus Adjustments ⁽²⁾	b	956	573
Notional General Income	c = (a + b)	129,867	138,417
Permissible Income Calculation			
Special variation percentage ⁽³⁾	d	6.13%	6.23%
or Rate peg percentage	e	2.30%	2.40%
or Crown land adjustment (incl. rate peg percentage)	f	0.00%	0.00%
less expiring Special variation amount	g	-	-
plus Special variation amount	h = d x (c-g)	7,961	8,623
or plus Rate peg amount	i = c x e	-	-
or plus Crown land adjustment and rate peg amount	j = c x f	-	-
sub-total	k = (c+g+h+i+j)	137,828	147,040
plus (or minus) last year's Carry Forward Total	l	1	135
less Valuation Objections claimed in the previous year	m	2	(148)
sub-total	n = (l + m)	3	(13)
Total Permissible income	o = k + n	137,831	147,027
less Notional General Income Yield	p	137,844	146,990
Catch-up or (excess) result	q = o - p	(13)	37
plus Income lost due to valuation objections claimed ⁽⁴⁾	r	148	6
less Unused catch-up ⁽⁵⁾	s	-	(3)
Carry forward to next year	t = q + r - s	135	40

Notes

- The Notional General Income will not reconcile with rate income in the financial statements in the corresponding year. The statements are reported on an accrual accounting basis which include amounts that relate to prior years' rates income.
- Adjustments account for changes in the number of assessments and any increase or decrease in land value occurring during the year. The adjustments are called "supplementary valuations" as defined in the Valuation of Land Act 1916.
- The Special Variation Percentage is inclusive of the Rate Peg percentage and where applicable crown land adjustment.
- Valuation objections are unexpected changes in land values as a result of land owners successfully objecting to the land value issued by the Valuer-General. Councils can claim the value of the income lost due to valuation objections in any single year.
- Unused catch-up amounts will be deducted if they are not caught up within 2 years. Usually councils will have a nominal carry forward figure. These amounts can be adjusted for in setting the rates in a future year.
- Carry forward amounts which are in excess (an amount that exceeds the permissible income) require Ministerial approval by order published in the NSW Government Gazette in accordance with section 512 of the Local Government Act 1993. The OLG will extract these amounts from councils' Special Schedule 9 in the Financial Data Return (FDR) to administer this process.

Wollongong City Council

General Purpose Financial Statements

for the financial year ended 30 June 2015

Statement by Councillors and Management

made pursuant to Section 413(2)(c) of the Local Government Act 1993 (as amended)

The attached General Purpose Financial Statements have been prepared in accordance with:

- The Local Government Act 1993 (as amended) and the Regulations made thereunder,
- The Australian Accounting Standards and professional pronouncements, and
- The Local Government Code of Accounting Practice and Financial Reporting.

To the best of our knowledge and belief, these Financial Statements:

- present fairly the Council's operating result and financial position for the year, and
- accords with Council's accounting and other records.

We are not aware of any matter that would render the Reports false or misleading in any way.

Signed in accordance with a resolution of Council made on 19 October 2015.

Gordon Bradberry
LORD MAYOR

John Dorahy
DEPUTY LORD MAYOR

David Farmer
GENERAL MANAGER

Brian Jenkins
RESPONSIBLE ACCOUNTING OFFICER

Wollongong City Council

Special Purpose Financial Statements

for the financial year ended 30 June 2015

Statement by Councillors and Management

made pursuant to the Local Government Code of Accounting Practice and Financial Reporting

The attached Special Purpose Financial Statements have been prepared in accordance with:

- The NSW Government Policy Statement "Application of National Competition Policy to Local Government".
- The Division of Local Government Guidelines "Pricing & Costing for Council Businesses - A Guide to Competitive Neutrality".
- The Local Government Code of Accounting Practice and Financial Reporting.
- The NSW Office of Water (Department of Environment, Climate Change and Water) Guidelines - "Best Practice Management of Water and Sewerage".

To the best of our knowledge and belief, these Financial Statements:

- Present fairly the Operating Result and Financial Position for each of Council's declared Business Activities for the year, and
- Accord with Council's accounting and other records.

We are not aware of any matter that would render these Statements false or misleading in any way.

Signed in accordance with a resolution of Council made on 19 October 2015.

Gordon Bradberry
LORD MAYOR

John Dorahy
DEPUTY LORD MAYOR

David Farmer
GENERAL MANAGER

Brian Jenkins
RESPONSIBLE ACCOUNTING OFFICER



EXECUTIVE SUMMARY

As General Manager of Wollongong City Council, I present the Annual Financial Statements for 2014/15. Council is well positioned financially in the short to medium term and is advancing along a path towards achieving long term sustainability. Council has previously identified that sufficient funding is not available to provide for the renewal and maintenance of long-lived assets such as roads, bridges, buildings and recreation facilities over the longer term. During the 2013/14 financial year, Council completed a major review (Securing our Future) to address these long term sustainability issues. From this review Council endorsed a proposal seeking a minimum target of \$4.5 million from internal efficiencies, \$1.5 million in service level adjustments, a minimum of \$500,000 in increased fees and charges and a Special Rate Variation for an increase in General Revenue of \$14.5M. The positive result Council has achieved for the 2014/15 financial year shows the impact of these improvements during the first year of the process. In future years, Council faces the challenge of continually meeting its efficiency and improvement targets.

In 2014/15 the Income Statement shows a net operating surplus of \$31.6M compared to a surplus of \$12.1M in 2013/14. The net operating result before capital grants and contributions, which remains Council's main indicator of long term financial viability, was a surplus of \$9.6M compared to a deficit of \$19.2M in 2013/14. As discussed, Council has been working to develop actions in consultation with the community to move towards a surplus. However, this result represents a significant improvement compared to 2013/14 and was mainly attributable to a number of one off events. These include net profit on the sale of assets (\$4.2M), a legal settlement (\$1.8M), a reduction in the workers compensation provision (\$2.3M) and the timing of the receipt of the Financial Assistance Grant (\$8.9M).

Council's Balance Sheet shows the vast extent of assets managed by Council for the Community. The total value of Council's assets at 30 June 2015 was \$2.43B. During 2014/15, Council completed a capital works program of \$84.8M including the construction and purchase of \$36.6M of new assets and renewal of existing assets of \$48.2M. The program has included projects such as the West Dapto Access Strategy, City Centre Crown Street Upgrade, Keira Street Footpath Upgrade and civil asset renewals including roads, car parks and buildings.

In 2015, Council maintained a strong position in cash and investments, with holdings of \$144.7M at 30 June 2015 (\$118M in 2013/14). \$119.6M of Council's cash (\$90M in 2013/14) is restricted in its use to specific purposes by external bodies, legislation and Council resolution. This increased in 2014/15 primarily as a result of additional external funds relating to the subsidised \$15M loan under the Local Infrastructure Renewal Scheme.

Council's unrestricted current ratio has increased slightly from 1.93:1 in 2013/14 to 2.19:1 in 2014/15. This ratio measures Council's liquidity and ability to satisfy obligations in the short term. Although the result is on par with the Local Government Benchmark of >2:1, Council's strategy is to better utilise cash and target a lean unrestricted cash ratio. Cash assets held for future waste facility requirements are significant, and included in this ratio, so the measure is expected to increase until payments are required.

Relatively low levels of borrowing are a financial strength of Council and add flexibility in making financial decisions for the future. The 2014/15 debt service ratio increased to 2.73% compared to 2.68% in 2013/14 which reflects a decision to borrow an additional \$15M under the Local Government Infrastructure Renewal Scheme. These funds will be used for the West Dapto Access Project to construct Fowlers Road to Fairwater Drive. The financial strategy allows for a ratio of 4% and Council continues to operate within this strategy.

My thanks to all staff and external auditors who worked on the preparation of these Statements.



David Farmer
General Manager
Wollongong City Council

2014/2015 Financial Statements

This report provides an overview of Council's 2014/2015 Financial Statements. The Financial Statements are prepared by Council to provide information in relation to Council's financial performance and position. The Statements are prepared in accordance with Australian Accounting Standards, the NSW Local Government Act 1993 and the NSW Local Government Code of Accounting Practice and Financial Reporting (Update N° 23). The Statements are independently audited by PricewaterhouseCoopers, reported to Council, placed on public exhibition and lodged with the Office of Local Government.

The Financial Statements are made up of five key financial reports (Primary Financial Statements) and explanatory notes. The Primary Financial Statements are:

- Income Statement
- Statement of Comprehensive Income
- Statement of Financial Position
- Statement of Changes in Equity
- Statement of Cash Flows

2014/2015 Highlights

- Total Assets \$2.43B from \$2.36B (2014)
- Debt Service Ratio at 2.73% (2014: 2.68%)
- Expenditure on Infrastructure, Property, Plant & Equipment [New/Renewal] \$84.8M (2014: \$84.7M)
- Net Operating Result \$31.6M Surplus (2014: Surplus \$12.1M)
- Renewal expenditure on Infrastructure, Property, Plant & Equipment \$48.2M (2014: \$25.7M)
- Net Operating Result before Capital Grants and Contributions \$9.6M Surplus (2014: \$19.2M Deficit)
- Recognition of contributed assets including infrastructure \$1.9M (2014: \$8.1M)
- Secured subsidised loan of \$15M under the Local Infrastructure Renewal Scheme (round three) Unrestricted current ratio of 2.19:1 (2014: 1.93:1)
- Cash assets of \$144.7M

2014/2015 Financial Overview

Council is well positioned financially in the short to medium term and is in the process of working towards achieving long term sustainability. Council had identified that it did not have sufficient funding to provide for the renewal and maintenance of long-lived assets such as roads, bridges, buildings and recreation facilities over the longer term.

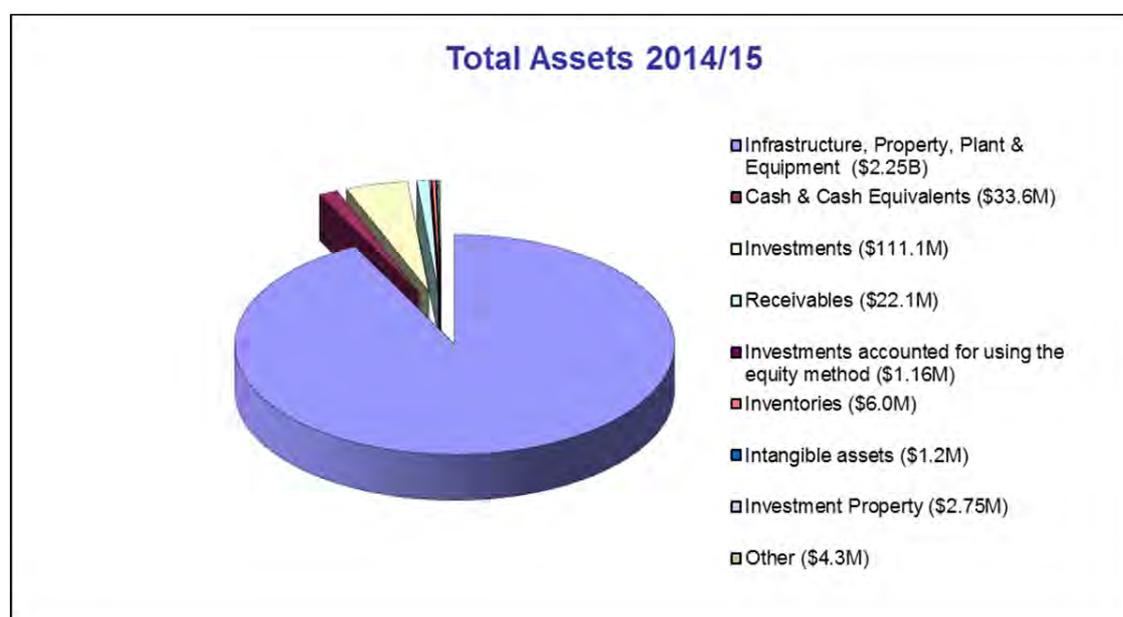
During the 2013/14 financial year, Council completed a major review (Securing our Future) to address these long term sustainability issues. From this review Council endorsed a proposal seeking a minimum target of \$4.5 million from internal efficiencies, \$1.5 million in service level adjustments, a minimum of \$500,000 in increased fees and charges and a Special Rate Variation for an increase in General Revenue of \$14.5M. The positive result Council has achieved for the 2014/15 financial year shows the impact of these improvements during the first year of the process.

The improvements proposed from the Securing our Future review were reinforced in Council's Fit for the Future submission to the Office of Local Government in June 2015. This submission builds upon the Local Government Review Panel's position that Council has enough scale and capacity to maintain its operations as an independent Council. While implementing the Securing our Future improvements Council will seek to strengthen its relationships with other Councils in the Illawarra region.

In future years, Council faces the challenge of continually meeting their efficiency and improvement targets.

Assets

Council's Statement of Financial Position shows the vast extent of assets managed by Council for the Community. The total value of Council's assets at 30 June 2015 was \$2.43B. The composition of assets is shown below.



Infrastructure, Property, Plant & Equipment (IPPE)

With a carrying value of \$2.25B, Infrastructure, Property, Plant and Equipment (IPPE) is Council's most significant asset and represents 93% of the total value of assets.

During 2014/2015 Council completed a capital works program of \$84.8M including the construction and purchase of \$36.6M of new assets and renewal of existing assets of \$48.2M.

After accounting for annual depreciation expense, the overall value of IPPE increased by \$103.9M during 2014/2015. The increase was primarily due to asset additions of \$86.8M and a further \$17.9M as a result of assets transferred in and adjustments to the useful lives of assets. Further financial details of IPPE are shown in Note 9.

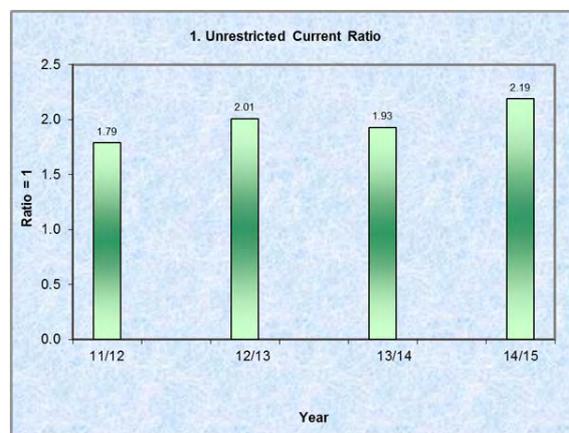
Cash and Investments

In 2014/2015, Council maintained a strong position in cash and investments, with holdings of \$144.7M at 30 June 2015. Council's cash and investment positions over recent years are as follows:

CASH, INVESTMENTS & AVAILABLE FUNDS					
		YTD Actual 30 June 2012	YTD Actual 30 June 2013	YTD Actual 30 June 2014	YTD Actual 30 June 2015
Total Cash and Investments	\$M	90.695	116.796	117.971	144.656
Less Restrictions:					
External	\$M	42.281	63.961	62.979	77.693
Internal	\$M	18.982	24.383	26.964	41.960
Available Cash	\$M	29.432	28.452	28.028	25.003
Adjusted for :					
Current payables	\$M	(25.112)	(23.201)	(29.360)	(34.039)
Receivables	\$M	18.465	26.205	25.454	26.422
Available Funds	\$M	22.785	31.456	24.122	17.386

External restrictions are funds held by Council that must be spent for a specific purpose and cannot be used by Council for general operations. Internal restrictions are funds that Council has determined will be used for a specific future purpose. Cash holdings have continued to track higher than anticipated throughout the 2014/2015 financial year as a result of additional external funds including the \$15M Local Infrastructure Renewal Scheme loan. Further details on the composition of reserves are shown in Note 6.

At 30 June 2015, Council achieved an available funds position of \$21.6M, which was higher than the Financial Strategy target of between \$8.7M and \$13.7M. This is primarily due to the impact of the settlement of legal claims [\$1.8M] and the sale of land holdings.



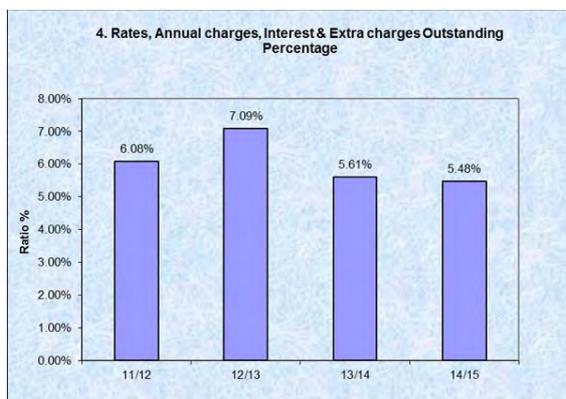
The Unrestricted Current Ratio measures Council's Cash/Liquidity Position or its ability to satisfy obligations in the short term from the unrestricted activities of Council.

Council's strategy is to maximise the use of available funds and target a lean unrestricted current ratio. Cash assets held for future waste facility requirements are held in the unrestricted ratio. As the requirement to hold funds for the waste facility is significant the measure is expected to increase until payments are required.

As Council's performance is on par with the Local Government Benchmark of >2:1, it is reflective of a deliberate strategy to better utilise cash.

Receivables

Receivables are the amount of money owed to Council or funds that Council has paid in advance. At June 2015, receivables totalled \$22.1M, a decrease of \$1.7M compared to the 2014 reporting period. This decrease is mainly due to a reduction in Government Grants and Subsidies. Full details of receivables are provided in Note 7.

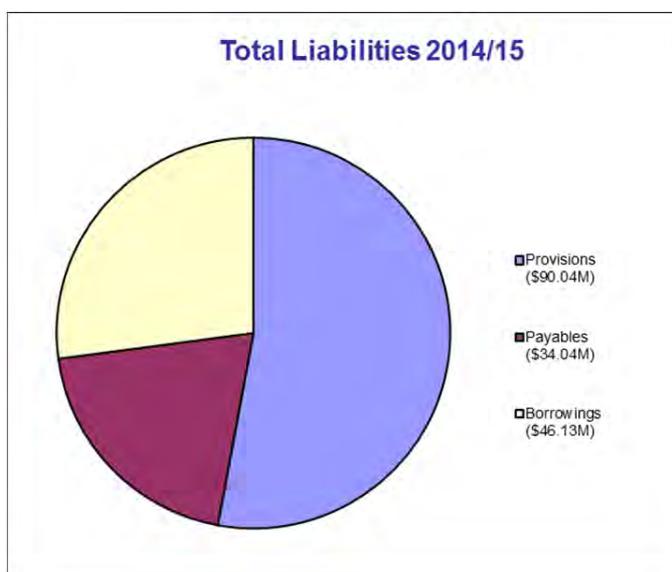


This measure assesses the impact of uncollected rates and other charges on liquidity and the adequacy of recovery efforts.

An improved debt recovery process was implemented in 2013/2014. The process has continued to generate positive implications on the 2014/2015 results. Council's Debt Recovery Policy aims to bring Council in line with the industry standard of <5%.

Liabilities

At 30 June 2015 Council's Total Liabilities were \$170.2M. The composition of Council's Total Liabilities is shown below.



Provisions account for 52.9% of Council's Liabilities with the most significant provisions relating to Employee Leave Entitlements [\$43.9M], Waste Depot Remediation Provision [\$40.7M] and Workers' Compensation Provision [\$4.5M].

Payables account for 20% of Council's Liabilities. The majority of payables relate to goods and services received and capital expenditure incurred but not yet paid for.

Borrowings account for 27.1% of Council's Liabilities and relate to the interest free Infrastructure Loan from the State Government secured in 2010 and the subsidised Local Infrastructure Renewal Scheme loans (1, 2 and 3) secured during 2012/2013, 2013/2014 and 2014/2015 respectively.

Provisions

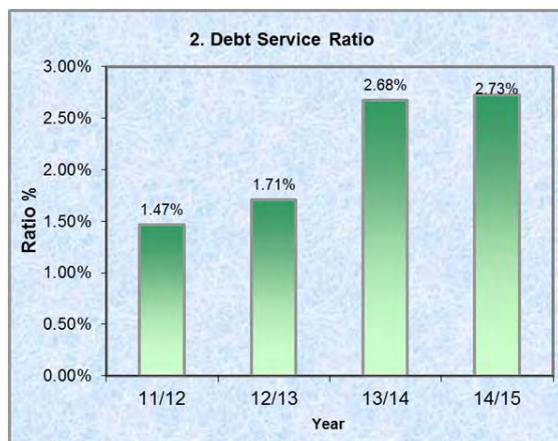
Provisions increased during 2015 by \$2.2M. The increase is primarily attributable to an increase for the future remediation works at Whytes Gully waste facility [\$1.4M], an increase in Long Service Leave provision [\$2.7M] and a decrease in the Workers' Compensation provision [\$2.1M].

Borrowings

Historically, one of Council's financial strengths has been a relatively low level of borrowing. However, over the past four years Council has utilised advantageous borrowing opportunities to accelerate spending on Infrastructure, for example, in 2010 Council secured a \$26M interest free Infrastructure Loan from the NSW State Government for West Dapto Access works. This will continue to be spent over the next financial year and paid back over the next six years. During 2012/2013 Council also secured a \$20M subsidised loan under the Local Government Infrastructure Renewal Scheme that will be used over a five year period to accelerate the Citywide Footpaths and Shared Path Renewal and Missing Links Construction Program. Within the 2013/2014 financial year Council secured a \$4.3M subsidised loan under round two of the Local Government

Infrastructure Renewal Scheme that will be used for the renewal and upgrade of the Berkeley and Corrimal Community Centres and Thirroul Pavilion and Kiosk.

Council has continued to take advantage of such opportunities throughout the reporting period, when a \$15M subsidised loan was secured under round three of the Local Government Infrastructure Renewal Scheme. This loan is to be repaid over the next nine years at a fixed rate, and is to be used for the West Dapto Access Project to construct Fowlers Road to Fairwater Drive.



The Debt Service Ratio measures the proportion of revenues that is required to meet Council's annual loan repayments. A low level of debt is reflected in Council's Debt Service Ratio which is 2.73%. This is exceptionally low in comparison to the Local Government benchmark ratio of <10%.

The Debt Service Ratio has increased in 2014/2015 and this reflects a decision to borrow additional funds under the Local Government Infrastructure Scheme round three (LIRS 3). Council's financial strategy allows for a ratio of 4% and Council continues to operate within this strategy.

Operational Performance - Income & Expenses

Council's financial performance in 2015 was up in contrast to the prior year, achieving a Net Operating Surplus from Continuing Operations of \$31.6M, compared to a prior year Surplus of \$12.1M. Council's underlying measure of longer term operational performance, the Operational Result before Capital Grants and Contributions shows a surplus of \$9.6M, compared to a deficit of \$19.2M in 2013/14. This result can be attributed to a number of one-off events including net profit on the sale of assets [\$4.2M], a legal settlement [\$1.8M], a reduction in the workers compensation provision [\$2.3M] and the timing of the receipt of the Financial Assistance Grant [\$8.9M].

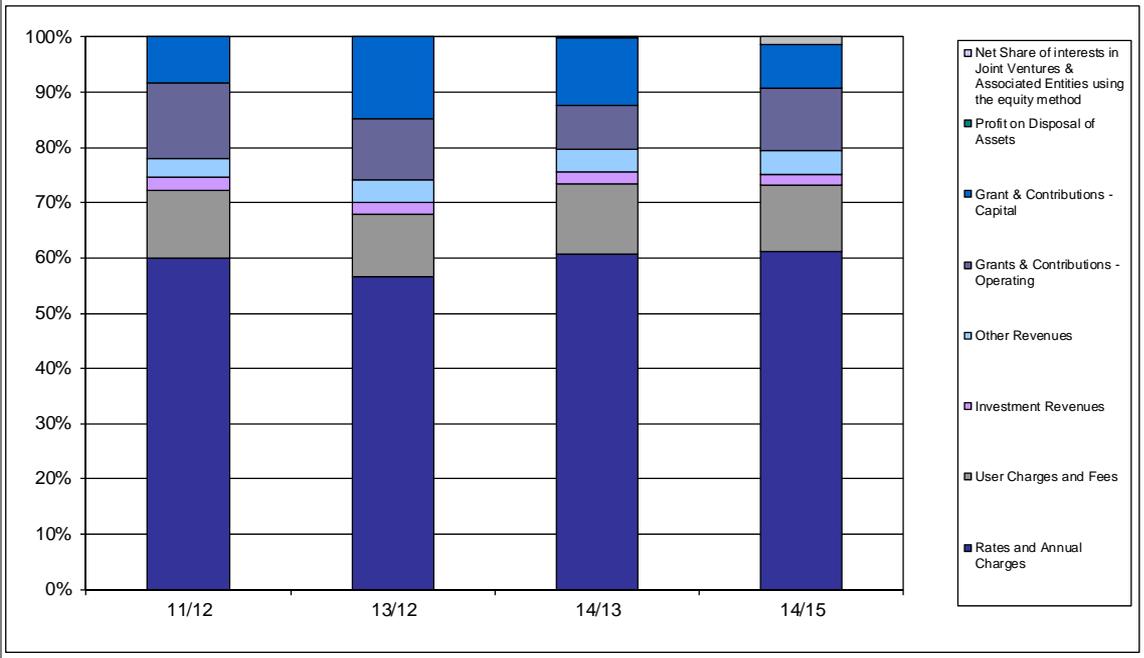
Income

Council's Income from Continuing Operations for 2015 was \$273.2M compared to a prior year result of \$255.9M. The increase in income is due to proceeds on a legal settlement [\$1.8M], additional capital contribution revenue largely composed of developer contributions and higher than expected fees and charges. The positive impacts of the Special Rate Variation have also contributed to the increase in income during 2015.

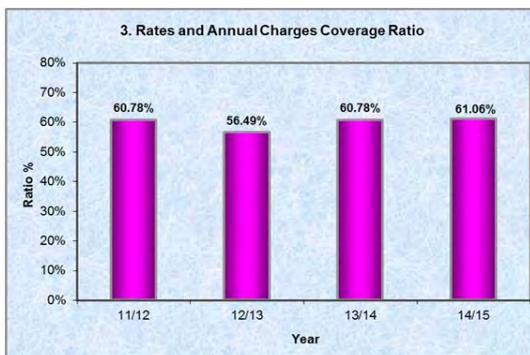
The other sources of revenue for Council remained steady based on prior financial years, as shown in the following table.

REVENUE SOURCES

INCOME FROM CONTINUING OPERATIONS	Year ended 30/06/2012		Year ended 30/06/2013		Year ended 30/06/2014		Year ended 30/06/2015	
	\$'000	%	\$'000	%	\$'000	%	\$'000	%
Rates & Annual Charges	143,083	60%	148,777	56%	155,509	61%	166,849	61%
User Charges & Fees	29,036	12%	29,899	11%	32,250	13%	32,851	12%
Interest & Investment Revenues	5,736	2%	5,431	2%	5,937	2%	5,689	2%
Other Revenues	8,292	3%	10,864	4%	10,153	4%	11,965	4%
Grants & Contributions - Operating	32,561	14%	29,107	11%	20,463	8%	30,319	11%
Grants & Contributions - Capital	19,586	8%	39,042	15%	31,361	12%	22,033	8%
Profit on Disposal of Assets	0	0%	0	0%	0	0%	3,533	1%
Net Share of interests in Joint Ventures & Associated Entities using the equity method	298	0%	244	0%	198	0%	0	0%
Total Income from Continuing Operations	238,592	100%	263,364	100%	255,871	100%	273,239	100%



Income from Rates and Annual Charges in 2015 totalled \$166.8M, an increase of \$11.3M on the prior year.



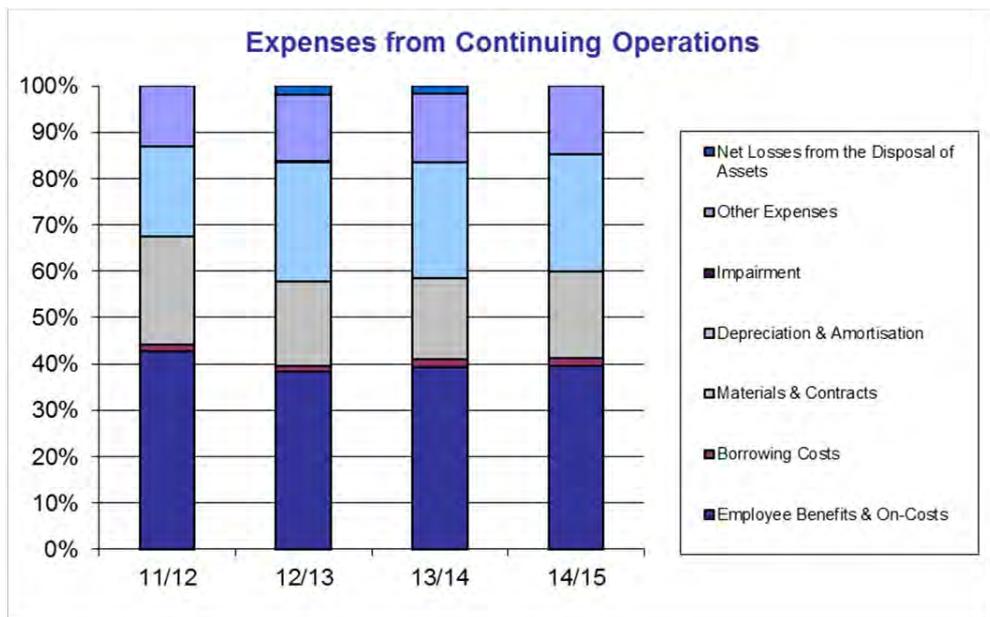
The Rates and Annual Charges Coverage Ratio assesses the degree of Council's dependence upon revenue from rates and annual charges and the security of Council's income. The increase in 2014/2015 is primarily due to the Special Rates Variation.

Interest and Investment Income of \$5.7M was recognised, representing a consistent result when compared to the prior year result of \$5.9M. There was an increase in Operating Grants & Contributions from \$20.5M in 2013/2014 to \$30.3M in 2014/2015 while there was a decrease in Capital Grants & Contributions from \$31.3M in 2013/2014 to \$22M in 2014/2015. The reduction in Capital Grant & Contribution income is the result of one-off grant funding received in the 2013/2014 financial year for Building Better Regional Cities.

Expenses

Council's Expenses from Continuing Operations for 2015 totalled \$241.6M, compared to prior year expenditure of \$243.7M. The majority of the decrease relates to a reduction in Council's Workers Compensation provision by \$2.3M. During the 2014/2015 financial year Council has been able to keep its costs below expectations through restraint on expenditure growth.

Material variations from the 2014/2015 for both income and expenditure items are detailed in Note 16 of the statements.



Wollongong City Council

Historical Financial Data

Income Statement

	Notes	Actual 2011/12 \$'000	Actual 2012/13 \$'000	Actual 2013/14 \$'000	Actual 2014/15 \$'000
Income from Continuing Operations					
Revenue:					
Rates & Annual Charges	3a	143,083	148,777	155,509	166,849
User Charges & Fees	3b	29,036	29,899	32,250	32,851
Interest and Investment Revenue (1)	3c	5,736	5,431	5,937	5,689
Other Revenues	3d	8,292	10,864	10,153	11,965
Grants & Contributions provided for Operating Purposes	3e,f	32,561	29,107	20,463	30,319
Grants & Contributions provided for Capital Purposes (2)	3e,f	19,586	39,042	31,361	22,033
Other Income:					
Net Gains from the Disposal of Assets	5	-	-	-	3,533
Profit from interests in Joint Ventures & Associates Entities using the equity method	19	-	-	-	-
		298	244	198	-
Total Income from Continuing Operations		238,592	263,364	255,871	273,239
Expenses from Continuing Operations					
Employee Benefits & On-Costs					
Employee Benefits & On-Costs	4a	93,681	91,043	95,792	95,399
Borrowing Costs	4b	3,236	3,367	3,989	4,037
Materials & Contracts	4c	41,424	43,139	42,685	45,647
Depreciation & Amortisation	4d	60,434	61,240	61,203	60,763
Impairment	4d	346	990	-	-
Other Expenses	4e	32,353	34,135	35,846	35,777
Net Losses from the Disposal of Assets	5	1,153	4,311	4,245	-
Loss from interests in Joint Ventures & Associates	19	-	-	-	22
Total Expenses from Continuing Operations		232,627	238,225	243,760	241,645
Operating Result from Continuing Operations		5,965	25,139	12,111	31,594
NET OPERATING RESULT FOR THE YEAR		5,965	25,139	12,111	31,594
Less:					
Grants & Contributions provided for Capital Purposes	3e,f	19,586	39,042	31,361	22,033
Net Operating Result for the year before Grants and Contributions provided for Capital Purposes		(13,621)	(13,903)	(19,250)	9,561

This Statement is to be read in conjunction with the Notes in the body of the financial statements and with consideration to Notes (1) and (2) below.

(1) Interest and Investment Income includes the recognition of the discount (\$8.7M) on the interest free loan from the State Government during 2009/10. This transaction is unique and unlikely to be repeated in future years.

(2) Capital Grants and Contributions increased in 2011 and 2013 primarily as a result of contributed assets treated as income.

Wollongong City Council

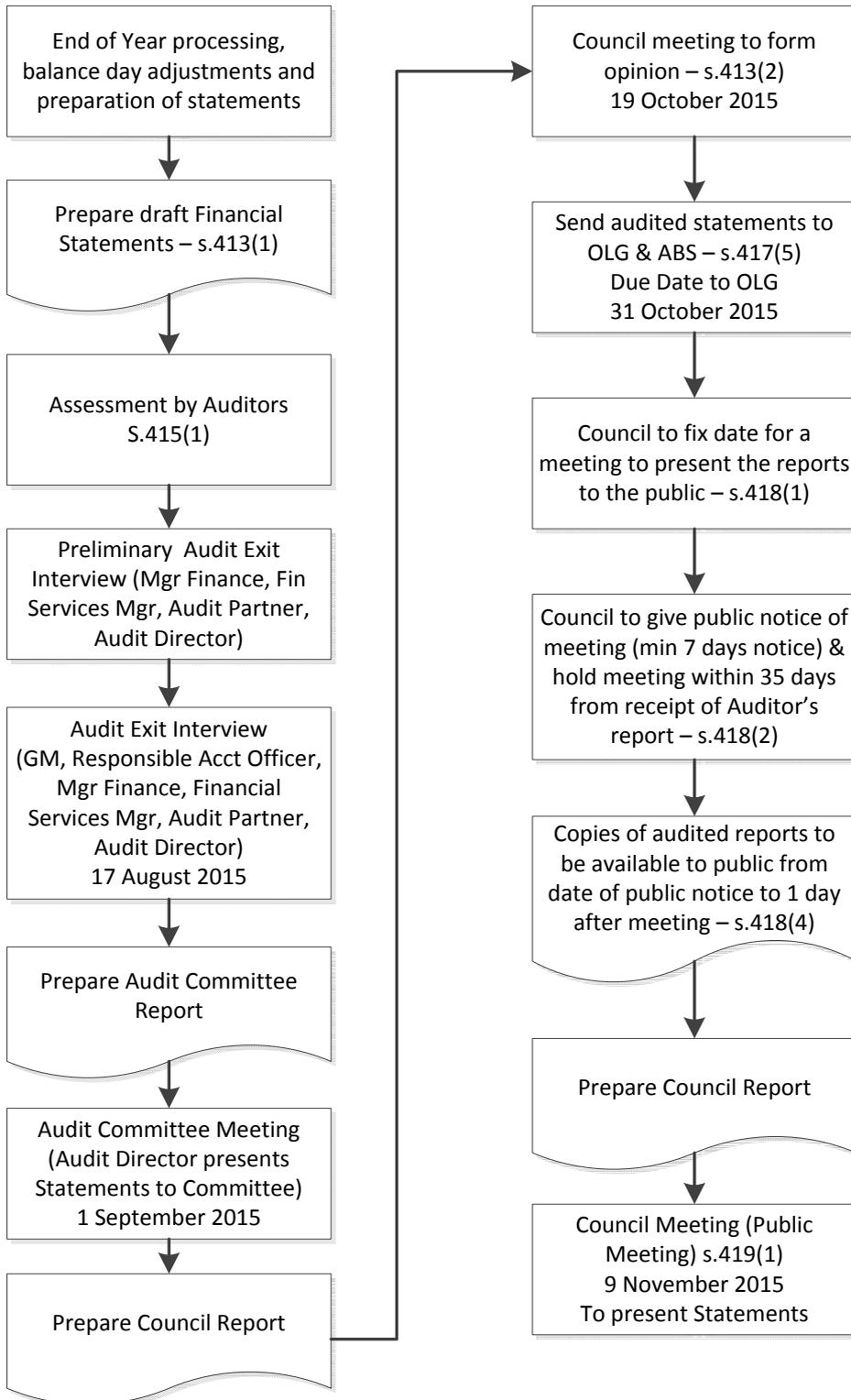
Historical Financial Data

Statement of Financial Position

	Notes	Actual 2011/12 \$'000	Actual 2012/13 \$'000	Actual 2013/14 \$'000	Actual 2014/15 \$'000
ASSETS					
Current assets					
Cash & cash equivalents	6a	83,506	99,502	33,299	33,580
Investments	6b	7,189	7,294	63,672	102,076
Receivables	7	14,221	20,481	23,808	22,109
Inventories	8	8,900	8,940	6,037	6,040
Other	8	722	885	1,646	4,313
Assets held for sale (previously non-current)	22	-	-	1,700	-
Total current assets		114,538	137,102	130,162	168,118
Non-current assets					
Cash assets	6a	-	-	-	-
Investments	6b	-	10,000	21,000	9,000
Receivables	7	3,522	4,839	-	-
Inventories	8	-	-	-	-
Infrastructure, property, plant & equipment	9	2,326,193	2,376,962	2,207,842	2,251,343
Investments accounted for using the equity method	19	739	983	1,181	1,160
Investment property	14	3,725	3,725	2,750	2,750
Intangible assets	25	634	364	930	1,220
Non-current assets classified as 'held for sale'	22	-	-	-	-
Other	8	-	-	-	-
Total non-current assets		2,334,813	2,396,873	2,233,703	2,265,473
TOTAL ASSETS		2,449,351	2,533,975	2,363,865	2,433,591
LIABILITIES					
Current liabilities					
Payables	10	25,112	23,201	29,360	34,039
Interest bearing liabilities	10	1,659	3,332	3,908	6,369
Provisions	10	37,900	40,833	42,651	47,487
Total current liabilities		64,671	67,366	75,919	87,895
Non-current liabilities					
Payables	10	-	-	4,034	-
Interest bearing liabilities	10	14,986	31,236	31,459	39,758
Provisions	10	42,645	45,401	45,183	42,554
Total non-current liabilities		57,631	76,637	80,676	82,312
TOTAL LIABILITIES		122,302	144,003	156,595	170,207
NET ASSETS		\$ 2,327,049	2,389,972	2,207,270	2,263,384
EQUITY					
Retained earnings	20	1,103,844	1,163,160	1,193,467	1,252,318
Revaluation reserves	20	1,223,205	1,226,812	1,013,803	1,011,066
Council Equity Interest		2,327,049	2,389,972	2,207,270	2,263,384
Minority Equity Interest	19	-	-	-	-
TOTAL EQUITY		\$ 2,327,049	2,389,972	2,207,270	2,263,384

This Statement is to be read in conjunction with the Notes in the body of the financial statements..

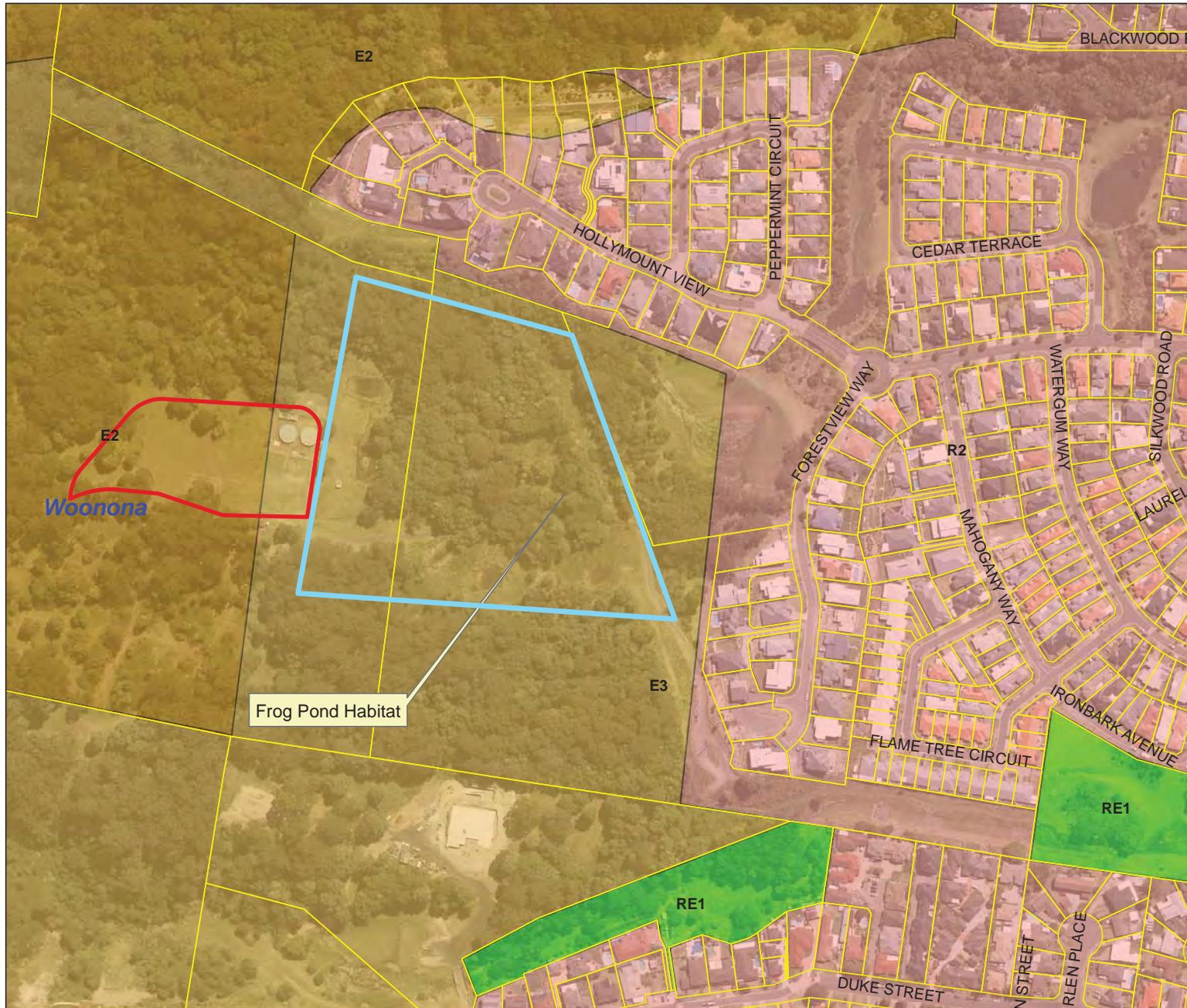
Wollongong City Council – Annual Financial Statement Approval Process



Proposed Community Title
Subdivision

Zones

- Proposed Community Title Subdivision
- E2 Environmental Conservation
- E3 Environmental Management
- R2 Low Density Residential
- RE1 Public Recreation



title : **CONSTRAINTS PLAN.**
 property : **LOT 6500 DP 1083715 ADDONDA**
 date : **April '14**
 scale : **reduced**

figure : **5.**



Infrastructure

West Dapto

Urban Release area

Housing

Jobs

Business

Parks

Facilities

Shops

Transport





WEST DAPTO RELEASE AREA

SECTION 94 CONTRIBUTIONS PLAN (2015)

WOLLONGONG CITY COUNCIL

Document Control						
Document ID: West Dapto Section 94 Plan						
Rev No	Date	Revision Details	Typist	Author	Verifier	Approver
1	Apr 2010	Draft for exhibition	DG	DG	DG	DG
2	Oct 2010	2 nd Draft for exhibition	DH	DH	DG	DG
3	Dec 2010	In force (2010 version)	DH	DH	DG	DG
4	Aug 2011	Draft for exhibition (2011 version)	DH	DH	DG	DG
6	Dec 2011	In force (2011 version)	DH	DH	DG	DG
7	May 2015	Draft for exhibition (2015 version)	DG	DG	DG	DG
8	Oct 2015	In force (2015 version)	JP	MH	MH	DG

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Executive Summary

West Dapto is a major greenfield release area and an important component of the Illawarra and Greater Sydney Metropolitan Area housing supply market. It is estimated that the area will supply approximately 17,034 dwellings over a 50+ year period resulting in an additional population of some 48,849 persons. Additionally some 183 hectares of employment land will be provided when fully developed. The West Dapto Release Area represents the culmination of a number of years of planning, technical investigations, studies and consultation.

The Wollongong LEP (West Dapto) 2010 was notified on 5 May 2010 and released Stages 1 and 2 which will facilitate the development of 6,272 dwellings and 174 hectares of employment land over the next 20+ years resulting in an additional population of approximately 19,316 persons. Future LEPs will rezone the remaining stages of the release area to enable additional urban development. On 6 June 2014, the Wollongong LEP (West Dapto) 2010 was repealed and the provisions merged into the Wollongong LEP 2009.

The future community will require additional infrastructure and facilities to meet its needs. The type of infrastructure and services that can be included in a section 94 plan has been limited by regulation.

A total expenditure of \$817 million is proposed for the West Dapto Release Area, of which \$518 million can be collected from the future population, as the residential contribution is currently capped at \$30,000 per lot/ dwelling. The costs are based on current values, and will need to be indexed over the life of the Plan.

Summary of infrastructure

	Item	No. / rate of facilities	Total cost of facilities	Council / existing development contribution	Council - Funding Gap contribution	Section 94 contribution
Community facilities	3 new Community centres	4750m2	\$ 16,194,595	\$ -	\$ -	\$ 16,194,595
	Upgrade Wongawilli Hall	200m2	\$ 638,916	\$ -	\$ -	\$ 638,916
	Sub total		\$ 16,833,511	\$ -	\$ -	\$ 16,833,511
Open space & recreation	Sports Parks (9.4ha - 2 cricket/AFL or 4 fields. 9.56ha - 4 Soccer fields)	2	\$ 10,944,853	\$ 5,472,427	\$ -	\$ 5,472,427
	Neighbourhood Parks (2ha active, 2ha passive - fields)	7	\$ 24,289,828	\$ -	\$ -	\$ 24,289,828
	Playgrounds (1/500 dwellings)	10	\$ 3,357,063	\$ -	\$ -	\$ 3,357,063
	Local parks (2ha, 1 field)	13	\$ 31,067,295	\$ -	\$ -	\$ 31,067,295
	Town Centre parks	1	\$ 5,136,114	\$ -	\$ -	\$ 5,136,114
	Community leisure & recreation centre (1/100000 persons)	1	\$ 12,701,211	\$ 4,127,894	\$ -	\$ 8,573,318
	Cycleways (urban edge) km	47	\$ 15,683,909	\$ -	\$ -	\$ 15,683,909
	Sub total		\$ 103,180,274	\$ 9,600,320	\$ -	\$ 93,579,954
Roads	Upgrade existing roads (2 lanes)		\$ 155,950,691	\$ 2,031,398	\$ 17,038,745	\$ 136,880,548
	Upgrade existing roads (4 lanes)		\$ 125,274,495	\$ 11,696,097	\$ 9,590,310	\$ 103,988,088
	New collector roads (2 lane)		\$ 106,922,705	\$ 5,132,718	\$ 6,674,173	\$ 95,115,814
	New major collector roads (4 lanes)		\$ 194,699,905	\$ 9,378,611	\$ 13,942,075	\$ 171,379,219
	Sub total		\$ 582,847,797	\$ 28,238,825	\$ 47,245,303	\$ 507,363,669
Public transport	Bus shelters	289	\$ 9,550,694	\$ 2,478,554	\$ -	\$ 7,072,140
	Bus transport kiosks	7	\$ 1,156,658	\$ -	\$ -	\$ 1,156,658
	Dapto multi-modal interchange		\$ 5,507,897	\$ 2,203,159	\$ 0	\$ 3,304,738
	Sub total		\$ 16,215,250	\$ 4,681,713	\$ 0	\$ 11,533,537
Drainage	Watercourse acquisition (ha)	244	\$ 10,751,416	\$ -	\$ -	\$ 10,751,416
	Detention basin Land Acquisition	64	\$ 25,952,869	\$ -	\$ -	\$ 25,952,869
	Detention basin Construction	64	\$ -	\$ -	\$ -	\$ -
	Enhanced Storage Areas	5	\$ 35,403,202	\$ -	\$ -	\$ 35,403,202
	Trunk drainage		\$ 18,202,160	\$ -	\$ -	\$ 18,202,160
	Sub total		\$ 90,309,647	\$ -	\$ -	\$ 90,309,647
Administration	1 Equivalent person plus studies & valuations	\$150,000 / yr (for 51 yrs) plus actuals	\$ 7,661,000	\$ -	\$ -	\$ 7,661,000
	Sub total		\$ 7,661,000	\$ -	\$ -	\$ 7,661,000
Sub-total			\$ 817,047,479	\$ 42,520,858	\$ 47,245,303	\$ 727,281,319
	Funding contribution from Horsley S94 plan		-\$ 3,863,776			-\$ 3,863,776
TOTAL			\$ 813,183,703	\$ 42,520,858	\$ 47,245,303	\$ 723,417,543

The following developable areas, development density and occupancy rates have been used in the preparation of this plan:

Summary of development

For low density residential development a total contribution rate of \$30,000 per dwelling/lot is proposed. This proposed rate is at the limit imposed by the State Contributions Cap of \$30,000. To encourage additional affordable housing, introduce a reduced contribution rate for:

- dual occupancy of \$20,000 for the additional dwelling (less than 125m² in area),
- multi-dwelling housing, residential flat buildings, seniors living, shop-top housing (residential component), of \$15,000 for up to 5 additional dwellings (less than 125m² in area) and \$10,000 for more than 5 additional dwellings (less than 125m² in area);
- subdivisions of more than 50 lots where a rate of \$390,000 per hectare will apply based on the net residential density of the land zoned for residential use.

The reduced contribution rate will be reviewed after 2 years, or the completion of the West Dapto Review.

For industrial or employment land, the contribution rate has been set on a per hectare basis at approx. 10% of the residential rate excluding Community Facilities and Open Space contributions, i.e. \$38,455 per developable hectare (subject to indexation).

The section 94 plan will be monitored and updated regularly. Major reviews will occur every 5 years and as part of the release of future land for urban development.

Zone	Developable area	Density	Yield	Occ rate	Est. pop
R3 Medium Density	91.38	25.0	2,285	2.5	5,818.23
R2 Low Density	934.74	14.6	13,674	3.0	41,448.70
R5 Large Lot Residential	45.37	5.0	227	3.2	725.85
E4 Environmental Living	118.30	3.9	456	3.2	1,460.45
B2 Local Centre	11.59	20.2	235	2.6	619.57
B1 Neighbourhood Centre	10.49	15.0	157	2.9	456.12
Subtotal	1,211.87	14.1	17,034		50,529
Zone	Developable area	Density	Yield	Occ rate	Est. pop
IN3 Heavy Industry	44.42				
IN2 Light Industry	134.43				
Subtotal	178.85		0.00		0.00
Total	1,390.72		17,034		50,529

Summary of Section 94 Contributions

	R3 Medium Density	R2 Low Density	R5 Large Lot Residential	E4 Environmental Living	B2 Local Centre	B1 Neighbourhood Centre	IN3 Heavy Industry	IN2 Light Industry	Total
Density	25.0	14.6	5.0	3.9	20.2	15.0			
Area	91.38	934.74	45.37	118.30	11.59	10.49	44.42	134.43	1,390.72
Pop %	11.51%	82.03%	1.44%	2.89%	1.23%	0.90%			100%
Employment Area %							24.84%	75.16%	100%
total	\$ 68,535,579	\$ 410,232,464	\$ 6,804,868	\$ 13,691,849	\$ 7,036,763	\$ 4,718,478	\$ 1,903,298	\$ 5,759,986	\$ 518,683,284
per hectare - employment land	NA	NA	NA	NA	NA	NA	\$ 42,848	\$ 42,848	
per hectare - residential land for subdivisions of 50 or more lots, where a net residential density of at least 15 dwellings per hectare is achieved.	\$ 390,000	\$ 390,000	NA	NA	NA	NA	NA	NA	
per lot / dwelling house	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	NA	NA	
per dual occupancy (additional dwelling - less than 125m ² in area)	\$20,000	\$20,000	\$ 30,000.00	\$ 30,000.00	NA	NA	NA	NA	
per additional dwelling (less than 125m ² in area) in a multi dwelling housing, shop top housing, residential flat building or seniors housing development, up to 5 dwellings	\$15,000	\$15,000	NA	NA	\$15,000	\$15,000	NA	NA	
per additional dwelling (less than 125m ² in area) in a multi dwelling housing, shop top housing, residential flat building or seniors housing development, more than 5 dwellings	\$10,000	\$10,000	NA	NA	\$10,000	\$10,000	NA	NA	

Works program Summary

				Total	0	1	2	3	4	5	6	7	8	9	10	11	12	
				\$,000	01/07/09	01/07/10	01/07/11	01/07/12	01/07/13	01/07/14	01/07/15	01/07/16	01/07/17	01/07/18	01/07/19	01/07/20	01/07/21	
WORKS PROGRAM			Council cost	\$94 & GAP Funding Expenditure	30/06/10	30/06/11	30/06/12	30/06/13	30/06/14	30/06/15	30/06/16	30/06/17	30/06/18	30/06/19	30/06/20	30/06/21	30/06/22	
				Expenditure totals														
COMMUNITY	Stage	1	0	5,114.1	5,114											1,000	2,000	
		2	0	639	639													
		3	0	8,501	8,502													
		4	0	0	0													
		Y-MM	0	2,579	2,579													
	TOTAL		0	16,834	16,834	0	0	0	0	0	0	0	0	0	0	1,000	2,000	
	Facility total		16,834															
OPEN SPACE & RECREATION	Stage	1/2	3,092	47,540	50,632											1,000	1,500	
		3	6,509	22,764	29,272													
		4	0	15,081	15,081													
		Y-MM	0	8,196	8,196													
		TOTAL		9,600	93,580	103,181	0	0	0	0	0	0	0	0	0	0	1,000	1,500
	Facility total		103,180															
ROADS & TRAFFIC	Stage	1/2	28,860	452,299	481,160	360	6,573	6,008	5,598	12,099	8,914	7,787	17,723	23,434	23,864	22,989	35,576	13,887
		3	0	32,162	32,162	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	15,572	15,572	0	0	0	0	0	0	0	0	0	0	0	0	0
		Y-MM	0	53,954	53,954	0	0	0	0	0	0	0	0	0	0	0	0	0
		TOTAL		28,860	553,988	582,848	360	6,573	6,008	5,598	12,099	8,914	7,787	17,723	23,434	23,864	22,989	35,576
	Facility total		582,848															
PUBLIC TRANSPORT	Stage	1/2	2,479	3,338	5,816					300		60	120	120	120	120	120	
		3	0	5,849	5,849													
		4	2,203	991	3,195													
		Y-MM	0	1,355	1,355													
		TOTAL		4,682	11,534	16,215	0	0	0	0	300	60	120	120	120	120	120	120
	Facility total		16,215															
DRAINAGE & STORMWATER MANAGEMENT	Stage	1		23,706	23,706					0	2,000		1,000		1,000		1,000	
		2		18,018	18,018													
		3		13,940	13,940													
		4		18,248	18,248													
		Y-MM			16,398	16,398												
	TOTAL		0	90,310	90,310	0	0	0	0	0	2,000	0	1,000	0	1,000	0	1,000	
	Facility total		90,310															
ADMINISTRATION	Stage	1/2		3,201	3,201	0	0	0	0	11	150	150	150	150	150	150	150	
		3		1,860	1,860													
		4		1,900	1,900													
		Y-MM			700	700												
		TOTAL		0	7,661	7,661	0	0	0	0	12	150	150	150	150	150	150	150
	Facility total		7,661															
MISCELLANEOUS					0													
					0													
					0													
					0													
		TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Facility total		0	0														
TOTAL WORKS AND SERVICES COSTS			43,142	773,905	817,049	360	6,573	6,008	5,598	12,111	9,364	9,997	17,993	24,704	24,134	24,259	37,846	18,657

		13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
		01/07/22	01/07/23	01/07/24	01/07/25	01/07/26	01/07/27	01/07/28	01/07/29	01/07/30	01/07/31	01/07/32	01/07/33	01/07/34	01/07/35	01/07/36	01/07/37	
WORKS PROGRAM		30/06/23	30/06/24	30/06/25	30/06/26	30/06/27	30/06/28	30/06/29	30/06/30	30/06/31	30/06/32	30/06/33	30/06/34	30/06/35	30/06/36	30/06/37	30/06/38	
COMMUNITY	Stage	1	2,114															
		2		100	539													
		3																
		4																
	TOTAL	Y-MM								50	200	1,000	1,329					
	TOTAL		2,114	100	539	0	0	0	0	50	200	1,000	1,329	0	0	0	0	
	Facility total																	
OPEN SPACE & RECREATION	Stage	1/2	2,000	3,500	5,806	1,500	1,000	1,500	500	500	500	2,000	3,000	2,000	2,000	3,000	3,000	
		3																
		4																
		Y-MM																
	TOTAL		2,000	3,500	5,806	1,500	1,000	1,500	500	500	500	2,000	3,000	2,000	2,000	3,000	3,000	
	Facility total																	
ROADS & TRAFFIC	Stage	1/2	5,958	3,528	7,197	5,530	7,000	10,243	6,000	8,000	11,341	21,999	20,000	16,900	12,161	5,500	8,478	6,600
		3	0	0	0	0	0	0	0	0	2,000	2,000	3,000	2,000	2,685	4,185	1,500	1,000
		4	0	0	0	0	0	0	0	0	1,000	3,772	1,987	2,000	418	0	0	1,000
		Y-MM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL		5,958	3,528	7,197	5,530	7,000	10,243	6,000	8,000	14,341	27,771	24,987	20,900	15,264	9,685	9,978	8,600
	Facility total																	
PUBLIC TRANSPORT	Stage	1/2	120	120	120	120	120	210	210	210	210	120	120	138		60	30	
		3										60	60	120	120	120	120	
		4																
		Y-MM																
	TOTAL		120	120	120	120	120	210	210	210	210	180	180	258	120	180	150	
	Facility total																	
DRAINAGE & STORMWATER MANAGEMENT	Stage	1		1,000		1,000		1,000		1,000		1,000		1,000		1,000		1,000
		2					1,000		1,000		1,000		1,000		1,000		1,000	
		3									1,000		1,000		1,000		1,000	
		4																
	TOTAL		0	1,000	0	1,000	1,000	1,000	1,000	1,000	1,000	2,000	2,000	2,000	2,000	2,000	2,000	
	Facility total																	
ADMINISTRATION	Stage	1/2	150	150	150	150	150	150	50	50	50	50	50	50	50	50	50	
		3							50	50	50	50	50	50	50	50	50	
		4							50	50	50	50	50	50	50	50	50	
		Y-MM																
	TOTAL		150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	
	Facility total																	
MISCELLANEOUS																		
	TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Facility total																	
TOTAL WORKS AND SERVICES COSTS			10,342	8,398	13,812	8,300	9,270	13,013	7,860	9,860	16,251	32,331	31,317	26,559	19,672	13,955	15,308	13,900

		29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
		01/07/38	01/07/39	01/07/40	01/07/41	01/07/42	01/07/43	01/07/44	01/07/45	01/07/46	01/07/47	01/07/48	01/07/49	01/07/50	01/07/51	01/07/51	01/07/51	
		30/06/39	30/06/40	30/06/41	30/06/42	30/06/43	30/06/44	30/06/45	30/06/46	30/06/47	30/06/48	30/06/49	30/06/50	30/06/51	30/06/52	30/06/52	30/06/52	
WORKS PROGRAM																		
COMMUNITY	Stage	1																
	2																	
	3																	
	4									500	500	1,000	784			1,000	2,000	
	Y-MM																	
TOTAL		0	0	0	0	0	0	0	0	500	500	1,000	784	0	0	1,000	2,000	
Facility total																		
OPEN SPACE & RECREATION	Stage	1/2	2,000	3,000	3,000	3,000	3,000	326										
	3									2,000	500	500	2,000	3,000	2,000	2,000	2,000	
	4																	
	Y-MM																	
	TOTAL		2,000	3,000	3,000	3,000	3,000	326	0	2,000	500	500	2,000	3,000	4,000	4,000	5,000	4,000
Facility total																		
ROADS & TRAFFIC	Stage	1/2	6,636	3,000	7,000	11,882	14,000	14,051	8,710	6,335	2,124	3,000	3,000	3,000	5,500	7,000	7,000	7,000
	3		0	2,000	0	0	1,000	0	3,000	2,000	2,000	2,000	1,791	0	0	0	0	0
	4		1,034	0	4,362	0	0	0	0	0	0	0	0	0	0	0	0	0
	Y-MM		0	0	0	1,000	1,000	1,000	3,000	7,000	6,982	1,336	0	0	0	1,000	3,000	4,000
	TOTAL		7,669	5,000	11,362	12,882	16,000	15,051	14,710	15,335	11,106	6,336	4,791	3,000	5,500	8,000	10,000	11,000
Facility total																		
PUBLIC TRANSPORT	Stage	1/2	60	30	60	120	60	120	60	120	60	120	500	500	500	300	98	
	3		120	120	120	120	120	120	120	120	150	150	150	150	210	200	210	
	4																	
	Y-MM						60	60	60	60	60	60	60	60	95	120	120	
	TOTAL		180	150	180	240	240	300	240	300	240	330	710	710	745	630	418	330
Facility total																		
DRAINAGE & STORMWATER MANAGEMENT	Stage	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	706					
	2		1,000		1,000		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,018			
	3			1,000		1,000		1,000	1,000	1,000	1,000	940						
	4			1,000	1,000	1,000	1,000			1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
	Y-MM								500	500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
TOTAL		2,000	3,000	3,000	3,000	3,000	3,000	3,500	3,500	5,000	4,940	3,206	3,000	3,018	2,000	2,000		
Facility total																		
ADMINISTRATION	Stage	1/2	50	50	50	50	50	50	35	35	35	35						
	3		50	50	50	50	50	50	40	40	40	40	60	60	60	60	60	
	4		50	50	50	50	50	50	50	50	50	50	60	60	60	60	60	
	Y-MM								25	25	25	25	30	30	30	30	30	
	TOTAL		150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	
Facility total																		
MISCELLANEOUS																		
	TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Facility total																		
TOTAL WORKS AND SERVICES COSTS			11,999	11,300	17,692	19,272	22,390	18,827	18,600	21,285	17,496	12,756	11,857	10,644	13,395	15,798	18,568	19,480

		45	46	47	48	49	50	51	52	53	54	55	56
		01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51	01/07/51
WORKS PROGRAM		30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52	30/06/52
COMMUNITY	Stage 1												
	2												
	3	2,000	500	218									
	4												
	Y-MM												
TOTAL	2,000	500	218	0	0	0	0	0	0	0	0	0	
Facility total													
OPEN SPACE & RECREATION	Stage 1/2												
	3	2,000	2,000	2,000	2,000	2,000	2,000	2,272					
	4	3,000	690	1,000		391							
	Y-MM	500	1,000	1,500	2,500	2,000	696						
	TOTAL	5,500	3,690	4,500	4,891	4,000	2,696	2,272	0	0	0	0	0
Facility total													
ROADS & TRAFFIC	Stage 1/2	7,000	3,500	4,500	2,332	1,500	2,500	2,000	5,000	2,340	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0
	Y-MM	4,000	5,000	5,335	2,000	3,000	2,000	2,000	1,301	0	0	0	0
	TOTAL	11,000	8,500	9,835	4,332	4,500	4,500	4,000	6,301	2,340	0	0	0
Facility total													
PUBLIC TRANSPORT	Stage 1/2												
	3	1,000	1,000	300	400	249							
	4	300	300	300	300	300	300	300	300	300	300	195	
	Y-MM	120	120	120	60								
	TOTAL	1,120	1,420	720	760	549	300	300	300	300	300	300	195
Facility total													
DRAINAGE & STORMWATER MANAGEMENT	Stage 1												
	2												
	3												
	4	1,000	1,000		1,000	1,000	1,000	1,000	1,000	248			
	Y-MM	1,000	1,000	1,000	1,000	1,000	1,000	1,000	898				
TOTAL	2,000	2,000	1,000	2,000	2,000	2,000	1,000	1,898	248	0	0	0	
Facility total													
ADMINISTRATION	Stage 1/2												
	3	60	60	60	60	60	60	60	60	60	60		
	4	60	60	60	60	60	60	60	60	60	60		
	Y-MM	30	30	30	30	30	30	30	30	30	30	150	
	TOTAL	150	150	150	150	150	150	150	150	150	150	150	0
Facility total													
MISCELLANEOUS													
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0
Facility total													
TOTAL WORKS AND SERVICES COSTS		21,770	16,260	16,423	12,133	11,199	9,646	7,722	8,649	3,038	450	450	195

1. Introduction

1.1 Name of the plan

This development contributions plan is called the West Dapto Section 94 Development Contributions Plan 2015.

1.2 Background

West Dapto is a major greenfield release area and an important component of the Illawarra and Greater Sydney Metropolitan Area housing supply market. It is estimated that the area will supply approximately 17,034 dwellings over a 50+ year period resulting in an additional population of some 48,849 persons. West Dapto Release Area represents the culmination of a number of years of planning, technical investigations, studies and consultation.

As it is a greenfield release area (i.e. it is located on the urban periphery and is not an 'infill' area) it will require a range of new public services and facilities to cater to the new population that is expected. Consequently, this plan is one mechanism that the Council will use to deliver a range of those public services and facilities.

Council's vision for the planning and development of West Dapto Release Area is:

In accordance with the goals of the Wollongong City Council Corporate Plan, Council will manage the development program for West Dapto to achieve an economic, environmental and socially sustainable urban development for the current and future residents of Wollongong.

Planning for the first two stages of the West Dapto Release Area is now complete and this section 94 plan draws together the substantial information and specialist studies which led to the rezoning of these areas. Planning for later stages of the release is also well progressed with the development parameters largely determined. Some of the studies which have been used to determine key infrastructure and servicing requirements include:

- West Dapto Local Environmental Study, WCC, 2007.
- Social, Cultural and Recreation Needs Study – Elton Consulting, 2007
- Energy and Communications Study - Maunsell Australia Pty Ltd, 2004
- Water Cycle Management Study - URS, 2004
- Transport Management and Access Plan - KBR Pty Ltd, 2007
- West Dapto T-Map extension Study – Connell Wagner 2008
- Infrastructure & Economic Assessment Report - GHD, 2006

Following the completion of these reports and the exhibition of the Local Environmental Study, draft Local Environmental Plan and draft Development Control Plan for West Dapto, at the request of Council the NSW Growth Centres Commission undertook a comprehensive review of the West Dapto release area (West Dapto Release Area Review & sub-consultant reports – NSW Growth Centers Commission, 2008). The review was initiated following concerns about the viability and affordability of the release area, the costs and timing of the provision of infrastructure, access, flooding, riparian corridors, staging and the Yallah-Marshall Mount vegetation strategy. The review has led to some changes to the previously exhibited development concept with most notably a reduction in dwelling yield (and therefore ultimately the expected population) and a corresponding reduction in infrastructure requirements. The review also led to a decision to proceed to rezone stages 1 and 2 of the Release Area with later stages to be rezoned at a later date.

Accordingly while this section 94 plan takes account of infrastructure requirements for the entire release area it focuses on Stages 1 and 2.

The review by the NSW Growth Centres Commission included a number of consultant studies, some of which have been used in the development of this contribution plan, including:

- West Dapto Market Assessment and Demographics Peer Review - Colleen Coyne Property Research Pty Ltd, 2008
- West Dapto Land Value Assessment – Hill PDA, 2008
- West Dapto Release Area Urban Design Analysis – Urbis, 2008
- West Dapto Review – Flooding & Stormwater Strategy – Bewsher Consulting Pty Ltd, 2008
- West Dapto Retail Study Peer Review – SGS Economics & Planning, 2008
- West Dapto Masterplan Traffic & Transport Review – Urbanhorizon Pty Ltd, 2008
- West Dapto Release Area Access Review – Cardno, 2008
- West Dapto Transport Link Review – Cardno, 2008
- Peer Review – Urbanhorizon Traffic & Transport Report – Northrop, 2008
- Flood Access Strategy for West Dapto – Molino Stewart Pty Ltd, 2008
- Review of the West Dapto Section 94 Contributions Plan – Newplan, 2008

Subsequent to Council's endorsement of the recommendations of the NSW Growth Centres Commission and review of submissions received following the exhibition of the draft documents, additional investigations have occurred, including:

- Mullet Creek Flood Study – West Dapto Release Area (Bewsher 2009)
- Road Infrastructure (Section 94) Estimates Review (GHD 2010)
- Mullet Creek Flood Extension Investigations (Bewsher 2011)

1.3 Commencement of the plan

This Plan was endorsed by Council on 19 October 2015 and commenced on **[date to be inserted]**.

1.4 Area to which the plan applies

This plan applies to all land within the West Dapto Release Area ~~stages 1 and 2~~ as identified in Figure 1.1. The figure shows the complete release area, where works will occur, however contributions can only be collected from the released stages, where urban development is permissible. As future areas are released the plan will be updated.

The Wollongong Section 94A Development Contribution Plan will continue to apply to development in the unreleased areas.

1.5 What is the purpose of this plan?

The primary purpose of this Plan is to authorize Council, when granting consent to an application to carry out development on land to which this Plan applies, to require a contribution to be made towards the provision, extension or augmentation of public amenities and public services that will, or are likely to be, required as a consequence of development in the West Dapto Release Area.

Other purposes of the Plan are:

- to provide the framework for the efficient and equitable determination, collection and management of development contributions toward the provision of public amenities and services generated by development within the Precincts;
- to determine the demand for public facilities generated by the incoming population to the release area and ensure that development makes a reasonable contribution toward the provision of services and facilities that are required for that population;
- to ensure that the existing community is not unreasonably burdened by the provision of public amenities and public services required (either partly or fully) as a result of development in the release area; and

- to ensure Council's management of development contributions complies with relevant legislation and guidelines, and achieves best practice in plan format and management.

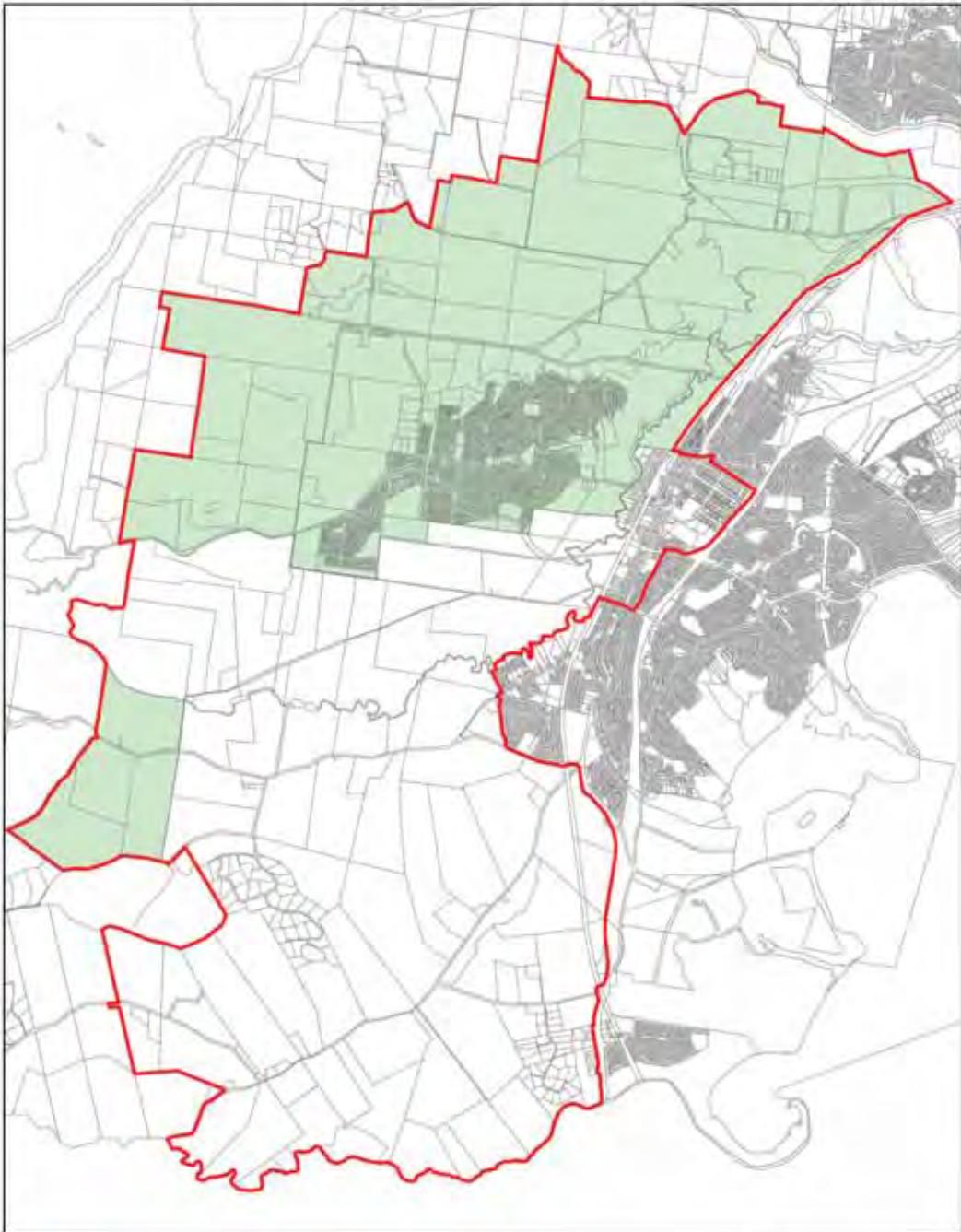
1.6 Relationship with other Plans and Policies

This plan repeals the following section 94 / 94A contributions plans applying in that part of the Wollongong local government area as referred to in section 1.4:

- West Dapto Release Area Section 94 Development Contributions Plan (2011) – this plan repealed the following plan:
- West Dapto Release Area Section 94 Development Contributions Plan (2010) – this plan repealed the following plan:
- Wollongong Section 94A Contributions Plan (2010 version) – this plan repealed the following plan:
- Horsley Section 94 Contributions Plan.

Any other contributions plan approved by Council (and in force under Division 6 or Part 4 of the EP&A Act at the time this Plan commenced) does not apply to development that is subject to a requirement to pay a contribution under this Plan.

Figure 1.1 - Land to which the Plan applies



2. Administration and operation of the Plan

2.1 What are development contributions?

Development contributions are contributions made to those undertaking development approved under the Environmental Planning and Assessment Act 1979 (EP&A Act).

Contributions may be in the form of money, dedication of land or some other material public benefit (or a combination of these) directed:

- in the case of contributions made under Section 94 of the EP&A Act – toward the provision or improvement of public amenities or services (or the recouping of the cost of provision or improvement of public amenities or services); or
- in the case of contributions made under a planning agreement prepared in accordance with Sections 93F to 93L of the EP&A Act – toward public purposes.

2.1.1 Section 94 contributions

Section 94 of the EP&A Act enables Councils to seek contributions from developers where development is likely to increase the demand for public facilities. Section 94 contributions are levied at the time of development consent.

The EP&A Act establishes that a Council can only require a section 94 contribution if:

- it is satisfied that a development, the subject of a development application, will or is likely to require the provision of, or increase the demand for, public amenities and public services within the area;
- it has adopted a contributions plan justifying the contribution; and
- the contribution is reasonable.

The power to levy a section 94 contribution relies on there being a clear relationship (or 'nexus') between the development being levied and the need for the public amenity or service for which the contribution is required.

Generally, contributions can only be made towards:

- capital costs including land acquisition costs;
- public facilities which a Council has a responsibility to provide; and
- public facilities which are needed as a consequence of new development.

Further detail on the types of public facilities that can be funded through section 94 contributions is included in Section 2.3 of this Plan.

2.1.2 Planning agreement contributions

The EP&A Act allows for the negotiation of planning agreements between Councils, developers, and/or other planning authorities for the provision of public purposes.

Public purposes are defined in the EP&A Act as (without limitation):

- the provision of (or the recoupment of the cost of providing) public amenities or public services;
- the provision of (or the recoupment of the cost of providing) affordable housing;
- the provision of (or the recoupment of the cost of providing) transport or other infrastructure relating to land;

- The funding of recurrent expenditure relating to the provision of public amenities or public services, affordable housing or transport or other infrastructure;
- the monitoring of the planning impacts of development; and
- the conservation or enhancement of the natural environment.

Wollongong City Council (Council) may, in accordance with its Planning Agreements Policy negotiate planning agreements with relevant parties in relation to proposed developments, Refer to Section 2.13.

2.2 Development to which this Plan applies

Council may impose a contribution under section 94 of the EP&A Act on consents issued for different types of development. The type and quantum of the contribution will relate to the form of the development proposed.

The following types of development are required to make a section 94 contribution:

- Subdivision for residential purposes; construction of a dwelling, a dual occupancy, multiple dwelling housing, multi unit housing, seniors housing or other dwellings; and
- Development of industrial land, including subdivision.

Development contributions will not be sought for retail premises, office premises, business premises, community facilities and recreational facilities (excluding any residential components).

2.2.1 Exemptions

The following Directions under Section 94E of the Environmental Planning and Assessment Act 1979 have been made by the Minister for Planning that require that a Section 94 levy cannot be imposed on development:

- a. for the purpose of disabled access (10/11/06);
- b. for the sole purpose of affordable housing (10/11/06) – *(including Granny Flat/Secondary dwelling under 60m2)*;
- c. for the purpose of reducing the consumption of mains-supplied potable water, or reducing the energy consumption of a building (10/11/06);
- d. for the sole purpose of adaptive re-use of an item of environmental heritage (note: the term “item” and “environmental heritage” have the same meaning as in the *Heritage Act 1977*) (10/11/06);
- e. other than the subdivision of land, where a condition under section 94 of the Act has been imposed under a previous development consent relating to the subdivision of the land on which the development is proposed to be carried out (10/11/06);
- f. Seniors living development under SEPP Seniors Housing 2004 by a Social Housing provider (14/9/07);
- g. Components of school development that is a Building Education Revolution (BER) project (9/9/09);
- h. Port Kembla Lease Area, as mapped in the Ports SEPP (6/12/13).

In addition, Council may allow for the following exemptions (partial or full):

- i. An application by the Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.
- j. An application by the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities and public transport infrastructure.
- k. An application for an industrial, retail, commercial or residential development, where there is no increase in floor space within an existing building, such as but not limited to internal fit-out or alteration to existing structure.

- l. An application for the continued operation of a coal mine, where rail transport is used for the transportation of coal.
- m. An application for a place of public worship.
- n. An application for demolition (where there is no replacement building or development).
- o. An application for a residential care facility.
- p. An application for an industrial training facility.

The following exception (partial or full) requests will require a comprehensive submission:

- q. An application on behalf of the Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.
- r. An application on behalf of the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities and public transport infrastructure.
- s. An application for privately funded community infrastructure, such as but not limited to education facilities, universities, and private hospitals.
- t. Any other development for which Council considers an exemption is warranted, where the decision is made by formal ratification of the Council at a public Council meeting.

Submission Requirements for an exemption claim to be considered

For an exemption to be considered in accordance with point's (q) to (t) above, any such development will need to submit a comprehensive submission arguing the case for exemption and including details of:

- Under which point the exemption claimed is to be considered
- The mechanism ensuring that such development will remain in the form proposed in the future (i.e. Not to increase future demand on public amenities and services), NB: where a further development application or application for complying development under the *EP&A Act* is required for any change to the development no mechanism is necessary, however if a change of use is available by way of exempt development then the requirement for a mechanism remains.
- Other items if applicable;
 - How the development will incorporate the maintenance of the item of heritage significance
 - How the development will contribute to the public benefit of the community
 - Works in the public domain included in the development
 - How the residents/users will utilise existing private facilities attached to the development that replicate those types provided by council.

A comprehensive submission is not required for points (a) to (p) from the above list. Whilst assessment of any application will include consideration of the provisions of this plan for any exemption that may be warranted, where a comprehensive submission isn't required, the application should clearly state which point an exemption is expected to ensure it is considered.

Exemptions (partial or full) listed under points (i) to (t) will only to be granted with approval of the Council Officer(s) whose position(s) holds the required Council delegations or in terms of point (t) by formal ratification of the Council at a public Council meeting.

2.3 Facilities Address by this Plan

Circulars issued by the NSW Department of Planning and Environment provide guidance on the types of facilities that may be funded through local infrastructure contributions introducing the concept of community infrastructure. Key community infrastructure includes:

- Local roads
- Local bus facilities

- Local parks that service a development site or precinct
- Drainage and stormwater management works
- Land and facilities for local community infrastructure that services a development site or precinct
- Land for other community infrastructure and recreation facilities
- District infrastructure where there is direct connection with the development.

The types of public facilities that will be required to meet demands of the expected future development in Stages 1 and 2 of the West Dapto release area are as follows:

- community facilities;
- open space and recreation facilities;
- traffic and transport management facilities; and
- water cycle management facilities.

The specification of works identified in this Plan are in accordance with the Department's Circulars.

[Note – In 2011, the State Government introduced a policy referred to as the “Comprehensive Housing Supply Strategy” and is aimed at delivering additional land releases, lower levies and faster planning decisions. The Strategy includes a cap of \$20,000 per residential dwelling/lot in existing urban areas and \$30,000 per residential lot in greenfield areas on Section 94 Contributions for new development without any exception. The West Dapto Release area was granted greenfield area status for the \$30,000 cap to apply by Ministerial direction on 4 March 2011 under Section 94E of EP & A Act 1979.

The policy also provides for further restrictions on the types of facilities that may be funded through Section 94 contributions in areas where the Plan calls for contributions above the Cap. Under the policy, funding for infrastructure costs above the Cap would require councils to apply to the Independent Pricing and Regulatory Tribunal (IPART) for a special rate determination to apply to the release area or the Local Government Area or a combination.

2.4 Relationship to Special Infrastructure Contributions

This Plan does not affect the determination, collection or administration of any special infrastructure contribution levied under section 94EF of the EP&A Act in respect to development on land to which this Plan applies.

Applicants should refer to details of Special Infrastructure Contributions issued by the Department of Planning in relation to West Dapto release area.

2.5 Definitions

In this Plan, the following words and phrases have the following meanings:

Applicant	means the person, company or organisation submitting a development application.
Attributable cost	means the estimated cost for each item in the works schedules set out in this Plan, which may differ from the final actual cost of the item. It will be the value used in determining the amount of any offset of monetary contributions as a result of any works-in-kind proposal.
Contribution	means the dedication of land, the making of a monetary contribution or the provision of a material public benefit, as referred to in section 94 of the EP&A Act.
Council	means the Council of the City of Wollongong.
CPI	means the All Groups Consumer Price Index (Sydney) as published

	by the Australian Bureau of Statistics.
Embellishment	means the enhancement of any public facility provided by the Council by the provision of services, facilities or works.
EP&A Act	means the <i>Environmental Planning and Assessment Act 1979</i> as amended.
EP & A Regulation	means the <i>Environmental Planning and Assessment Regulation 2000</i> as amended.
LEP	means a local environmental plan made by the Minister under section 70 of the EP&A Act.
LGA	means local government area
Net developable land	<p>means all land within West Dapto that can be used for economic purposes plus half the width of any adjoining access roads that provide vehicular access, but excluding land:</p> <ul style="list-style-type: none"> ▪ that has been identified by the [NSW Department of Planning] to be required for the provision of infrastructure utilising the special infrastructure contributions under section 94EF of the EP&A Act; ▪ set aside for publicly owned community facilities and/or community services provided or to be provided under this Plan or another contributions plan prepared under section 94 of the EP&A Act; ▪ set aside for roads provided or to be provided under this Plan or another contributions plan prepared under section 94 of the EP&A Act; ▪ used as regional RTA roads; ▪ used as existing roads to be included as part of the proposed road network; ▪ identified in the Wollongong Development Control Plan 2009 Chapter D16 as being set aside for public open space; ▪ that is flood affected, below the 1 in 100 year flood level; ▪ that is located in a high hazard flood zone; ▪ that is within a core riparian zone or riparian buffer area; ▪ for public schools and TAFE colleges; ▪ for publicly owned health facilities; ▪ for ambulance stations, fire stations & police stations; ▪ for bus depots, bus/rail interchanges; ▪ for rail corridors, rail stations & associated parking facilities; and ▪ facilities provided by Sydney Water, Integral Energy or equivalent water, sewer or energy provider. <p>For the purposes of this Plan, economic purposes are residential purposes and retail, commercial, business, industrial, education and other employment purposes.</p>
Planning Agreement	means a voluntary planning agreement referred to in Section 93F of the EP&A Act.
Public facility	means any public amenity or public service, as referred to in section 94 of the EP&A Act, the need for which has increased or been created by development.
Recoupment	means the payment of a monetary contribution to the Council to offset the cost (plus any interest) that the Council has already incurred in providing public facilities in anticipation of development.
Settlement	means the payment of a monetary contribution, the undertaking of a work in kind or the exchange of documents for the dedication of land required as a result of new development.
Special Infrastructure	means a contribution imposed as a condition of development consent

Contribution	in accordance with section 94EF of the EP&A Act.
Works in kind	means the undertaking of a work or provision of a facility by an applicant which is already nominated in the works schedule of a contributions plan.
Works schedule	means the schedule of the specific public facilities for which contributions may be required, and the likely timing of provision of those public facilities based on projected rates of development, the collection of development contributions and the availability of funds from supplementary sources, as set out in this Plan.

2.6 Formulas for determining contribution rates applicable under this Plan

The formulas used to determine the contribution rates applicable under this Plan are set out in Sections:

- 4.1.6 Community facilities
- 4.2.5 Open space & recreation
- 4.3.6 Roads & Public transport
- 4.4.4 Drainage
- 4.5.3. Administration

2.6.1 Are there allowances for existing development?

Contributions determined under this Plan will be calculated as provided for under clause 2.6. Council will determine any applicable credit(s) based on the number & type of existing development i.e. Residential Lot or Dwelling; Industrial Land area.

2.7 Section 94 contributions may be required as a condition of consent

This Plan authorises the Council or an accredited certifier, when determining a development application or an application for a complying development certificate relating to development to which this Plan applies, to impose a condition under section 94 of the EP&A Act requiring:

- the payment of a monetary contribution; and/or
- the dedication of land free of cost,

to the Council towards the provision of public facilities to meet the demands of the development as specified in the works schedule to this Plan.

2.7.1 Land dedication

Developers of land to which this Plan applies will be required to provide either:

- sufficient, usable and (where appropriate) embellished land for the particular facilities identified in this Plan to meet the needs of the population attributable to the proposed development; or, alternatively
- an equivalent monetary contribution to Council for the acquisition and embellishment of land for the particular facilities identified in this Plan.

Council will, wherever appropriate, require developers to dedicate land free of cost for the facilities identified in this Plan. Where the development does not, or cannot provide the full land area required as a contribution the shortfall will be required as a monetary contribution. The contribution rates included in this Plan reflect the monetary contribution required where land is not dedicated free of cost.

Where the contribution required is by way of dedication free of cost, the land:

- (where the dedication relates to the provision of community or open space and recreation facilities) is to have an associated draft plan of management prepared in accordance with Part 2, Division 2 of the Local Government Act 1993 and Part 4, Division 2 of the Local Government (General) Regulation 2005 and prepared at full cost to the developer; and

- The value, as determined in accordance with either section 2.13, the [Land Acquisition \(Just Terms Compensation\) Act 1991](#) or if listed for sale on the open market potentially by way of negotiation in accordance with Councils obligations and polices, will be offset again monetary contributions required under this Plan.

2.8 When is the contribution payable?

A contribution must be paid to the Council at the time specified in the condition that imposes the contribution. If no such time is specified, the contribution must be paid prior to the issue of a subdivision certificate, construction certificate or complying development certificate.

2.9 How are contributions adjusted at the time of payment

The contributions stated in a consent are calculated on the basis of the section 94 contribution rates determined in accordance with this plan. If the contributions are not paid within the quarter in which consent is granted, the contributions payable will be adjusted and the amount payable will be calculated on the basis of the contribution rates that are applicable at time of payment in the following manner:

$$\$C_P = \frac{\$C_{DC} + [\$C_{DC} \times \{(\$C_Q - \$C_C) / \$C_C\}]}{1}$$

where:

$\$C_P$	is the amount of the contribution calculated at the time of payment
$\$C_{DC}$	is the amount of the original contribution as set out in the development consent
$\$C_Q$	is the contribution rate applicable at the time of payment
$\$C_C$	is the contribution rate applicable at the time of the original consent

It is noted that residential contributions cannot be increased by indexation above the \$30,000 cap. Employment land contributions are not limited by the cap and are indexed quarterly.

The current contributions are published by Council and are available from Council offices. Should the Council not validly publish the applicable contribution rates, the rate applicable will be calculated in accordance with the rate prevailing in the previous quarter.

Notwithstanding anything else contained within this clause, its application is only permitted to the effect that the aggregate contribution per residential dwelling/Lot equals, not to exceed, the relevant State Government Contributions Cap as specified by Directions under Section 94E of the Environmental Planning and Assessment Act 1979 made by the Minister for Planning from time to time. No limit applies to the indexation of contributions for non residential uses.

2.10 Deferred or periodic payments

Deferred or periodic payments may be permitted in the following circumstances, only with approval of the Council Officer(s) whose position(s) holds the required Council delegations:

- Compliance with the provisions is unreasonable or unnecessary in the circumstances of the case.
- Deferred or periodic payment of the contribution will not prejudice the timing or the manner of the provision of public facilities included in the works program.
- Where the applicant intends to make a contribution by way of a planning agreement, works in kind or land dedication in lieu of a cash contribution, and Council and the applicant have a legally binding agreement for the provision of the works or land dedication.
- There are circumstances justifying the deferred or periodic payment of the contribution.

If Council does decide to accept deferred or periodic payment, Council may require the applicant to provide a bank guarantee by a bank for the full amount of the contribution or the outstanding balance on condition that:

- The bank guarantee be by a bank for the amount of the total contribution, or the amount of the outstanding contribution, plus an amount equal to thirteen (13) months interest plus any charges associated with establishing or operating the bank security.
- The bank unconditionally pays the guaranteed sum to the Council if the Council so demands in writing not earlier than 12 months from the provision of the guarantee or completion of the work.
- The bank must pay the guaranteed sum without reference to the applicant or landowner or other person who provided the guarantee, and without regard to any dispute, controversy, issue or other matter relating to the development consent or the carrying out of development.
- The bank's obligations are discharged when payment to the Council is made in accordance with this guarantee or when Council notifies the bank in writing that the guarantee is no longer required.
- Where a bank guarantee has been deposited with Council, the guarantee shall not be cancelled until such time as the original contribution and accrued interest are paid.

2.11 Construction certificates and the obligation of accredited certifiers

In accordance with section 94EC of the EP&A Act and clause 146 of the EP & A Regulation 2000, a certifying authority must not issue a construction certificate for building work or subdivision work under a development consent unless it has verified that each condition requiring the payment of monetary contributions has been satisfied.

In particular, the certifier must ensure that the applicant provides receipts confirming that contributions have been fully paid and copies of such receipts must be included with copies of the certified plans provided to the Council in accordance with clause 142(2) of the EP & A Regulation 2000. Failure to follow this procedure may render such a certificate invalid.

The only exceptions to the requirement are where a works in kind, material public benefit, dedication of land, or deferred payment arrangement has been agreed by the Council. In such cases, Council will issue a letter confirming that an alternative payment method has been agreed with the applicant.

2.12 Indexation of contribution rates under this Plan

The purpose of this clause is to ensure that the monetary contribution rates imposed at the time of development consent reflect the indexed cost of the provision of facilities included in this Plan.

The Council may, without the necessity of preparing a new or amending contributions plan, make changes to the monetary section 94 contribution rates set out in this Plan to reflect quarterly changes to the Consumer Price Index (for all works schedule items identified in this Plan apart from the items comprising land yet to be acquired) and the Land Value Index prepared by or on behalf of the Council from time to time and specifically adopted by this Plan (for works schedule items identified in this Plan involving land yet to be acquired).

Notwithstanding anything else contained within this clause, its application is only permitted to the effect that the aggregate contribution per residential dwelling/Lot equals, not to exceed, the relevant State Government Contributions Cap as specified by Directions under Section 94E of the Environmental Planning and Assessment Act 1979 made by the Minister for Planning from time to time. No limit applies to the indexation of contributions for non residential uses.

The contribution rates will be reviewed by reference to the following specific indices:

- Construction costs by the All Groups CPI (Sydney) as published by the Australian Bureau of Statistics.
- Land acquisition costs by reference to average land valuation figures published by Council.

- Specific valuations for particular parcels of land that are identified in the section 94 plan as published by the Council.
- Changes in the capital costs associated with provision of administration and salary costs for staff involved in implementing Council's section 94 plan by reference to increases in salary rates under the Wollongong City Council Enterprise Agreement.
- Changes in the capital costs of various studies and activities required to support the strategies in the plan by reference to the actual costs incurred by Council in obtaining these studies as published by the Council.

2.12.1 Contribution rates for all works schedule items (other than land yet to be acquired)

For changes to the All Groups CPI (Sydney) index, the contribution rates within the plan will be reviewed on a quarterly basis in accordance with the following formula:

$$\$C_A + \frac{\$C_A \times ([\text{Current Index} - \text{Base Index}])}{[\text{Base Index}]}$$

where:

$\$C_A$	is the contribution at the time of adoption of the plan expressed in dollars
Current Index	is the All Groups CPI (Sydney) as published by the Australian Bureau of Statistics available at the time of review of the contribution rate
Base Index	is the All Groups CPI (Sydney) as published by the Australian Bureau of Statistics at the date of adoption of this plan.

Note: *In the event that the current All Groups CPI is less than the base All groups CPI, the current All Groups CPI shall be taken as not less than the previous All Groups CPI.*

2.12.2 Contribution rates for works schedule items involving land yet to be acquired

For changes to land values, the Council will publish at least on an annual basis the revised land index values that are to be used to change the base land values contained in the plan which will be determined in accordance with the following formula:

$$\$C_{LV} + \frac{\$C_{LV} \times ([\text{Current LV} - \text{Base LV Index}])}{[\text{Base Index}]}$$

where:

$\$C_{LV}$	is the land values within the plan at the time of adoption of the plan expressed in dollars
Current LV Index	is the land value index as published by the Council available at the time of review of the contribution rate
Base LV Index	is the land value index as published by the Council at the date of adoption of this plan.

Note: This clause does not cover the adjustment of a contribution between the time of consent and the time payment is made. This is covered by clause 2.9.

2.13 Works in kind and other material public benefits offered in part or full satisfaction of contributions

A person may make an offer to the Council to carry out work or to provide another kind of material public benefit in lieu of making a contribution in accordance with a section 94 condition imposed under

this Plan, in the terms described below. The decision to accept such offers is at the sole discretion of the Council.

2.13.1 Offer made to the Council as part of a development application

The applicant may include in the relevant development application or in an application for a modification under section 96 of the Act, an offer to carry out works or provide a material public benefit towards which the contribution is to be applied. The Council will consider the offer as part of its assessment of the development application or as an application for a modification to a development approval under section 96 of the Act where a contribution has been imposed pursuant to this plan. If the Council agrees to the arrangement and grants consent to the application, it will substitute a condition of consent under section 80A or section 96 of the Act (whichever is relevant) requiring the works to be carried out or the material public benefit to be provided for a condition requiring payment of a contribution under section 94.

In assessing the applicant's offer, the Council will have regard to any relevant requirements of the current Practice Note issued by the NSW Government (DIPNR 2005) and such other matters as the Council considers relevant in the circumstances of the case including, but not limited to:

- a. the value of the works to be undertaken is at least equal to the value of the contribution that would otherwise be required under this plan. Council does not issue credits to applicants for works in kind which are provided in excess of the approved condition outside of a standard procedure involving approval by Council, such as staged development; and
- b. the standard of the works is to council's full satisfaction and the works are handed over to the Council without restriction of limitation; and
- c. the provision of the material public benefit will not prejudice the timing or the manner of the provision of public facilities included in the works program.

2.13.2 Valuation of offer made to the Council as part of a development application ("value of work")

The value of an offer to provide Works In Kind, or a material public benefit towards which the contribution is to be applied, in lieu (in full or in part) of satisfying a condition of consent relating to payment of a Section 94/94A contribution will be valued utilising the following mechanism, and in terms of land dedication in accordance with Clause 2.7.1:

- a. Any Credit will be calculated based on the actual cost of works or the agreed cost estimate, whichever is the lesser. The agreed cost estimate will be determined by a review of the costs submitted by the applicant via Council's Infrastructure Team or a Registered Quantity Surveyor at Councils discretion);
- b. The agreed cost estimate can be amended by submission of a variation request by the applicant which will be reviewed and certified by a registered Quantity Surveyor;
- c. The actual cost of works is required to be evidenced and verified by a registered Quantity Surveyor;
- d. The Quantity Surveyor to act on the project will be chosen by Council from a list of 3 recommended by the applicant all of whom are to be members of Panels for The NSW Department of Commerce or Local Government Procurement; and
- e. Quantity Surveyor service costs are to be borne by the applicant.

2.13.3 Legal agreements pertaining to works in kind

All offers, should they be accepted, to provide Works In Kind, or a material public benefit towards which the contribution is to be applied, in lieu (in full or in part) of satisfying a condition of consent relating to payment of a Section 94/94A contribution will be subject to a legal agreement between Council and the applicant. All agreements will include, but not limited to, the following:

- the works to be undertaken;
- the timing of the works;
- the quality of the works;

- the costs of the works;
- the applicant's rights and responsibilities; and
- Council's rights and responsibilities.

2.13.4 Offer to enter into a planning agreement

An applicant may offer to enter into a planning agreement with the Council under s93F of the EP&A Act in connection with the making of a development application. This offer may include a monetary contribution, dedication of land, the carrying out of works, or another material public benefit for public purposes. Those purposes need not wholly relate to the impacts of the applicant's development but need to be consistent with the items listed in Part 4.

The applicant's provision under a planning agreement may be additional to or instead of paying a contribution in accordance with a condition of development consent authorised by this plan. This will be a matter for negotiation with the Council. The offer to enter into the planning agreement together with a copy of the draft agreement should accompany the relevant development application.

The Council will publicly notify the draft planning agreement and an explanatory note relating to the draft agreement along with the development application and will consider the agreement as part of its assessment of that application.

If the Council agrees to enter into the planning agreement, it may impose a condition of development consent under s93I (3) of the *EP&A Act* requiring the agreement to be entered into and performed. If the Council does not agree to enter into the planning agreement, it may grant consent subject to a condition authorised by this plan requiring the payment of a contribution.

Applicants should refer to the Council's Policy on Planning Agreements, which has been prepared having regard to the Practice Note on Planning Agreements (DIPNR 2005).

2.14 Pooling of funds

Council's ability to forward fund services and amenities identified in this Plan is very limited. Consequently their provision is largely contingent upon the availability of contributions funds.

To provide a strategy for the orderly delivery of the public services and amenities, this Plan authorises monetary section 94 contributions paid for different purposes in accordance with the conditions of various development consents authorised by this Plan and any other contributions plan approved by the Council to be pooled and applied progressively for those purposes.

In any case of the Council deciding whether to pool and progressively apply contributions funds, the Council will have to first be satisfied that such action will not unreasonably prejudice the carrying into effect, within a reasonable time, of the purposes for which the money was originally paid.

2.15 The Goods and Services Tax (GST)

At the time this Plan was made, the position of the Australian Taxation Office (ATO) was that the payment of development contributions made under the EP&A Act is exempt from the Goods and Services Tax (GST). Items in the works schedule of this Plan have been calculated without any GST component.

2.16 Accountability and access to Information

Council is required to comply with a range of financial accountability and public access to information requirements in relation to section 94 contributions. These are addressed in Divisions 5 and 6 of Part 4 of the EP & A Regulations 2000 and include:

- maintenance of, and public access to, a contributions register;
- maintenance of, and public access to, accounting records for contributions receipts and expenditure;
- annual financial reporting of contributions, and

- public access to contributions plans and supporting documents.

These records are available for inspection free of charge at Council.

2.17 Review of Plan without the need for public exhibition

Pursuant to Clause 32(3) of the EP & A Regulations, Council may make certain minor adjustments or amendments to the Plan without prior public exhibition and adoption by Council. Minor adjustments could include minor typographical corrections amendments to rates resulting from changes in the Consumer Price Index or Land Value Index (see Section 2.13), or the omission of details concerning works that have been completed.

2.18 Facility Costs

Costs for facilities included in this Plan were derived from the services of a qualified quantity surveyor as well as from Council's experience of facility costs in other areas. Assumptions used to derive estimated costs of facilities included in this Plan are detailed in Parts 3 & 4.

At the time this Plan was prepared, the planning of facilities was carried out at a strategic level. That is there were few, if any, facility concept plans upon which estimated costs could be based. As a result, a contingency allowance equivalent to 15 percent of the base cost was added to all works included in this Plan (excluding land acquisition).

The contingency allowance is considered reasonable given the embryonic stage of planning of most facilities included in the Plan.

For an item of work that is to be provided through a works-in-kind agreement or a planning agreement, the credit for the item will include any contingency amount provided for in the plan. The contingency allowance will be removed from the works costs at the time that concept plans are prepared for respective facilities. Such action will warrant amendment and re-exhibition of the Plan.

3. Facility Needs Associated with the Expected Development

3.1 Introduction

This section sets out the strategies that Council intends to follow to cater to the needs of future population growth and development in the West Dapto release area. It identifies the resulting demand for public services and public facilities and the costs and timing of provision of the works that the Council intends to provide to cater to that demand.

It is important to note that the West Dapto area will develop over many years and planning for facilities at this stage of the development must recognise that population demands will vary over time, and may possibly vary from the assumptions that are used to determine the contributions that are set out in this plan. The Council will continually monitor population growth and demand, and where necessary, will appropriately adjust the facilities to ensure that the facilities are delivered to meet the demands of the population.

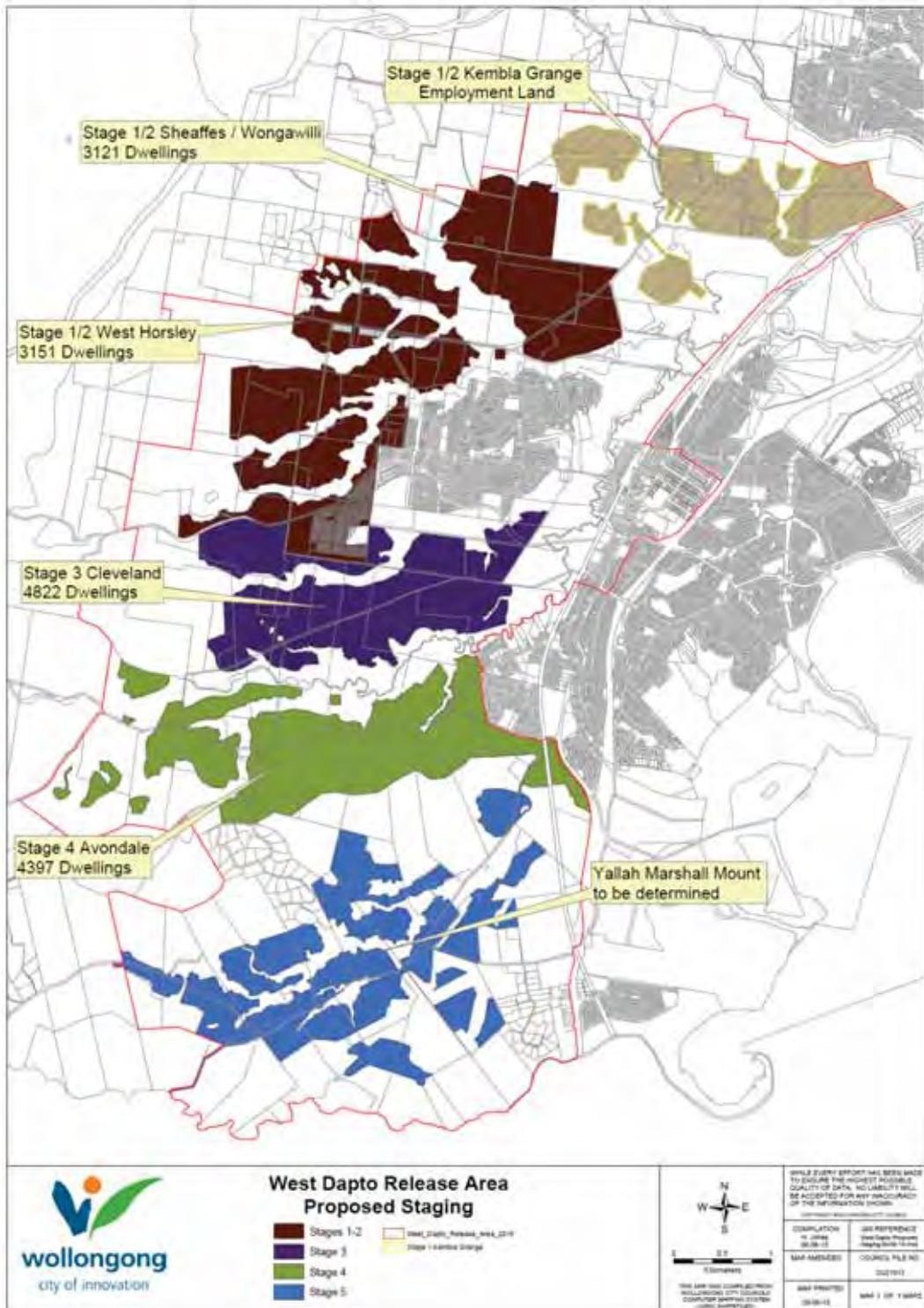
3.2 Development Staging

To ensure the orderly development of West Dapto and the timely and efficient provision of local and regional infrastructure, the urban development needs to be staged over a 50 year plus timeframe. The release area has been divided into five (5) (Figure 3.1)

Urban development has commenced in Stages 1 & 2 at Kembla Grange, Wongawilli and West Horsley which will enable the development of two new town centres, around 6,676 dwellings and the release of the Kembla Grange Employment Area. It is estimated that the residential component of Stage 1 will take approximately 20, up to 40, years to be developed. As development in Stages 1 & 2 passes the midpoint, the detailed planning for Stage 3 (Cleveland), will be finalised and then the stage released, and so on. The Wollongong LEP (West Dapto) 2010 only zone Stages 1 and 2 for urban development, which has now been incorporated into the Wollongong LEP 2009. In 2011 the Huntley precinct was rezoned to permit urban development, around a golf course. Subsequent stages will be rezoned subject to demand, the availability of services and other key criteria being met. Within Stages 1 and 2 there are a number of precincts / neighbourhoods which will be developed. There will be a number of development fronts.

Council is currently considering Planning Proposals for part of Stage 3 and for the Yallah-Marshall Mount precinct.

Figure 3.1 – West Dapto Staging Plan



3.3 Development and Population Projections

The future development of West Dapto will result in an increase in the number of people living and working in the area. The expected development and estimates of the incoming population attributable to the expected residential development in Stages 1 to 5 is shown in Table 3.1.

Table 3.1 Development and population projections

Zone	Developable area	Density	Yield	Occ rate	Est. pop
R3 Medium Density	91.38	25.0	2,285	2.5	5,818.23
R2 Low Density	934.74	14.6	13,674	3.0	41,448.70
R5 Large Lot Residential	45.37	5.0	227	3.2	725.85
E4 Environmental Living	118.30	3.9	456	3.2	1,460.45
B2 Local Centre	11.59	20.2	235	2.6	619.57
B1 Neighbourhood Centre	10.49	15.0	157	2.9	456.12
Subtotal	1,211.87	14.1	17,034		50,529
Zone	Developable area	Density	Yield	Occ rate	Est. pop
IN3 Heavy Industry	44.42				
IN2 Light Industry	134.43				
Subtotal	178.85		0.00		0.00
Total	1,390.72		17,034		50,529

*Occupancy rates based on Elton Report (p.9)

^ Assumed current precinct population based on 2006 census. Total population for census district is 423 (excluding Horsley).

3.4 Demographic and socio-economic characteristics

3.4.1 Existing population characteristics

The most recent census figures available for the Wollongong area is the 2006 Census. The following is a snapshot of relevant statistics:

- Lower rates of population growth compared to Sydney but comparable to other LGAs in the Illawarra region.
- An increasingly older population, with the proportion of children and young adults decreasing as a percentage of the overall population.
- A higher proportion of family households with children (62%) as compared to other household types.
- An average household size of 2.5 persons per dwelling (occupancy rate).
- Low proportions of indigenous people and people from non English speaking backgrounds as compared to the rest of NSW.
- Relatively high proportions of residents in low to middle income brackets as compared to the rest of NSW and higher rates of unemployment.
- Similar proportions of people employed in professional occupations, with higher rates working in trades and lower rates in managerial positions.
- Higher rates of home and car ownership but similar rates of renters to the rest of NSW.

The current population of Dapto has characteristics which differ from the wider Wollongong area. The characteristics of the population living in the Precincts may be summarised as follows:

Dapto Precinct

- Negative population growth.

- An older age profile to that of Wollongong, with a small increase in people between the ages of 65 and 84.
- The instance of home ownership has dropped 7.6% between 2006 and 2001.
- Weekly household income levels have high levels of occurrence at both the lower brackets (\$0-699) and the highest bracket (\$2000+).
- In 2006 the unemployment in Dapto was 2.8% above the National average.

Horsley Precinct

- A high population growth rate, with a 24.3% increase in population between 2001 and 2006.
- There has been a 1.5% increase in population aged between 65 and 84
- There has been a minor drop in population between the ages of 0 and 17.
- A 5% drop in home ownership is seen across 2001 to 2006, with a minor increase in those with mortgages.

3.4.2 Future population characteristics

Features of projected population change and future characteristics of the West Dapto resident populations are summarised below and generally reflective of new release areas. The characteristics are indicative in nature and should be read with some caution.

- The existing predominantly rural populations of West Dapto are likely to be displaced by the population attributable to the expected development in those precincts.
- In the early stages a high proportion of first and second time buyers in their late 20s and 30s, with young children or about to start a family.
- Projected future occupancy rates¹ at five years after dwelling occupation of:
 - 3.2 persons per dwelling for large houses on lots greater than 600m²;
 - 2.9 persons per dwelling for standard houses on lots 450-600m²
 - 2.5 persons per dwelling for small houses on lots 350-450m²
 - 2.2 persons per dwelling for townhouse/villas
 - 1.7 persons per dwelling for apartment dwellings
- A proportion of empty nesters can be expected which will build up over time given the proposed diversity in housing stock and once district wide services and public transport become well established.
- Over time, the peaks in the age distribution associated with a predominance of young families will reduce and the population will become more diverse. Increasing
- Low levels of single person households and group households are estimated.
- Most dwellings are likely to be owner-occupied (around 90%) with well over half being mortgaged
- The numbers of young children aged 0-4 are likely to build up over the first ten years of each major stage to an anticipated maximum of 12% of overall population and then decline. The number of children aged 5-11 are likely to be higher than the number of 0-4 year olds, building up to about 14%, whereas the proportion of 12-17 year olds is likely to be less than younger age groups, building up to around 11% after about 15 years.
- Adults aged 25-39 are likely to be the biggest age group, around 30%.
- The proportion of older people is likely to be low for the first ten years or so, but will rise over time.

¹ Elton (2007), p. 9

- Over time, it can be expected that the population profile will come to more closely approximate that of an established area with a variety of age and household characteristics, particularly if there are a range of housing types and affordability available in the release area.

3.4.3 Employment

The following information regarding employment trends is from the *West Dapto Market Assessment and Demographics Peer Review* report prepared by Colleen Coyne Property Research Pty Limited (November 2008).

Historically the Illawarra regional economy was based on coal mining, steel manufacturing, and other heavy industries and port-related activities. Over the past twenty years there has been a significant rationalization of these industries, and a diversification of the economy. Education, tourism and information technology have emerged as important employers in the region.

Among the key trends are the following:

- Goods producing industries (agriculture, mining, construction and utilities) generally experienced a fall in the number of workers employed from 1996 to 2006. However mining employment rose from 2001 to 2006 (up by 59.4% to 2,168 workers or 2.0% of the total in 2006). The construction workforce also rose throughout the decade, reflecting ongoing building activity throughout the region;
- Manufacturing experienced a significant contraction from 16.3% of the 1996 employed workforce to 12.3% in 2006, remaining the largest individual sector in the Wollongong SSD;
- Goods related services – wholesale trade, transport, postal and warehousing activities, experienced an overall decline in employment over the decade to 2006 of 2.1%, but employment in transport, postal and warehousing activities actually increased by 14.3% over the decade to 5,290 workers or 4.8% of the total in Wollongong SSD;
- The retail sector remained one of the largest individual sectors in Wollongong SSD in 2006, accounting for 11.6% of the total employed. However this sector had grown only marginally from 2001 but is expected to increase its employment numbers as several new retail ventures are underway or proposed;
- Similarly, employment associated with tourism and hospitality services, the accommodation, food services, arts, recreation and other services sector saw increased employment in Wollongong SSD over the decade.
- In Wollongong SSD, business and professional services were a stable component of the resident workforce over the decade, at 12.0% of employees. Examination of individual components however shows that information media and telecommunications actually declined from 2001 to 2006, offset by increases in other sub sectors, notably professional, scientific and technical services;
- The leading sector in Wollongong SSD in 2006 was education, health and social services, employing 21.4% of residents, above the Sydney region with 17.1% of employees.
- The above trends indicate the increasing diversification of the Wollongong SSD workforce away from goods producing and goods related services to knowledge-based and service industries.

Planning for West Dapto includes land dedicated as employment areas as well as for retailing. It is envisaged that development of these areas will result in additional demand for facilities and services in the release area.

3.5 Facility Demands

The estimated increase in population at West Dapto to some 50,507 people will increase Wollongong's overall population from the current 198,324 (Estimated Resident Population as at 30 June 2008 from Community Profile – www.wollongong.nsw.gov.au) to 248,831.

Existing recreation and community facilities in Dapto and Horsley do not have the capacity to serve the future population growth and new facilities are required to service the new population.

Studies listed in Section 3.2 of this Plan have identified that the expected development in Stages 1 and 2 will generate the following impacts on public services and amenities:

- Increased demand for spaces that will meet community needs and foster the development of social capital in West Dapto, such as child care, meeting spaces and a library;
- Increased demand for local active and passive recreation facilities, such as sports fields, playgrounds, walking trails and bike paths;
- Increased demand for facilities that will support safe and convenient travel between land uses within the release area and to and from destinations out of the area, such as new roads and public transport facilities;
- Increased demand for water cycle management facilities as a result of the extra stormwater runoff generated by impervious surfaces associated with urban (as distinct from rural) development and the need to manage the drainage function of the main watercourses.

A range of public facilities and public amenities have been identified as being required to address the impacts of the expected development, including:

- Community facilities;
- Open space and recreation facilities;
- Transport and traffic management facilities; and
- Drainage management facilities;

More detail on the demand for public facilities and the relationship with the expected development is included in Part D of this Plan. Strategies for the delivery of these facilities and amenities are also detailed in Part D of this Plan. Part D also details the costs and programs of works related to these facility categories.

Details on assumptions used for costing purposes are contained in the Appendices of this Plan.

3.6 Demand and facility staging

The program for delivery of the required facilities in each Stage (as shown in Section 5) has been based on the anticipated lot development program.

Details of the anticipated lot program for Stages 1 and 2 are shown in Table 3.2. An annual development yield of up to 500 dwelling per year has been included in the plan.

The data in Table 3.2 are an indication of the projected staging only. The roll-out of development over time will be dependent on a number of factors, including market demand and the timing of extensions to infrastructure and services. The program has been prepared in response to strategic level information and will evolve as each Stage develops. Changes to the program may impact on the sequencing and timing of the delivery of facilities addressed by this Plan. Lot programming and facility staging will be regularly reviewed and such reviews may result in amendments to the Plan.

Table 3.2 Anticipated Lot Development Program – West Dapto Stages 1 and 2 (5 year intervals)

		Stages 1 & 2- Kembla Grange, Wongawilli & West Horsley	Stages 3 & 4 - Cleveland & Avondale	Stage 5 - Yallah Marshall Mount	Total
0 - 5 years	2009/10 - 2014/15	463	0	0	463
6 - 10 years	2015/16 - 2019/20	1236	400	244	1880
11 - 15 years	2020/21 - 2024/25	1225	350	248	1823
16 - 20 years	2025/26 - 2029/30	1220	289	370	1879
21 - 25 years	2030/31 - 2034/35	1114	906	476	2496
26 - 30 years	2035/36 - 2039/40	896	1078	204	2178
31 - 35 years	2040/41 - 2044/45	74	1336	0	1410
36 - 40 years	2045/46 - 2049/50	6	1420	0	1426
40+ years	2050/51+	0	3441	0	3441
Total		6234	9220	1542	16996

4. Strategy Plans

4.1 Community facilities

The residential development in the West Dapto release area will result in additional demands for community facilities. Council will need to facilitate the provision of a range of community facilities to meet the expected population, including:

- child care centres and facilities; and
- multi-purpose community centres, incorporating halls, meeting rooms and possibly a library.

This Plan documents the community facilities requirements pertaining to expected development of the release area and identifies those facilities that Council will facilitate the provision of.

This Plan addresses local community facilities demands only. The NSW Government is responsible for the provision of other community facilities, such as public primary and high schools, hospitals and emergency services.

4.1.1 Existing facilities

The following existing community facilities and services are currently provided in the area covered by the Plan:

- Horsley Community Hall (Bong Bong Road, Horsley), was constructed to serve the Horsley community, and cannot be expanded to serve the future population.
- The Wongawilli Community Hall (Wongawilli road, Wongawilli) is a small facility that serves the local population. It is proposed to be expanded as part of the development of stages 1 & 2.
- Marshall Mount Progress Association Hall (Marshall Mount Road, Marshall Mount) is a small privately owned facility.

The following existing community facilities and services are currently provided in the wider Dapto area:

- Ribbonwood Community Centre (Princes Highway Dapto) is a large multi-purpose community centre, library and child care centre. It serves the existing Dapto, Kanahooka, Koonawarra and Horsley communities. The halls and meeting rooms are at capacity and do not have the capacity to serve the future population. The library will serve the Stages 1 & 2, although additional library facilities may be required for stages 3 & 4.
- 16 child care centres

4.1.2 Planning standards and principles

The requirements for community facilities as a result of the expected development of West Dapto were initially documented in the *Social, Cultural and Recreational Needs Study for the West Dapto New Release Area* prepared by Elton Consulting (July 2007). Further analysis of community facility needs of the release area was also undertaken by the Growth Centres Commission in light of the revised reduced yield of the release area.

The following is a summary of the key planning standards and principles identified by Elton Consulting when determining appropriate community facilities for the release area.

A traditional or conventional approach to the planning of social infrastructure relies on the use of planning standards or thresholds. Standards identify the threshold at which the population requires and can sustain the provision of a service. They are usually expressed as a ratio comparing population numbers and facility or service provision, for example: 1 primary school per 2,000 new dwellings and 1 child care place for every 10 children aged 0-4 years old.

Standards can be used to provide an indication of initial requirements, and when applied flexibly, and as one component of a more comprehensive methodology, they can be useful in providing an initial estimate of need.

Although useful as a starting point, leading practice for the planning of community facilities and human services encourages that a range of other factors, beyond population size, be considered including:

- The type of, and market for, the development and the likely characteristics and needs of the future population
- The capacity of surrounding services and their accessibility
- The plans and capacities of local Council and human service agencies, and
- The potential for collaboration among local government, human service agencies and the non-profit sector to identify more effective and efficient approaches to the provision of facilities.

Accordingly, the approach to planning community facilities has been based on:

- Review of literature including relevant community planning studies, government inquiries, best practice in community facilities provision from Australia and overseas and relevant Wollongong Council documents
- Calculation of population projections
- Identification and application of relevant planning standards
- Consultation with individual human service providers including state government agencies, local government and non government organisations, using basic projections and planning standards as a starting point

Table 4.1.1 details standards currently being used across the Sydney region and NSW for a range of facilities to place the assessment of the existing level of provision of facilities in context.

Table 4.1.1 Council facilities – standards for provision ^a

Facility	Standard	Typical Floor space requirements ^b	Typical Floor space requirements (Oran Park)
Children's services: <ul style="list-style-type: none"> • Long day care • OOSH • Multi purpose centres 	1 place per 11 children 0-4 years ^c	3000m ² site with building of 300-400m ² for 60 place facility	
Youth centre	1 per 20 000 persons or 1 per 3 000 13-19 year olds	300-400m ²	
Community centre	1 per 7000-10 000 persons ^d	600-800m ²	42m2 per 1,000 people (10,000 people would be 420m2)
Library ^e	District: 1 per 30 000 persons Branch: 1 per 5 000 persons Resources: 1 item per 2.5 persons ^f	1000m ² 600-700m ²	Branch 39m2 per 1,000 people (5,000 people would be 195m2)
	Branch – 10,000 people Central – 20-35,000	DoP advice	
Seniors centre	1 per 30 000 persons	1000-2000m ²	

Notes:

- a. Standards derived from Blacktown Council / Baulkham Hills Council / Campbelltown Council / Department of Planning / various other statutory authorities.
- b. Floor space requirements based on modest facility only.
- c. Where private facilities are provided this may be relaxed to 1:20. 60 place centre required for population of 7 000.
- d. Current Department of Community Service standard.
- e. Library standards typically predicated on persons including workers.
- f. State Library current standard.

4.1.3 Facilities required

The process outlined above, together with these general standards of provision, have been used to guide the level of community facility provision in West Dapto, as shown in the works schedule. However, the review of planning for the release area undertaken by the Growth Centres Commission noted that there was a need to review the number and size of community facilities and services in the context of the reduced yield for the release area. As a result, the number of multi-purpose community centres identified in the Elton report has been reduced from four to three.

The key strategies to provide for the community needs of the West Dapto area are as follows:

- Medium sized multipurpose community centres are to be located in Stages 1 and 3;
- For each of these multipurpose community centres to have a different focus such as art, recreation, technology or health, with the specific focus to be determined when emerging community characteristics and needs are more clearly recognised;
- A smaller Neighbourhood Centre type facility is proposed for the smaller, more local neighbourhood centres (Stages 2 and 4);
- The multipurpose community centres would act as community resource hubs in the larger centres, while the neighbourhood centres, combined with multipurpose children's centres, would serve the same function in the smaller centres;
- Although a specifically focused cultural facility could also be justified (refer Elton), it is proposed that each of the community and neighbourhood centres include cultural components within them.
- Multipurpose Children's Centres are proposed for the main centres to contain a full range of child care options from long day care, pre-school, occasional care and playgroup in a one stop shop.

The proposed facilities and their cost estimate are indicated in table 4.1.2.

Figure 4.1.1 Existing and proposed community facilities

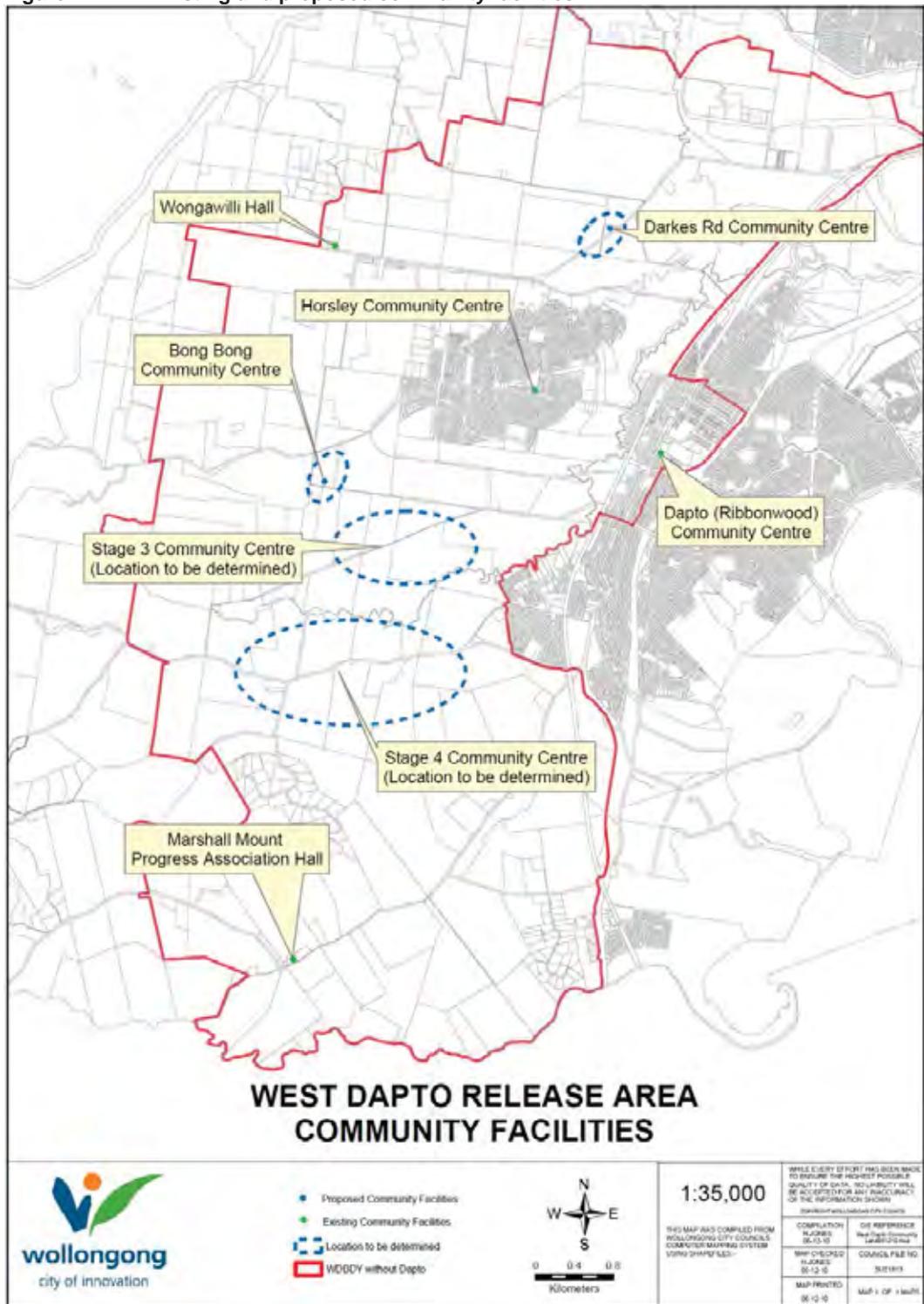


Table 4.1.2 Required community facilities

Stage	Facility	Floor Space (m2)	Construction Cost				Construction Cost (including contingency)	Additional studies or reports	Total Facility Cost	Land area (ha)	Land cost			Total Cost 2010 indexation 2010-15	Total Cost 1.1016	Apportionment to S94 West Dapto (%)	Cost apportioned to West Dapto	Council contribution
			Key	Construction rate (\$/m2)	Cost	Contingency 15%					Key	Acquiston rate (\$/ha)	Cost					
Stage 1/2 - Darkes Town Centre																		
1	Multi Purpose Community Centre and childrens centre	1,500	a	\$ 2,500	\$ 3,750,000	\$ 562,500	\$ 4,312,500	\$ 30,000	\$ 4,342,500	0.6	u	\$ 500,000	\$ 300,000	\$ 4,642,500	\$ 5,114,083	100%	\$ 5,114,083	\$ -
Stage 1/2 - Wongawilli																		
2	Enhancements to Wongawilli Community hall	200	a	\$ 2,500	\$ 500,000	\$ 75,000	\$ 575,000	\$ 5,000	\$ 580,000	NA	u		NA	\$ 580,000	\$ 638,916	100%	\$ 638,916	\$ -
Stage 3 - Cleveland precinct																		
3	Multi Purpose Community Centre including Library (Technology centre)	2,500	a	\$ 2,500	\$ 6,250,000	\$ 937,500	\$ 7,187,500	\$ 30,000	\$ 7,217,500	1	u	\$ 500,000	\$ 500,000	\$ 7,717,500	\$ 8,501,440	100%	\$ 8,501,440	\$ -
Yallah - Marshall Mount																		
Y-MM	Multi Purpose childrens centre with community hall	750	a	\$ 2,500	\$ 1,875,000	\$ 281,250	\$ 2,156,250	\$ 10,000	\$ 2,166,250	0.35	u	\$ 500,000	\$ 175,000	\$ 2,341,250	\$ 2,579,073	100%	\$ 2,579,073	\$ -
Totals		4,950			\$ 12,375,000	\$ 1,856,250	\$ 14,231,250	\$ 75,000	\$ 14,306,250	1.95			\$ 975,000	\$ 15,281,250	\$ 16,833,511		\$ 16,833,511	\$ -
													\$ 15,281,250					

4.1.4 What is the strategy for delivering facilities?

Council will require contributions from developers under this Plan toward provision of the facilities and services identified in this Plan. These contributions may be in the form of monetary contributions, works in kind, land dedications, or a combination of these.

The planning for the specific location of facilities has not yet been finalised although each multi-purpose facility is to be located within a centre. All facilities will be developed in a manner that allows the facilities to serve the local needs generated by the population of the release area.

Council will prepare design concepts for the facilities so that specification and costing of the facilities can be more accurately defined as implementation of this Plan proceeds. This may result in amendment of this Plan.

The community facilities strategy for West Dapto is based on strategic information contained in the Elton report, the review undertaken by the Growth Centres Commission and other background documents. It is likely that, as the planning process for individual areas within each stage proceeds, modified and more cost effective solutions that still meet the strategy objectives will be developed.

Where alternatives to the works schedule are proposed in conjunction with the development of land and the alternatives are approved by the Council, the development contribution applicable to a development the subject of a development application may be reviewed, or the works schedule in this Plan updated, or both.

Contributions will be collected from residential development toward community facilities identified under this Plan.

As workers in the employment areas are unlikely to significantly increase the demand for community facilities within the release area, no contributions are to be collected from employment development towards community facilities.

4.1.5 How is cost apportionment determined?

The contribution catchment for community facilities is the expected additional resident population for West Dapto. The community facilities are required to meet the demand generated by the additional resident population rather than the existing community.

Facilities included in this Plan have been sized to reflect the demand generated by the population attributable to the expected residential development. Although there is likely to be some demand for the facilities generated by employees working in Stages 1 and 2 and living outside the area, this Plan has not quantified this demand. As a result, the cost of facilities identified in this Plan has not been apportioned to the population attributable to expected non residential development in the Precincts.

4.1.6 Contribution rates

Contributions for community facilities will be determined as follows:

Residential

On a per residential dwelling / Lot basis. All developments will make the same contribution (based on dwelling or Lot number) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

Employment Lands

On a net developable land basis. All developments will make the same contribution (based on land area) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

The following contribution rates therefore apply:

Residential Contribution rate (per lot/dwelling):

Zone	Community facilities
R3 Medium Density	\$ 1,145
R2 Low Density	\$ 1,145
R5 Large Lot Residential	\$ 1,145
E4 Environmental Living	\$ 1,145
B2 Local Centre	\$ 1,145
B1 Neighbourhood Centre	\$ 1,145

Employment Lands Contribution rate (per hectare):

Zone	Community facilities
IN3 Heavy Industry	\$ -
IN2 Light Industry	\$ -

4.2 Open space and recreation

The residential development in the West Dapto release area will result in additional demands for open space and recreation facilities. Council will need to facilitate the provision of a range of open space and recreation facilities to meet the expected population, including:

- Playgrounds;
- Ovals and fields for a variety of sports; and
- Passive open space areas, including bushland;
- Swimming pools;
- Recreation centres.

This Plan documents the facilities requirements pertaining to expected development of the release area and identifies those facilities that Council will facilitate the provision of.

4.2.1 Existing facilities

Wollongong Planning People Places – A Strategic Framework for Open Space, Recreation Facilities and Community Facilities (Suter & Associates, April 2006) noted that in the Horsley/West Dapto area, there is currently 176.2 ha of open space which equates to 33 ha per 1,000 people.

The following facilities existing within Horsley:

- Reed Park (Bong Bong Road), which contains which contains 4 cricket fields / rugby league fields and 3 tennis courts;
- Dimond Bros Park (Bong Bong Road) which contains a skate park;
- Horsley Park (Homestead Drive) which contains a basketball court
- Purrungully Woodland Reserve – bushland reserve for passive open space;
- Integral Energy Recreation Park which contains a running track for Kembla Joggers, passive recreation bushland, picnic facilities and an indoor shooting range;
- The land surrounding the detention basins at Fairwater Drive, Glen-Ayre Avenue and Glenwood Grove provide for passive open space;
- A network of cycle paths was developed in Horsley through the Horsley Section 94 Plan.

The following facilities existing within the wider Dapto area:

- Dapto Showground (Princes highway) is owned by the Dapto Agricultural and Horticultural Society and contains a greyhound race track, and showground which is used as a rugby league field;
- Dapto Swimming Pool (Bangaroo Avenue);
- Lakelands Oval 1 senior and 7 junior fields;
- Lakeside Leisure Centre (Kanahooka Road), which contains a gym, squash courts and tennis courts;
- William Beach Reserve which contains 1 senior field, 1 junior field and 3 tennis courts;
- Dapto Citizens (Fowlers Road) and Dapto (Marshall Street) Bowling Clubs (privately owned);
- Dapto League Squash Club (Lakelands Drive) (privately owned) 4 courts;
- Penrose Park (Huntley Road, Penrose);
- Hector Harvey Park (Gilba Road, Koonawarra) which contains a baseball field.

Playing fields and courts are also to be located in the public and private schools in the district. Public access to these facilities is at the discretion of the school.

Whilst there is a very high supply of open space, much of this is located in natural areas such as Purrungully Woodland Reserve, Integral Energy Recreation Park and detention basins.

4.2.2 Planning standards and principles

The requirements for open space and recreation facilities as a result of the expected development of West Dapto were initially documented in the *Social, Cultural and Recreational Needs Study for the*

West Dapto New Release Area prepared by Elton Consulting (July 2007). In addition, *Wollongong Planning People Places – A Strategic Framework for Open Space, Recreation Facilities and Community Facilities* (Suter & Associates, April 2006) provides an overall assessment of existing open space and recreation facilities currently provided in the wider area, future demand for facilities and implications for planning of open space. The following discussion regarding the provision of open space and recreation facilities at West Dapto is drawn from these two studies. Further analysis of open space needs of the release area was also undertaken by the Growth Centres Commission in light of the revised reduced yield of the release area.

Planning People Places makes the following comments with respect to open space provision in the Horsley/West Dapto area:

- The number of sporting fields is greater than the average provision for Wollongong but not significantly greater. Also, demand could be higher than the average due to the family focus in the area. This highlights the need for adequate fields to be provided for the new population.
- There is a good supply of playgrounds in the area although demand could be higher than the estimate due to the family focus in the area;
- There are no netball courts in the area, although there is regional provision of 48 courts in Fred Finch Park, Berkeley.
- There is no swimming pool in the area, although there is a 50m outdoor pool in Dapto located on the eastern side of the Freeway.

In terms of demand for open space, the review undertaken by Elton Consulting found the following demand patterns evident:

- High demand for recreation program for all age groups;
- A need for recreation opportunities that complement rather than replicate existing opportunities;
- A need for opportunities to increase incidental exercise through design of footpaths and street networks as well as accessible, safe, well lit walking and cycling tracks;
- Adequate public transport to facilities is important especially for youth;
- Quality of facilities and open space is as important as quantity;
- Need for flexibility in design to allow for community maturation, changing needs, priorities and preferences;
- Need for more multipurpose indoor facilities that combine community and recreation opportunities;
- High demand for walking and cycle networks, especially linking into the Lake Illawarra foreshore pathways and the Escarpment, and
- Demand for more recreation opportunities for young people beyond skate parks and BMX facilities. There is also demand for entertainment opportunities (including commercial) Programs and events that target young people (including arts and culture) and public spaces that are safe and welcoming to young people (beyond shopping malls). (Elton Consulting, 2007, p.32)

Notwithstanding the amount of open space that is currently provided in the area, the development of West Dapto for over 50,000 people will result in additional demands for open space and recreation facilities specifically catering to the needs of the incoming population and appropriately located so that residents have reasonable access to such facilities. In addition to neighbourhood-based open space, *Planning People Places* identified the following priorities for open space and recreation in the Horsley/West Dapto area:

- a significant recreation park that will serve the wider area through the proposed Integral Energy Recreation Park;
- adequate provision of sportsgrounds to support the new West Dapto population, in addition to the existing provision;

- potentially a significant (regional, city wide or district) sport and recreation facilities due to the availability of land. However, do not locate all significant new facilities in this area;
- upgrading of the existing youth facility at Horsley (shade, seating, links to other activity opportunities);
- an indoor sport and aquatic facilities provided there is sufficient population to support such a facility. If the population increases by 50,000 such facilities are likely to be feasible, However, if the population growth is less, this could be a constraint to development. Detailing planning and feasibility assessment will be required.

This Plan documents the open space and recreation facilities requirements pertaining to expected development of West Dapto.

The amount of land proposed for local open space and recreation facilities in West Dapto has been determined taking account of the following issues:

- the extent of existing open space in the area;
- increasing difficulties faced by Council in maintaining parks to a standard that meets community expectations;
- the need to plan for fewer but larger neighbourhood and local parks.

Overall, Elton Consulting has estimated the need for a total additional 68.0 ha of open space at West Dapto. If this is added to the existing provision of 176.2ha (including 106ha of natural areas), this would take the total provision of open space in West Dapto to 244.2ha. Based on an estimated ultimate population 62,507 (50,507 in West Dapto and around 12,000 in Horsley), this equates to 3.9ha per 1,000 population. The quantum of additional open space proposed for the West Dapto area population is 61 ha, this allows for 50% of the 2 proposed sports parks being city wide shared facilities. Therefore the total estimated open space for West Dapto is 237.2ha which equates to 3.8ha per 1,000 population, an addition of 1.3ha per 1000 people. Notwithstanding the very high rate of open space provision in Wollongong as a whole, the rate of 3.9ha per 1,000 at West Dapto is considered appropriate given that:

- the generally accepted standard rate of open space provision is 2.83 ha per 1,000 people;
- it is Council's objective to focus on the quality rather than quantity of open space; and
- that 45% of total final open space consists of natural areas & the additional open space proposed equates to only 26%.

The following recreation planning principles have been developed to guide the allocation of open space:

- Based on the discrete residential areas a mix of district and local recreation and open space areas are proposed, to satisfy the local population of each precinct
- Active recreation areas for competitive sport should be designed to ensure that they are not affected by flooding and are available year round for sporting competitions
- Clustering and co-location of facilities is preferred, to achieve economies of scale
- Dual use agreements are recommended to permit community use of school facilities and in particular playing fields and school halls
- Smaller pocket parks are not considered functional as a recreation open space and are infeasible from a maintenance perspective. Council has identified 2 hectares as a minimum size
- Parks will be located in areas that are easily accessible and are linked to pedestrian path and cycle way access. Provision should be based on walkable catchments with the objective that most residents of West Dapto will be able to walk to a park or similar open space
- Playgrounds need to provide a range of opportunities and experiences for children and provide a level of amenity for carers including seats, water bubblers and shade

- Throughout the development provision should be made for cyclists using roads. This may vary from 'bikes lanes' and 'sealed shoulders' to footpath reserves and key routes through open space or simply adequate road space to allow cyclists to travel safely with other traffic, and
- Passive recreation areas should be provided within conservation areas to increase access to these areas and to create activity nodes for passive surveillance, encourage social interaction and provide natural settings for reflection and 'getting away'.

4.2.3 Facilities required

Key open space and recreation facilities recommendations for the West Dapto release area are as follows:

- 1 sports park in Stage 1 to provide city wide competitive sporting facilities including AFL, rugby and cricket fields;
- 1 sports park in Stage 3 to provide city wide competitive sporting facilities including soccer fields;
- 1 community leisure and recreation centre in Stage 3 to provide district level indoor and outdoor recreation facilities, indoor sports hall (minimum 2 basketball courts), outdoor tennis/netball courts (minimum of 12 tennis court complex). Community meeting space and option for commercial café operation also included
- 7 neighbourhood parks to provide neighbourhood level informal space for residents, workers and visitors to recreate. They include a mix of hard and soft landscapes and may offer areas for performance, street theatre, community events and celebrations, occasional markets and informal ball game areas. It is proposed that neighbourhood parks will be located to maximise access especially for pedestrians and cyclists. The parks may also be located to take advantage of the Conservation Areas
- 7 neighbourhood parks would be evenly split between active and passive recreational uses. The active component would be in the form of a sports park to accommodate demand for local sport training and competition including multipurpose fields, tennis and/or netball courts, half court basketball, amenities including toilets, parking
- 10 playgrounds, 8 integrated within neighbourhood parks, 1 located in the sports park in Stage 1 as well as one located in the town centre park in Stage 2. The play areas should cater for children of 2-10 years.
- 13 local parks to be provided throughout all areas to provide locally available open space. These parks, in accordance with Council's requirements, will be a minimum of 2 hectares in size and provide both active and passive recreation. They have been planned based on a 400-600 metre walking distance to enable most residents within West Dapto to walk to a park.
- 1 town centre park in the Stage 3 town centre to provide district level space for residents, workers and visitors to recreate. As a town centre park, this space should accommodate relatively large scale performance, celebrations and other cultural events and enjoy a strong relationship with adjoining retail activities.
- Public art (including interactive forms) encouraged. Playground to be included. High quality design to reinforce civic quality of town centre
- A cycleway network linking key destinations and activity centres.

The specific open space and recreation facilities identified are shown in Table 4.2.2.

The facilities listed will be complemented by the provision of existing natural passive open space areas and (where this can be negotiated with owners and developers of riparian corridor land) along and adjacent to riparian corridors in the release area.

Figure 4.2.1 Existing and proposed open space facilities

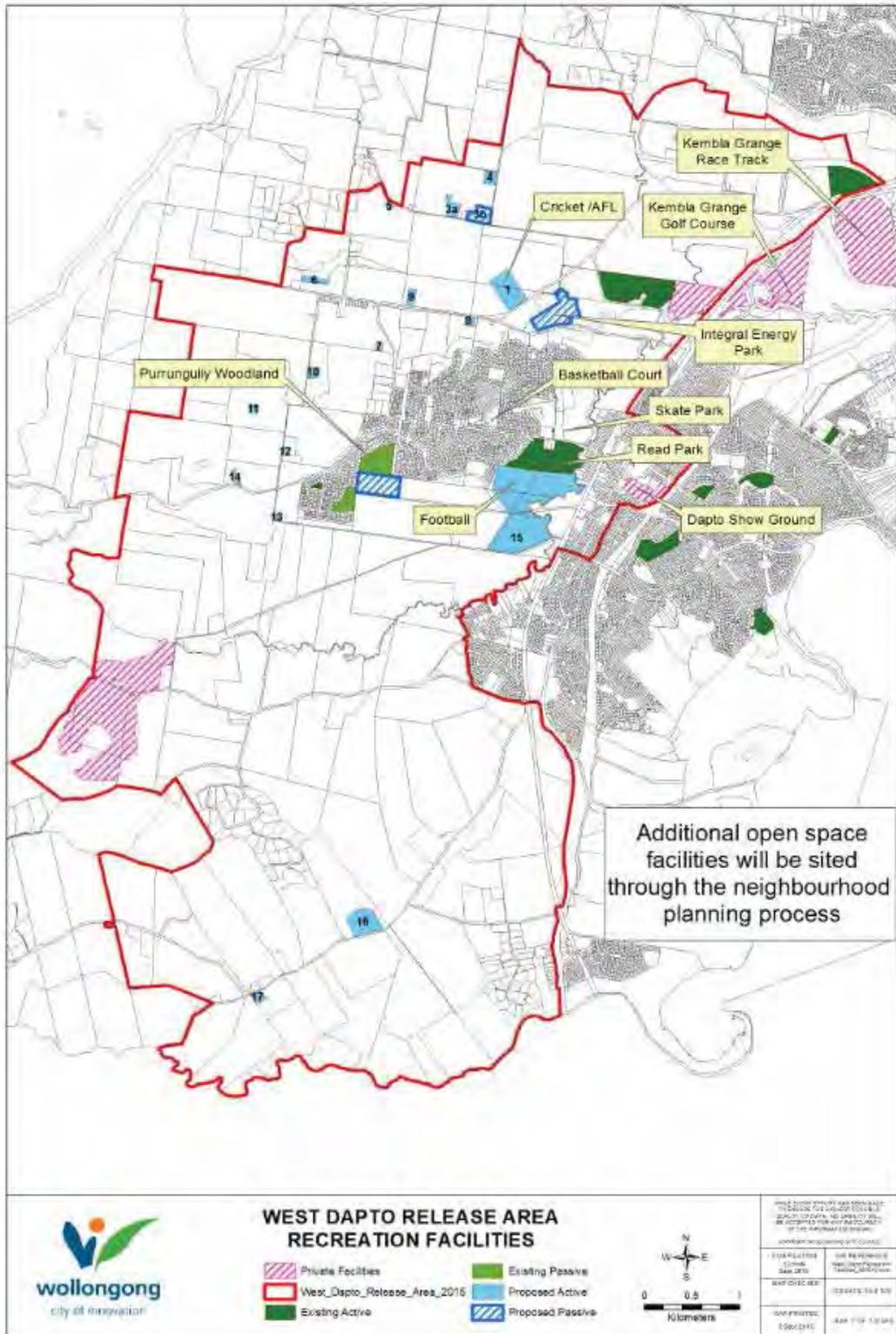


Figure 4.2.2 Proposed cycleway network

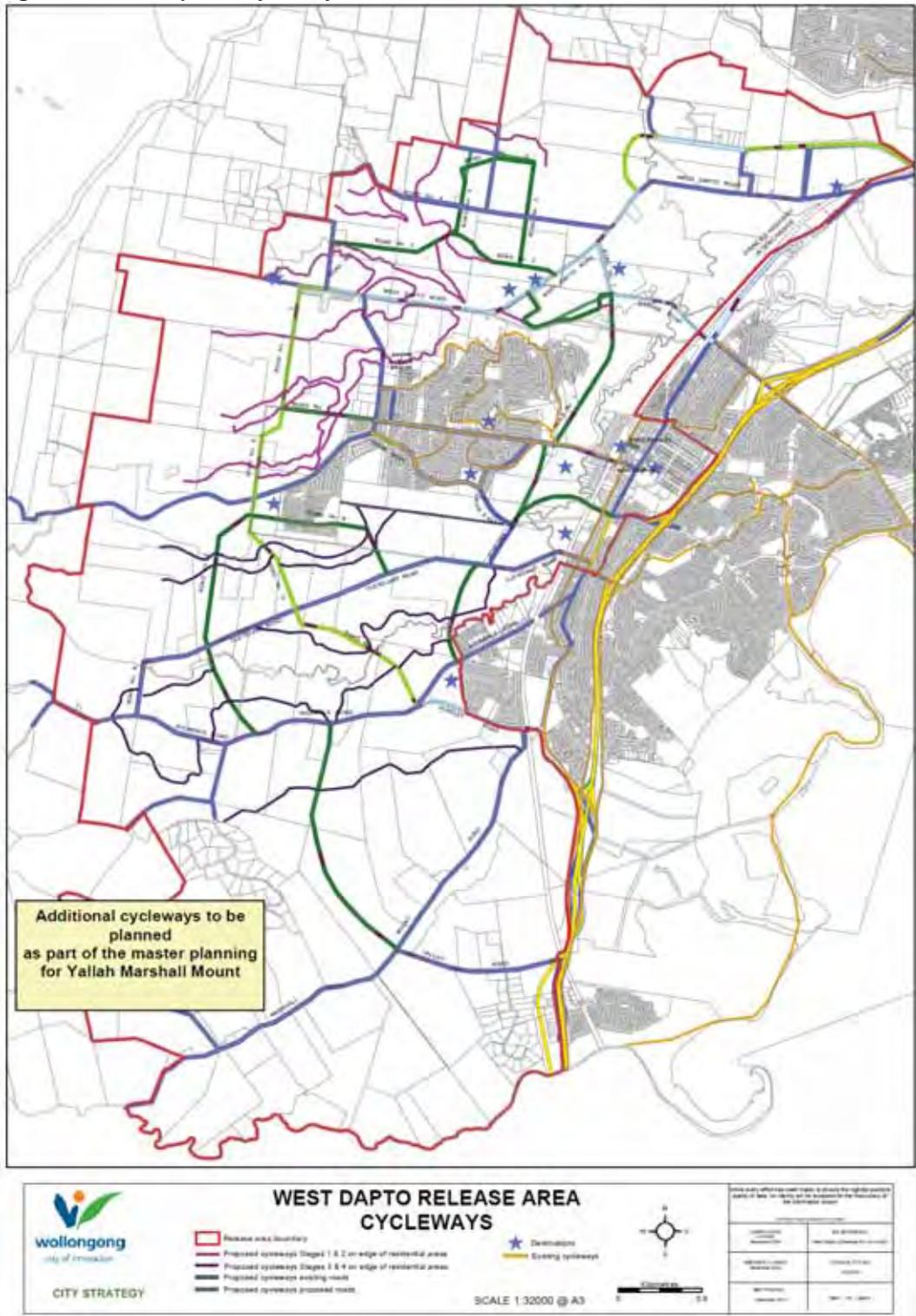


Table 4.2.2 Proposed Open Space and Recreation Facilities

Stage	Map Ref	Facility		Location	Description	Cost estimate (construction)	Additional studies	Contingency 15%	Construction Sub-total	Land Area (Ha)			Land Cost (\$/ha)	Total Cost 2010	Total Cost	Apportionment to S94 West Dapto (%)	Cost apportioned to West Dapto	Council cost	
										Urban	Non-developable	Riparian	\$500,000						
													Developable			\$40,000	Indexation 2010-15	1.1016	
Stage 1/2 - Darkes Town Centre																			
1/2	1	Sports park	1	Item	Edge of centre and adjacent to conservation land	9.4ha, 2 cricket/AFL or 4 fields	\$ 3,400,000	\$ 30,000	\$ 510,000	\$ 3,940,000		2.82	6.58	\$ 1,673,200	\$ 5,613,200	\$ 6,183,386	50%	\$ 3,091,693	\$ 3,091,693
1/2	1	Playground - District level	1	Item	Within Sports park	Playground within Sports park	\$ 350,000		\$ 52,500	\$ 402,500				\$ -	\$ 402,500	\$ 443,386	100%	\$ 443,386	\$ -
1/2	2	Ridge Park (Local park)	1	Item	On ridge opposite Darkes Town centre	Passive open space	\$ 850,000		\$ 127,500	\$ 977,500	7.00	2.75		\$ 4,875,000	\$ 5,852,500	\$ 6,446,994	100%	\$ 6,446,994	\$ -
1/2	3	Local park	1	Item	Within residential area	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	2.00			\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
Stage 1/2 - Sheafes - Wongawilli																			
1/2	4	Neighbourhood park	1	Item	Adjacent to Village Centre	2ha active (fields) + 2ha passive	\$ 1,000,000		\$ 150,000	\$ 1,150,000	4.00			\$ 2,000,000	\$ 3,150,000	\$ 3,469,975	100%	\$ 3,469,975	\$ -
1/2	4	Playground - Neighbourhood level	1	Item	Within neighbourhood park	Playground within park	\$ 200,000		\$ 30,000	\$ 230,000				\$ -	\$ 230,000	\$ 253,363	100%	\$ 253,363	\$ -
1/2	5	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	1.00	1.00		\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
1/2	7	Neighbourhood park	1	Item	Town Centre	2ha active (fields) + 2ha passive	\$ 1,000,000		\$ 150,000	\$ 1,150,000	4.00			\$ 2,000,000	\$ 3,150,000	\$ 3,469,975	100%	\$ 3,469,975	\$ -
1/2	7	Playground - Neighbourhood level	1	Item	Within neighbourhood park	Playground within park	\$ 200,000		\$ 30,000	\$ 230,000				\$ -	\$ 230,000	\$ 253,363	100%	\$ 253,363	\$ -
1/2	8	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	1.00	1.00		\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
1/2	6	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	1.00	1.00		\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
Stage 1/2 - West Horsley																			
1/2	10	Neighbourhood park	1	Item	Adjacent to Village Centre	2ha active (fields) + 2ha passive	\$ 1,000,000		\$ 150,000	\$ 1,150,000	3.50	0.50		\$ 2,000,000	\$ 3,150,000	\$ 3,469,975	100%	\$ 3,469,975	\$ -
1/2	10	Playground - Neighbourhood level	1	Item	Within neighbourhood park	Playground within park	\$ 200,000		\$ 30,000	\$ 230,000				\$ -	\$ 230,000	\$ 253,363	100%	\$ 253,363	\$ -
1/2	9	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	1.50	0.50		\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
1/2	11	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	2.00			\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
1/2	12	Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	1.00	1.00		\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
1/2	13	Town Centre Park	1	Item	Bong Bong Town Centre	3ha, 1 field + passive	\$ 2,750,000		\$ 412,500	\$ 3,162,500	1.50	1.50		\$ 1,500,000	\$ 4,662,500	\$ 5,136,114	100%	\$ 5,136,114	\$ -
1/2	13	Playground - Neighbourhood Level	1	Item	Within town centre park	Playground within park	\$ 200,000		\$ 30,000	\$ 230,000				\$ -	\$ 230,000	\$ 253,363	100%	\$ 253,363	\$ -
1/2		Cycleway (Total Stage 1/2)	20.25	km	On edge of urban area		\$ 5,062,750		\$ 759,413	\$ 5,822,163			5.06	\$ 202,510	\$ 6,024,673	\$ 6,636,656	100%	\$ 6,636,656	\$ -
Stage 3 - Cleveland																			
3		Sports park	1	Item	South end Reed park adjoins Cleveland Rd	9.56ha, 4 Soccer fields	\$ 3,400,000	\$ 30,000	\$ 510,000	\$ 3,940,000			9.56	\$ 382,400	\$ 4,322,400	\$ 4,761,467	50%	\$ 2,380,734	\$ 2,380,734
3		Playground	1	Item	Within neighbourhood park	Playground within park	\$ 300,000		\$ 45,000	\$ 345,000				\$ -	\$ 345,000	\$ 380,045	100%	\$ 380,045	\$ -
3		Community Leisure, Recreation Centre	1	Item	North West of E3 - adjoins Reed park		\$ 10,000,000	\$ 30,000	\$ 1,500,000	\$ 11,530,000				\$ -	\$ 11,530,000	\$ 12,701,211	67.5%	\$ 8,573,318	\$ 4,127,894
3		Neighbourhood park	1	Item	Within or adjacent to Town Centre	2ha active (fields) + 2ha passive	\$ 1,000,000		\$ 150,000	\$ 1,150,000	4.00			\$ 2,000,000	\$ 3,150,000	\$ 3,469,975	100%	\$ 3,469,975	\$ -
3		Playground	1	Item	Within neighbourhood park	Playground within park	\$ 300,000		\$ 45,000	\$ 345,000				\$ -	\$ 345,000	\$ 380,045	100%	\$ 380,045	\$ -
3		Local parks	2	Item	Within residential areas	2ha, 1 field	\$ 1,500,000		\$ 225,000	\$ 1,725,000	4.00			\$ 2,000,000	\$ 3,725,000	\$ 4,103,384	100%	\$ 4,103,384	\$ -
3		Cycleway	10.00	km	On edge of urban area		\$ 2,500,000		\$ 375,000	\$ 2,875,000			4.49	\$ 280,483	\$ 3,155,483	\$ 3,476,015	100%	\$ 3,476,015	\$ -
Stage 4 - Avondale																			
4		Neighbourhood parks	2	Item	Town Centre and within residential areas	2ha active (fields) + 2ha passive	\$ 2,000,000		\$ 300,000	\$ 2,300,000	8.00			\$ 4,000,000	\$ 6,300,000	\$ 6,939,951	100%	\$ 6,939,951	\$ -
4		Playgrounds	2	Item	Within neighbourhood parks	Playground within park	\$ 600,000		\$ 90,000	\$ 690,000				\$ -	\$ 690,000	\$ 760,090	100%	\$ 760,090	\$ -
4		Local parks	2	Item	Within residential areas	2ha, 1 field	\$ 1,500,000		\$ 225,000	\$ 1,725,000	4.00			\$ 2,000,000	\$ 3,725,000	\$ 4,103,384	100%	\$ 4,103,384	\$ -
4		Cycleway	10.00	km	On edge of urban area		\$ 2,500,000		\$ 375,000	\$ 2,875,000			2.50	\$ 100,000	\$ 2,975,000	\$ 3,277,199	100%	\$ 3,277,199	\$ -
Yallah - Marshall Mount																			
5		Neighbourhood park	1	Item	Close to hamlet centre	2ha active (fields) + 2ha passive	\$ 1,000,000		\$ 150,000	\$ 1,150,000	4.00			\$ 2,000,000	\$ 3,150,000	\$ 3,469,975	100%	\$ 3,469,975	\$ -
5		Playground	1	Item	Within neighbourhood park	Playground within park	\$ 300,000		\$ 45,000	\$ 345,000				\$ -	\$ 345,000	\$ 380,045	100%	\$ 380,045	\$ -
5		Local park	1	Item	Within residential areas	2ha, 1 field	\$ 750,000		\$ 112,500	\$ 862,500	2.00			\$ 1,000,000	\$ 1,862,500	\$ 2,051,692	100%	\$ 2,051,692	\$ -
5		Cycleway	7.00	km	On edge of urban area		\$ 1,750,000		\$ 262,500	\$ 2,012,500			1.75	\$ 70,000	\$ 2,082,500	\$ 2,294,039	100%	\$ 2,294,039	\$ -
Totals							\$ 50,862,750	\$ 90,000	\$ 7,629,413	\$ 58,582,163	55.50	12.07	29.94	\$ 35,083,593	\$ 93,665,755	\$ 103,180,274		\$ 93,579,954	\$ 9,600,320

4.2.4 What is the strategy for delivering facilities?

Council will require contributions from developers under this Plan toward provision of the facilities and services identified in this Plan. These contributions may be in the form of monetary contributions, works in kind, land dedications, or a combination of these.

The planning for the location of facilities has not yet been finalised. All facilities will be developed in a manner that allows the facilities to serve the local needs generated by the population of the West Dapto release area.

Council will prepare design concepts for the facilities so that specification and costing of the facilities can be more accurately defined as implementation of this Plan proceeds. This may result in amendment of this Plan.

The open space and recreation facilities strategy is based on strategic information. It is likely that, as the planning process for the different sub-precincts proceeds, modified and more cost effective solutions that still meet the strategy objectives will be developed.

Where alternatives to the works schedule are proposed in conjunction with the development of sub-precincts and the alternatives are approved by the Council, the development contribution applicable to a development the subject of a development application may be reviewed, or the works schedule in this Plan updated, or both.

The works program costings are based on the following assumptions:

- The Sports Park in Stage 1 will serve as a city wide facility. Based on this city wide status it is assumed that the West Dapto population of 46,400 will comprise about 50% of the total catchment for this facility.
- The Town Centre Park and playground in Stage 3 will serve a district level function.
- Land costs are based on a land value of \$500,000 per hectare for urban land and \$40,000 per hectare for riparian land;
- A provisional cost for playground equipment has been included however additional information will be required relating to the level of site works, drainage and landscaping required;
- Playgrounds are proposed to be located within the conservation area or the community parks therefore no additional cost has been included for land acquisition for playgrounds;
- Cycleways has been included, to be located along the edge of urban areas. Additional cycleways are proposed as part of the main road network;
- Capital works for landscaping assumes an average cost of \$90/m² for town centre areas; and.
- A fee has been included for planning studies which given the timeframe for the study may be required to determine the most appropriate future facility mix given the population, trends, recreation needs and to finalise an architectural brief prior to construction.
- Contingency will be included at 15% of the construction costs

4.2.5 Contribution rates

Contributions for open space and recreational facilities will be determined as follows:

Residential

On a per residential dwelling / Lot basis. All developments will make the same contribution (based on dwelling or Lot number) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

Employment Lands

On a net developable land basis. All developments will make the same contribution (based on land area) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

The following contribution rates therefore apply:

Residential Contribution rate (per lot/dwelling):

Zone	Open Space
R3 Medium Density	\$ 6,204
R2 Low Density	\$ 6,204
R5 Large Lot Residential	\$ 6,204
E4 Environmental Living	\$ 6,204
B2 Local Centre	\$ 6,204
B1 Neighbourhood Centre	\$ 6,204

Employment Lands Contribution rate (per hectare):

Zone	Open Space
IN3 Heavy Industry	\$ -
IN2 Light Industry	\$ -

4.3 Roads and public transport

In order to accommodate the future residential and non-residential development within the West Dapto area, a significant provision of transport infrastructure including major improvements to the existing road network will be required. New access arrangements are required to connect the new development to the external main road system as well as the provision of a network of minor roads to provide local area access and connectivity.

Forecast population and employment growth will result in considerable growth in vehicular traffic on many roads including those for which Council has responsibility. This traffic growth will create a need for various new or improved road and traffic management facilities. Consequently, the nexus for road and traffic management facilities can be clearly established.

The volume and characteristics of that traffic growth is directly related to land use. Manuals such as the Roads and Traffic Authority's *Guide to Traffic Generating Developments* (RTA 2002) clearly demonstrate the nexus between development and traffic increases. It provides traffic generation rates by land use type including residential, industrial, retail and recreational activities. In addition, a sophisticated computer model of the Regional transport system has been developed and calibrated to surveyed trip rates for a range of trip purposes and associated land use types. This model (see details in sections below) replicates future traffic volumes for combinations of development and transport scenarios in order to assess consequential impacts and evaluate transport and land use options. The impact of additional traffic has a range of consequences. These include:

- Impacts on road network efficiency.
- Impacts on amenity and safety.
- Reduction in the life of road pavements.
- Increased public expenditure.

Council has undertaken various investigations of the requirements for road upgrading to meet the future needs of the West Dapto area. The following documentation is provided to demonstrate the relationship between the planned future land use and necessary road and traffic management infrastructure for the purpose of identifying a developer monetary contribution.

The future form of urban development at West Dapto has been determined by Wollongong City Council, State Government Agencies and others through a series of workshops and stakeholder consultations. Following that consultation, a Transport Management and Accessibility Plan (TMAP) was prepared that identified the necessary transport and traffic management infrastructure needs for all types of travel, namely:

- car travel including flood improved access
- heavy vehicle movements and freight transport
- public transport (rail)
- public transport (bus)
- walking
- cycling.

The overarching goal for the design and development of West Dapto is the achievement of long term sustainability. The project will incorporate economic, environmental and social principles to achieve a sustainable urban environment.

Significant amounts of open space in the form of environmental corridors create wider landscapes within easy reach of all parts of the new development areas, promoting walking, cycling, recreation and enjoyment of the natural surrounds.

Other features of the draft plan aimed at improving the sustainability of the area include public transport opportunities, easy access to pedestrian and bicycle routes, and provision of local shops within walking distance to homes. Establishment of local employment opportunities will help minimise vehicle use for short trips, and provision of community facilities within the development area will help promote a sense of community and facilitate social interaction. This will be further enhanced with the integration of the release area with the existing communities of Dapto and Horsley.

4.3.1 Existing facilities

The existing local main road network is shown in Figure 4.3.1. Regional access can be gained to the West Dapto Release Area by two key north-south arterial road links, being the Princes Highway and the F6 Southern Freeway. These are external to and east of the Release Area. The Princes Highway is the main long distance coastal route south of Sydney. Through Wollongong it provides the principle link between suburbs where it is bypassed by the M1 Freeway. The Princes Highway generally has two lanes in each direction and has a number of roundabouts and signalised junctions and crossings along its route through the study area.

The F6 Southern Freeway is the primary high speed, high capacity arterial road through Wollongong. The F6 Southern Freeway generally has two lanes in each direction through Dapto heading north but widens to three lanes in each direction north of Figtree. There are a number of existing access points to the F6 within the study area, including a full interchange at Northcliffe Drive and north facing ramps only at Kanahooka Road and Fowlers Road.

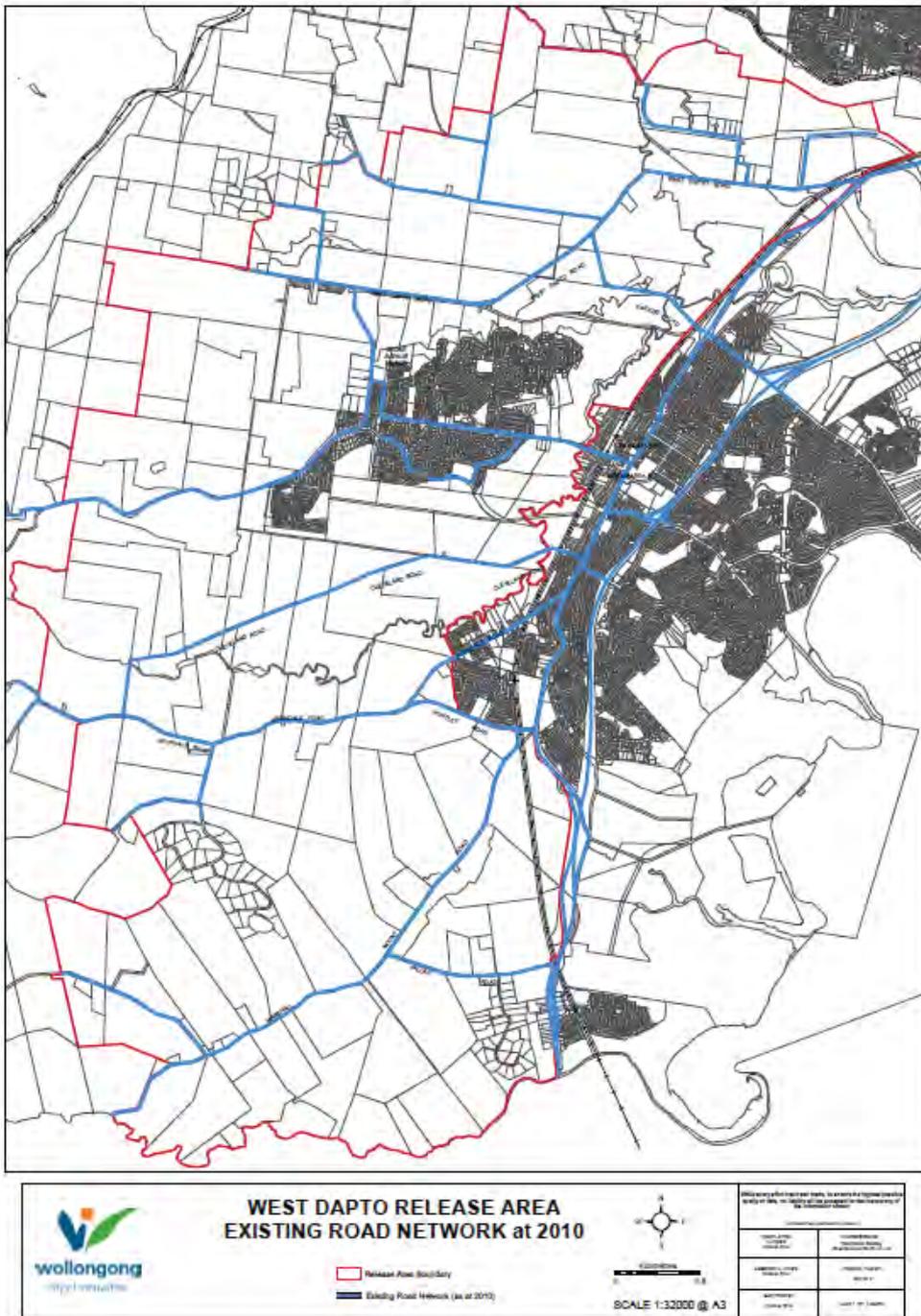
The roads in the network in the West Dapto area generally run east-west by nature, with the exception of Shone Avenue and Marshall Mount Road. The road network is significantly constrained by the South Coast rail line which runs parallel to the Princes Highway through Dapto and currently intersects at-grade with most of the east-west links mentioned above. The railway has four at-grade level crossings and two overbridges (table 4.3.1). Two private branch rail lines cross local roads, at-grade crossing is on West Dapto Road some one kilometre west of the Princes Highway at Kembla Grange and the other at-grade crossing is on Shone Avenue immediately south of West Dapto Road, Wongawilli.

In addition, access is constrained by flooding from Mullet Creek, Duck Creek and Marshall Mount Creek (table 4.3.1).

Table 4.3.1 Existing access roads and constraints

Access road	Rail crossing	Flood constrained
West Dapto Road	Level Crossing	Yes
Darkes Road	Level Crossing	Yes
Bong Bong Road	Level Crossing	Yes
Cleveland Road	Bridge – recently replaced by RailCorp	Yes
Avondale Road	Level Crossing (State government recently announced a safety upgrade)	Yes
Huntley Road	Bridge	No
Yallah Road	No	Yes – minor
Marshall Mount Road (from Calderwood)	No	Yes – Marshall Mount Creek

Figure 4.3.1 Existing Road Network (as at 2010)



Existing Traffic Volumes

The existing average daily vehicle flows within the region, as compiled by the RTA for the Year 2006 (RTA website; Southern Region Traffic Volumes report), indicate that the F6 Southern Freeway is the most heavily trafficked road through the study area. Approximately 49,700 vehicles per day (vpd) travel on the Princes Highway at the Macquarie Rivulet Bridge, south of the F6 and Princes Highway interchange at Yallah. The average daily traffic flow on the F6 varies between 37,700 vpd south of Fowlers Road to 60,200 vpd south of Northcliffe Drive. Traffic volumes are significantly lower on the Princes Highway than the F6. This road has approximately 13,000 vpd south of Dapto rising to 30,000 vpd north of Unanderra.

There are approximately 37,000 vpd bypassing the Dapto area on the F6. A further 10,000 vehicles per day join or leave the F6 from the Fowlers Road ramps at Dapto and a further 14,000 vpd join or leave the F6 from the Kanahooka Road ramps just north of Dapto. Daily traffic volumes peak south of Northcliffe Drive and decrease by 7,000 vehicles per day between Northcliffe Drive and Five Islands Road. There has been significant daily traffic growth over the past ten years on both the Princes Highway and F6. Between 1990 and 2000 daily volumes on the Princes Highway through Dapto and Unanderra have grown by approximately 2,100 vehicles per day. Daily traffic volumes also grew by a similar amount (approximately 2,000 per day) along Northcliffe Drive. Along the F6, the daily traffic growth has been in the order of 12,000 to 14,000 vpd over the ten years, which is a growth rate in excess of 1,000 vehicles per year. The current prevailing background daily traffic growth on the M1 Freeway independent of Horsley and other West Dapto development is estimated as over 1200 trips per day, per year which is a growth rate of over 3% per year.

Existing Travel Demand

A general picture of transport demand in the region is provided by the NSW Government Department of Transport and Infrastructure's "Household Travel Survey" (HTS). The HTS data for Dapto for all travel revealed that the private car has a mode share of 82.6%, which equates to approximately 121,000 trips per day. There were 84,300 car driver trips (57.6%) and approximately 36,600 car passenger trips (25.0%). The car is clearly the most common mode of transport for the journey to work with 93% of all work trips compared to 4% by train and 3% walking. However, travel to and from work represents a relatively small proportion of all trip purposes with some 84% of car driver and 93% of car passenger trips made for purposes other than the journey to work.

The HTS data reveals that, per day, most car driver trips within Dapto were either local trips (37,786) or to/from Wollongong (30,861). These trips represent 81% of daily car driver movements. Other significant car driver destinations were south to/from the neighbouring Local Government Area (LGA) of Shellharbour (8,377) and north to/from Sutherland (2023).

Approximately 1163 trips per day were to/from other LGAs within Sydney, which is less than the trips by train. The car passenger trips were typically more locally based. There were 19,098 trips within Dapto and a further 12,555 trips to and from Wollongong. There were a significant number of car passenger trips to and from Shellharbour (3,952) but very few car passenger trips to other destinations. Car passenger trips were predominantly non work home based trips.

Transport Mode Share

The HTS concentrates upon the main travel mode only, such that a bus journey that includes a walk at one or both ends is recorded as a bus journey and not a walk trip. It should be noted that the HTS is based on a relatively small sample (typically less than 1%) of the total movements of the population surveyed in 1998/1999/2000.

Table 4.3.2 – Travel mode split for all trips – Dapto and Wollongong LGA

Travel mode	Dapto*	Wollongong
Bicycle	0.3%	1.0%
Bus	1.4%	2.9%
Other	0.3%	0.4%

Travel mode	Dapto*	Wollongong
Taxi	0.0%	0.3%
Train	1.3%	2.5%
Vehicle driver	57.6%	56.8%
Vehicle passenger	25.0%	23.5%
Walking	14.1%	12.5%

Note: * Dapto is defined by HTS zones 5763, 5764, 5765, 5766, 5767 - Source: Household Travel Survey 2003

The HTS data reveals that the transport mode split for all trip purposes to, from and exclusively within Dapto is 82.6% by car (driver and passenger), 2.7% by public transport (bus, train and taxi) and 14.4% by non-motorised transport modes (walk and bicycle). For the whole of Wollongong LGA, car mode share is slightly lower than Dapto at 80.3%. Public transport mode share in Wollongong is 5.7%, which is over twice as high as Dapto; whilst non-motorised transport mode share is fractionally less than Dapto at 13.5% (Table 3.15).

The travel information for both Wollongong and Dapto shows high levels of private car use and relatively low use of public transport, especially for Dapto. Walking however has a relatively high mode share in both Wollongong and Dapto and is a particularly common mode of transport in Dapto, with one trip in seven being purely by walking.

The journey to work is a key generator of trips and an understanding of the mode share of these trips is a key indicator of the likely peak road and public transport network demands. For Dapto the mode split for journeys to work is very heavily dominated by the car, being 93%. Of the remaining 7% of work trips, 4% are undertaken by train and 3% undertaken on foot.

For the sub-regional and regional trips from Dapto to Wollongong and other neighbouring LGAs, the car is overwhelmingly the dominant mode of transport. However, the car loses its dominance for the longer distance regional trips. Over half of all the longer distance trips to and from the Sydney Region beyond Sutherland were by train (55%) whilst the remainder were by car. These trips reflect the continuing importance of the train for longer distance travel, in particular commuting trips.

All the surveyed bus trips were either made within Dapto or between Dapto and Wollongong. There were slightly more bus trips from Dapto to other Wollongong LGA destinations than train trips, reflecting the greater frequency and penetration of bus routes from Dapto to the places of education and other services located in the subregional centres of Wollongong LGA.

The travel mode shares are different for different destinations e.g. local, sub-regional are regional trips as summarised by Table 4.3.3 below

Table 4.3.3 – Travel mode share for outbound Dapto trips to destination (24 hours)

Destination	Local		Sub-Regional		Central Sydney		Regional Other	
	To destinations within Dapto		To other destinations within Wollongong		To Sydney LGAs excluding Campbelltown & Sutherland		To other LGAs e.g. Shellharbour, Sutherland, Campbelltown, Wollondilly	
Travel Mode	Trips	%	Trips	%	Trips	%	Trips	%
Walk	20,604	25.9						
Bicycle	496	0.6						
Bus	1,263	1.6	538	2.4				
Train			317	1.4	685	54.6		
Car driver	37,786	47.4	15,270	67.5	569	45.4	7,246	77.5
Car passenger	19,098	24.0	6,489	28.7			2,098	22.5
Taxi								
Other	397	0.5						

Total	79,644	100.0	22,614	100.0	1253	100.0	9344.	100.0
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The following points summarise the current transport situation for Dapto and the study area

- Car is the dominant travel mode with almost 83% of mode share for all trips
- Train and bus trips account for 1.3% and 1.4% of all trips respectively
- Walking is common, with 14% of all trips but cycling is much less common (0.3% of trips)
- Walking is very localised and bus travel is wholly contained within Wollongong LGA
- Trains take more people to Sydney from Dapto than the car although cars take more people to every other destination.

Non-motorised Travel Mode Share

Walking and cycling activity are difficult to quantify as most trips by whatever mode include an element of walking. Walk trips recorded in the HTS are exclusively walking trips and therefore do not represent the total amount of walking activity. Notwithstanding, officially recorded walking trips account for approximately 20,600 (14%) daily trips to, from or within Dapto, although due to the short nature of the trip, all are within the Dapto local area. Very little walking was undertaken for the journey to work trips, making up only 3% of all journey to work trips. The majority of walking is undertaken on trips away from home (non-home based trips) for a variety of purposes and indicating that another mode of transport was generally used for the main leg of the journey. The home based walking trips were most commonly undertaken for shopping or social reasons.

Cycling is a considerably less common mode of transport in Dapto than walking, with approximately 500 daily trips recorded from or within Dapto accounting for 0.3% of daily trips. Surveyed cycling trips were all home based with only 5% of these trips being to/from work. The remainder of cycling trips were typically for social reasons.

Existing Public Transport Services

Existing public transport to and from Dapto are provided by train, bus and taxi services. While the mode share data shown previously in Tables 4.3.2 and 4.3.3 indicate the relatively small proportion of all trip purposes made by public transport, the actual patronage is never-the-less significant. Peak hour trains run at approximately 30 minute intervals in the peak direction between Dapto and Sydney Central stations for an average 103 minute (1hr 43minute) journey. For the 95 kilometre journey to Central Station, the average speed is only 55 km/h. These peak period trips are mainly made by commuters working in Central Sydney. The additional travel time necessary to reach other Sydney destinations by train tends to limit the attractiveness of this mode of transport. According to recent CityRail surveys, some 1,180 passenger movements per average week day (sum of in and out movements) occur at Dapto rail station with the majority travelling to destinations outside the region. In comparison, this is only some 25% of passenger movements surveyed at Wollongong Station.

A number of bus services link Dapto directly with major centres such as Wollongong CBD, Warrawong and Shellharbour Square each generally experiencing low to medium patronage levels. Recent bus service improvements associated with the NSW Government's Outer Metropolitan Regions Bus Network Reviews have resulted in changes to local bus services in and around Dapto. For example, Route No. 31 servicing the Horsley area now has additional services giving a 20 minute to 30 minute service directly to Wollongong CBD via Dapto Town Centre. Likewise, the "Lakelink" service now proceeds directly north and south along the highway through Dapto without deviating east through the suburbs of Koonawarra and Kanahooka. Route changes have reduced travel time from Dapto to the Wollongong CBD to 33 minutes. This trip time is commonly perceived as being approximately double that of a private car. However, walk time from destination parking location to final destination results in comparable door to door travel times. Council's recent implementation of paid on-street parking in the Wollongong CBD will likely have a modest positive impact on public transport patronage.

Figure 4.3.2 Existing Dapto Bus Routes



Taxi services are well utilised within the Dapto local area, particularly at night when bus and train services are less frequent. Some 75% of taxi trips are between the Dapto Town Centre and the lower socio economic areas to the east of Dapto. During the day, taxis provide a more convenient service than buses for those people with quantities of shopping and not having access to a private car.

4.3.2 Proposed transport network and services

Transport Studies and Computer Modelling

A number of studies including land use planning, urban design, flood modelling and environmental assessment have enabled the extent of developable land in the West Dapto study area to be determined. The future permitted use of that land together with permitted development densities has resulted in a planned residential dwelling yield and expected future population.

Subsequently, a number of transport studies have been completed in order to determine the necessary transport infrastructure and services needed to facilitate access for the future development of the West Dapto area. These studies include:

- Transport Management & Accessibility Plan. Kellogg Brown & Root Pty Ltd. March 2007.
- West Dapto T-MAP Extension Study. Connell Wagner Pty Ltd. October 2008.
- West Dapto Release Area Review. NSW Growth Centres Commission. November 2008.
- Post GCC “WOLSH” Final Development Model. Wollongong City Council. October 2009.

Wollongong City Council (WCC), together with the NSW Roads and Traffic Authority (RTA) and Shellharbour City Council (SCC) have jointly developed a number of transportation computer models for various geographic areas in the Illawarra. (Technical Background Report, Gabites Porter N.Z. Pty Ltd. March 2003) A number of Wollongong / Shellharbour (WOLSH) models were developed including a 24 hour average week day traffic model as well as AM and PM peak hour models. These “base” models are also supplemented by “future” models that include future land use growth throughout both LGAs and also likely future road network improvements. Each of these models incorporate a “3 step” process.

Step 1. Trip generation. A household category model is used with regression equations for trip productions and regression derived equations for attractions. Calibrated vehicle trip rates with resultant pre-determined transport mode split for some seven trip purposes are modelled. The NSW Government Department of Transport and Infrastructure's "Household Travel Survey" (HTS) data were used extensively in the model calibration process.

Step 2. Trip distribution. The resultant trips are then distributed using a standard doubly constrained gravity model with distribution functions based on travel time.

Step 3. Trip assignment. The distributed trips are then assigned to the coded road network using a capacity restraint technique with chosen trip paths based on behavioural costs relating to time and distance. Trip time costs are influenced by road link characteristics and delays due to intersection congestion. Furthermore, an incremental assignment technique using multiple iterations and loading profile to achieve network equilibrium of travel "cost" on multiple paths results in final modelled traffic volumes for each direction of each road.

The TRACKS (Gabites Porter N.Z. Pty Ltd.) transport modelling software has been used with the WOLSH models as an aid to determine an appropriate transport system to support the planned West Dapto land use. It should be understood that any computer transport modelling system does not prepare a transport plan nor does it solve transport planning issues and problems of its own accord. The system essentially provides a "what if" tool to evaluate combinations of land use scenarios and infrastructure packages that have been, in this case, formulated by experienced transport planning professionals in consultation with a range of Government Agencies, various organisations as well as the wider general public.

The transport studies undertaken for the West Dapto area emphasise the need to implement an integrated land use and transport strategy that is sustainable, affordable and socially acceptable. Whilst the studies recognise the strategic location of the railway system and the need to encourage a significant proportion of future travel to and from the study area by rail, they also make allowance for a significant bus based transit component of travel together with significant provision to encourage non-motorised modes of travel. Land use planning controls that stipulate permitted land use types and relevant development densities applicable to a hierarchy of village and neighbourhood centres will make an important contribution to a sustainable and viable transport system. Also, significant interconnectivity is planned between the various settlements and town centres through the provision of roads, paths and trails which further contributes to a transport system having significant potential for reduced car dependency.

Transport Mode Share Requirements

To simply adopt a "business as usual" approach to transport planning for necessary infrastructure for the proposed West Dapto development would result in unsustainable outcomes. In an age of increasing scarcity of non-renewable resources, financial rigour and greater awareness of the need for social justice, it is imperative that any planned transport system deliver outcomes for each of these areas that reflect best practice.

Transport planners use a number of key performance indicators to evaluate a transport system. These may include the proportion of all or certain trip purposes by various modes of transport, transit patronage, road traffic volumes and road network "level of service" (LOS) This measure indicates the level of road network congestion with a possible range from LOS A representing free flowing conditions to LOS F, being gridlocked. Previous sections in this document present transport mode split data and traffic volumes for the Dapto and Citywide areas. The data clearly show the high level of unsustainable car dependence in the local Dapto area in particular. Some 83% of all trip purposes and 93% of journey to work trips are made by the private car in the Dapto area. The computer modelling undertaken for the West Dapto studies confirm the simple logic that the extrapolation of these existing mode split proportions of car travel is unsustainable.

As previously described, the transport network constraints applicable to West Dapto restrict the number of east west links that connect to the major north south transport corridors. In fact, there is only a single north south rail line together with the Princes Highway and the higher capacity arterial M1 Freeway. Accordingly, significant future growth in traffic volumes on the M1 Freeway is expected

with a resultant need for additional capacity. Preliminary road infrastructure planning for the purposes of coding a future road network into the computer modelling system began with a “given” that the M1 Freeway would generally be limited to three lanes in each direction. This decision was made for economic and environmental reasons taking into account the actual project issues as well as the significant flow on impacts. The provision of this enhanced arterial road capacity should be subject to the inclusion of high vehicle occupancy transit lanes in each direction. Limiting the number of lanes on this major arterial therefore effectively places a maximum traffic volume possible on this road for a given LOS and for a given transport mode split.

Transport modelling of future growth throughout the Wollongong and Shellharbour Local Government Areas has been undertaken and reveals a number of major arterial roads with traffic volumes and levels of service reaching and in some cases, exceeding road capacity. This modelling also includes future land use at final development for West Dapto, Tallawarra as well as future growth in the Shellharbour LGA’s Albion Park area. All this new development was initially modelled on a “business as usual” basis. Further modelling then examined a scenario which replicates a mode shift of between 15% and 20% for the new development only. The proposed future road network as coded was then better able to accommodate the traffic volumes generated by that new development.

The modelled mode shift of some 20% could therefore be taken as a target. However, it is widely accepted that it is virtually impossible to predict with any degree of confidence, a transport mode split through the modelling of the wide range of known influences. It is common practice to set a reasonable mode shift target of say, 10% to 15% and simply list a number of actions with little more than a hope that they will achieve the nominated mode shift. The need to achieve such a significant 15% to 20% mode shift in the West Dapto area presents significant transport planning challenges. The following actions grouped under a number of sub-headings must be implemented from the early stages of development. Failure to do so will result in a number of outcomes such as unacceptable and economically damaging traffic congestion, significant unsustainable expenditure on transport infrastructure or a significant limitation being placed on future development with associated social and land supply implications.

Table 4.3.4 Proposed Measures to support Public Transport

Measures to Achieve Transport Mode Shift and Support Bus Use	
1. Planning and Urban Design	
i)	Villages with mixed use and medium density development
ii)	Accessibility to services and village centres (short walk distances and radial paths)
iii)	Pedestrian and cycle links (secure and all weather in village centres)
iv)	Public transport “kiosks” at strategic locations (with retail component)
v)	Personal security (CPTED principles applied throughout)
2. Public Transport Operations	
i)	Minimise bus travel times (car equivalent door to door)
ii)	High service frequency shuttle feeder bus services (10 to 15 min. headways)
iii)	Low cost of bus fares (maximum = car fuel equivalent)
iv)	Integrated ticketing to facilitate transfers (smart card technology)
v)	Integrated timetables (bus/bus and bus/rail)
3. Transport Infrastructure	
i)	Public Transport Interchanges (in village centres, Dapto and other district centres)
ii)	Bus priority and bus only links where necessary
iii)	Bus vehicle design (accessible, versatile and comfortable)
iv)	Multi-use bus design for off peak goods delivery
v)	Provision of real time bus information via internet and SMS
4. Social and Community	
i)	Enhanced public perception of public transport
ii)	Public education of true cost of car travel
iii)	Personal safety and security (pedestrian/traffic interface, lighting and urban design)
iv)	Subsidised home delivery of goods (for bus and rail users during off peak periods)
5. Planning and Economic Policy	
i)	Bus service subsidised/cross subsidised at start-up
ii)	Resident “shareholder” participation scheme with patronage dividend incentives
iii)	Financial viability of transit operations including interchange management

- | |
|--|
| iv) Regional parking management policy at rail and Regional/District centres |
|--|

Proposed Transport Services

A balanced and integrated transport system is proposed that makes provision for not only for the private car but goods (and where appropriate, heavy freight) vehicles, public transport services and provision for pedestrians and cyclists. Each of these modes and services are outlined separately below however, the overall system has been developed in an integrated manner to achieve the outcomes previously identified.

Private car use is clearly the most commonly used mode of transport primarily due to its relative convenience and perceived lower cost than available alternatives. Although there is a widespread collective public acceptance of the negative and unsustainable impacts of private car use, individual behaviour and choices appear less influenced by such ideals and accordingly, car use is increasing. Whilst every effort must be made to reduce private car dependence, it is generally understood that the car will continue to dominate the transport system. The road network also must provide for local servicing by heavy vehicles. These needs range from residential garbage collection services to deliveries of building materials and ongoing supply of retail goods to village centres. Therefore, the appropriate amount of road infrastructure and traffic management facilities must be provided at the appropriate point in time. It is envisaged that road and traffic management infrastructure will be provided just “not in time” meaning a lower LOS than publically desired will be permitted before additional road infrastructure will be provided. Conversely, public transport services and infrastructure to support non-motorised transport modes will be provided just “ahead of time” in order to gain early community acceptance and set behavioural patterns from the start of development.

Rail services have significant potential to increase its mode share of travel to and from Dapto however, a number of initiatives will be necessary. These include, service frequency improvements (and possible associated track duplication south of Unanderra), carriage capacity increases to eight car sets and substantial improvements to local bus/rail feeder services. While there is rail patronage increase potential, such growth is primarily driven by the longer distance inter-regional travel demand. Although regional planning aims to increase local service and employment opportunities, trips to these local destinations are better served by other modes such as bus services.

Bus services to and from Dapto, while currently not well utilised, have potential for significant patronage increases. The strategy to achieve such increases is centred on the provision of a high frequency regional trunk and local feeder service as recommended by the State Government’s *Review of Bus Services in New South Wales, February 2004*. (Unsworth Report) The wide range of measures proposed to support a significant increase in bus use (see Table 3 above) are all important actions necessary as part of the integrated transport strategy. Significant new infrastructure such as a high quality bus/bus and bus/rail interchange in Dapto Town Centre, village based transit mini interchanges known as “transit kiosks” together with road intersection bus priority facilities and quality bus shelters will be necessary. A road hierarchy applicable to the proposed development in West Dapto adopts cross sections that permit passage of full sized busses through residential areas and Village Centres. (See Figure 3 for details of minor and major collector road types.) Funding for the purchase of modern buses and their operation is yet to be resolved in consultation with the relevant NSW State Government Agencies. Express bus services utilising main road trunk routes with limited stops will be necessary to link Dapto with major surrounding centres such as Wollongong CBD, Shellharbour Square and Warrawong. These services must be given priority at congested intersections and have opportunity to use Bus Lanes/High Occupancy Vehicle lanes on the M1 Freeway. Such priority is essential to permit overall door to door travel times that match those of the private car. Early planning, funding and implementation of such services is essential.

Walking and cycling trips have the potential to contribute significantly to the achievement of the sought after sustainable transport mode split target. Through the provision of well planned and designed suburban centres with quality pedestrian and cyclist infrastructure, it is envisaged a high proportion of local trips can use these sustainable modes. The community health benefits to be

realised will complement a number of other social benefits such as reduced household transport costs, environmental quality contributions and social cohesion through casual interaction of local residents. The necessary infrastructure and design considerations for pedestrians and cyclists are discussed in more detail in following sections.

4.3.3 Road network requirements

The proposed 'local' road network as detailed in Figure 4.3.3 below is made up of a number of new road links and upgrades to existing roads. The network aims to maximise connectivity within the West Dapto area and to provide access to and from the regional road network. Road network planning assisted by computer traffic modelling results has enabled a hierarchy of proposed road types to be developed. (See Figure 4.3.5 – Road Types 3 and 4.) The major road network proposed for the West Dapto release area consists of two types of road, being major collector and minor collector. Both these road types are suitable for proposed bus routes.

- Under the strategy, the existing West Dapto Road would be bypassed by a major east-west link by extending Northcliffe Drive to connect the future suburbs of Wongawilli, Horsley and Kembla Grange with the Princes Highway and the M1 Freeway. A grade separated rail overpass would replace the existing level crossing west of the Princes Highway on West Dapto Road.
- A second major east-west link would be the extension of Fowlers Road to Fairwater Drive.
- A new north-south link road would be provided from the Darkes Road 'elbow' connecting to Bong Bong Road then further south to Cleveland and Avondale Roads.
- A new north-south link would be provided through the far western section of the development area connecting West Dapto Road with Huntley Road. This link would also connect with a number of prominent east-west links including Bong Bong Road and Cleveland Road.
- South of Bong Bong Road, Fairwater Drive will connect to Cleveland Road via the new north-south Darkes Road to Avondale Road link. Cleveland Road will be closed at the level crossing.
- External to the study area, the F6 M1 Freeway would be upgraded to 3 lanes in each direction. New south facing Freeway ramps would be provided at Kanahooka Road and Emerson Road with upgraded north facing ramps at Fowlers Road. Along the Princes Highway, a new bridge would be provided at the Mullet Creek crossing to provide four lanes of capacity.

Figure 4.3.3 Proposed road network

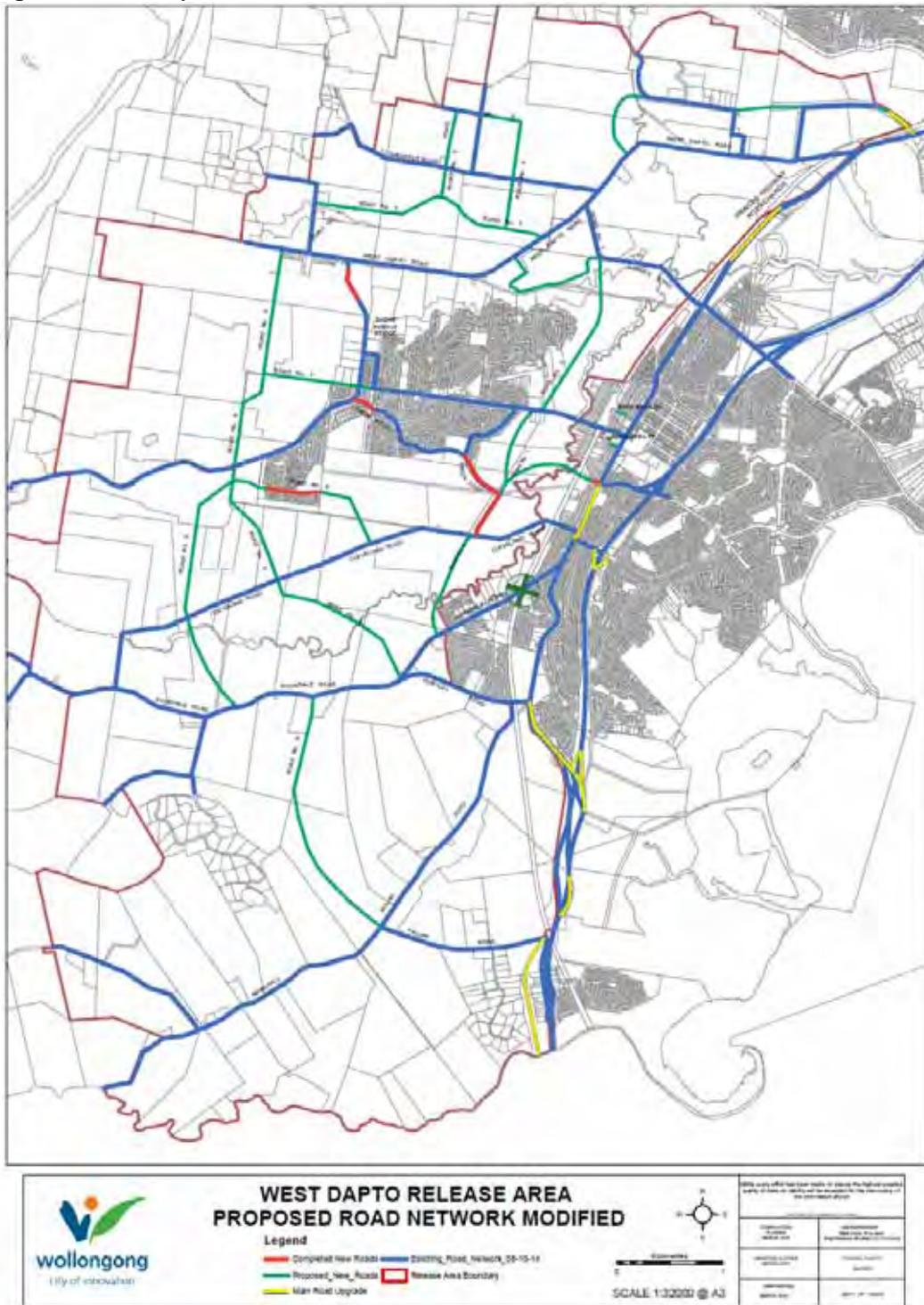
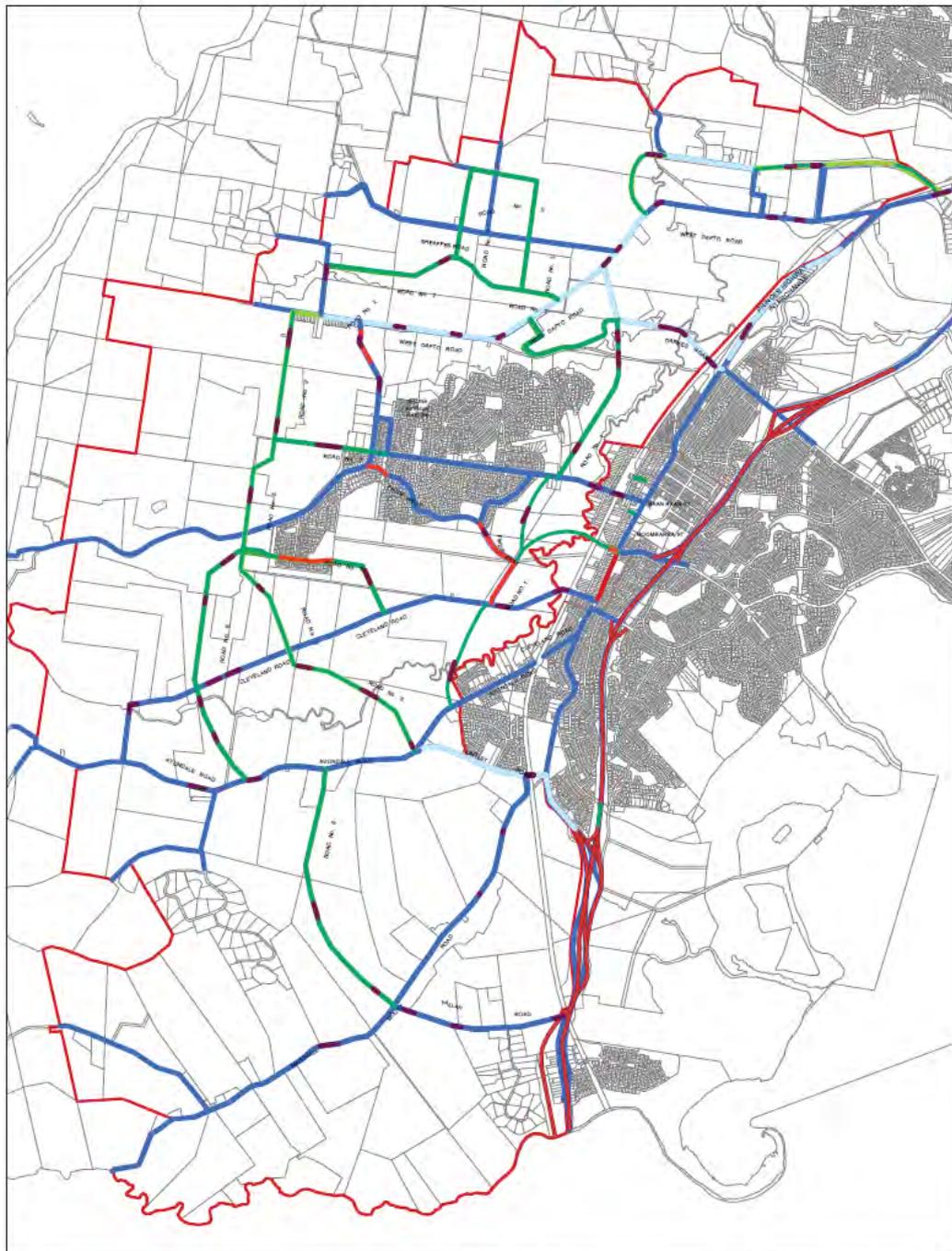


Figure 4.3.4 Proposed Road Types

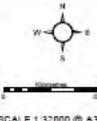




wollongong
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**WEST DAPTO RELEASE AREA
PROPOSED ROAD TYPES**

— W/D_Bridges	— Existing Road - Proposed 4 Lanes
— Completed New Roads	— Existing Road - Proposed 2 Lanes
— Proposed New Roads	— Arterial Road & Infrastructure
— New Road - Proposed 4 Travel Lanes	— Existing Road - Proposed 3 Lanes
— New Road - Proposed 2 Travel Lanes	— W/D/IV without Dapto

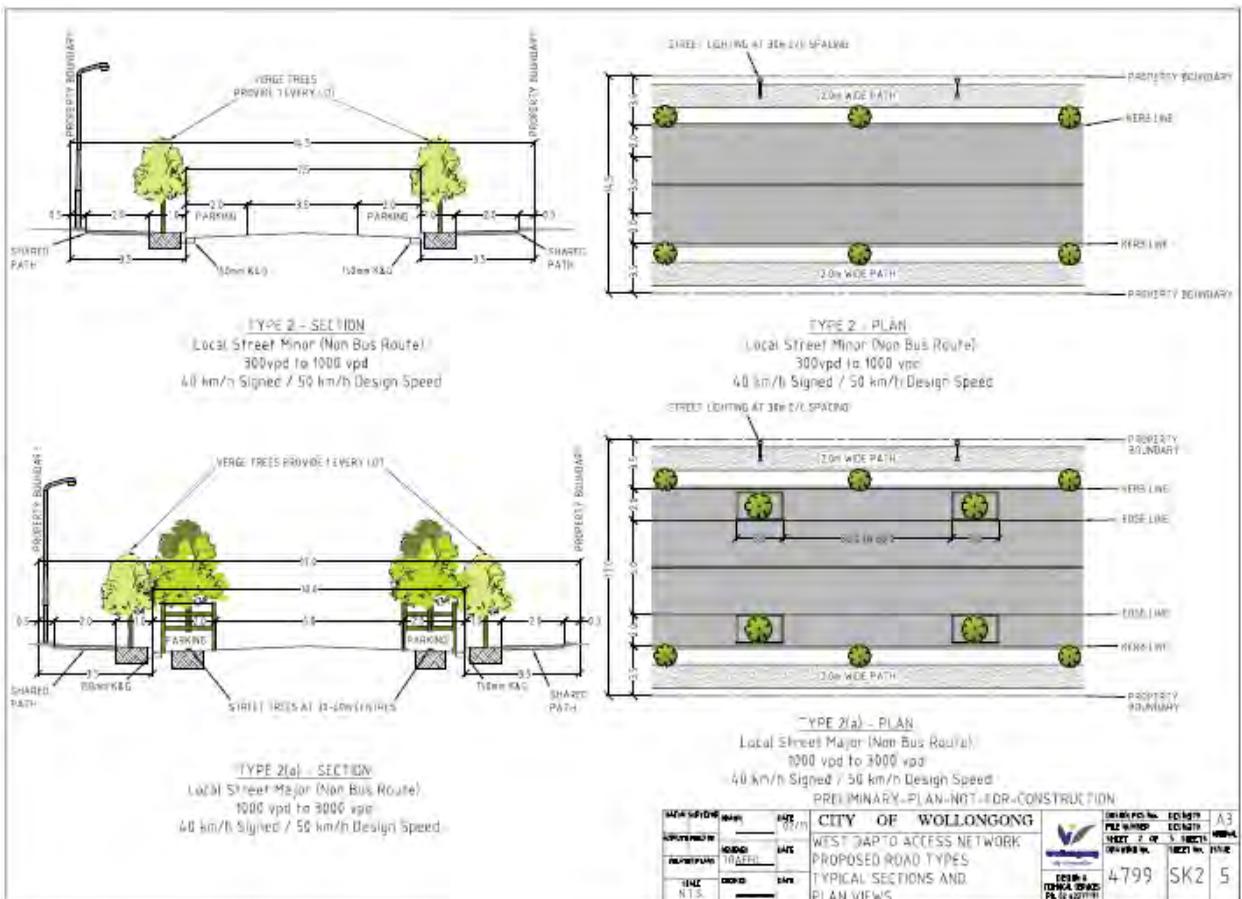


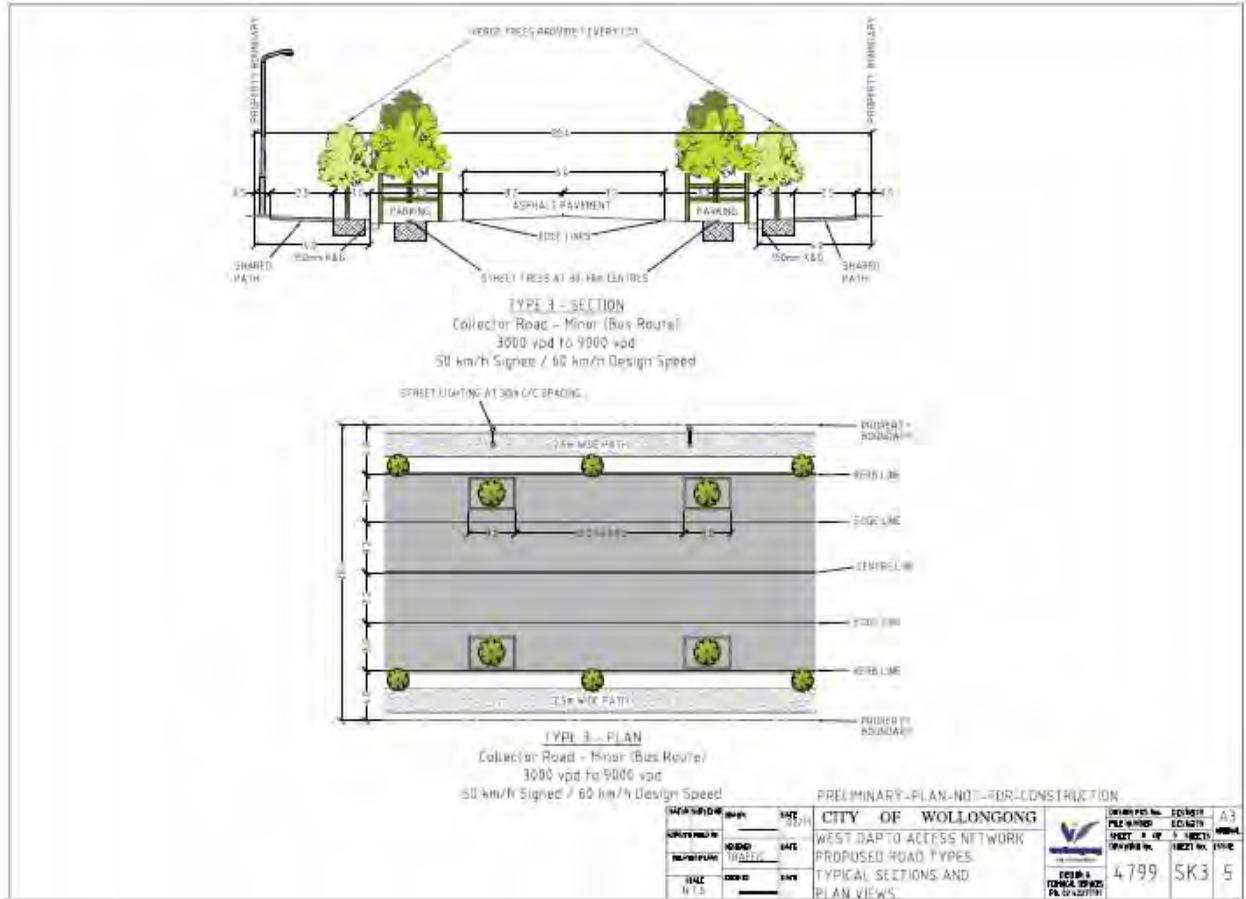
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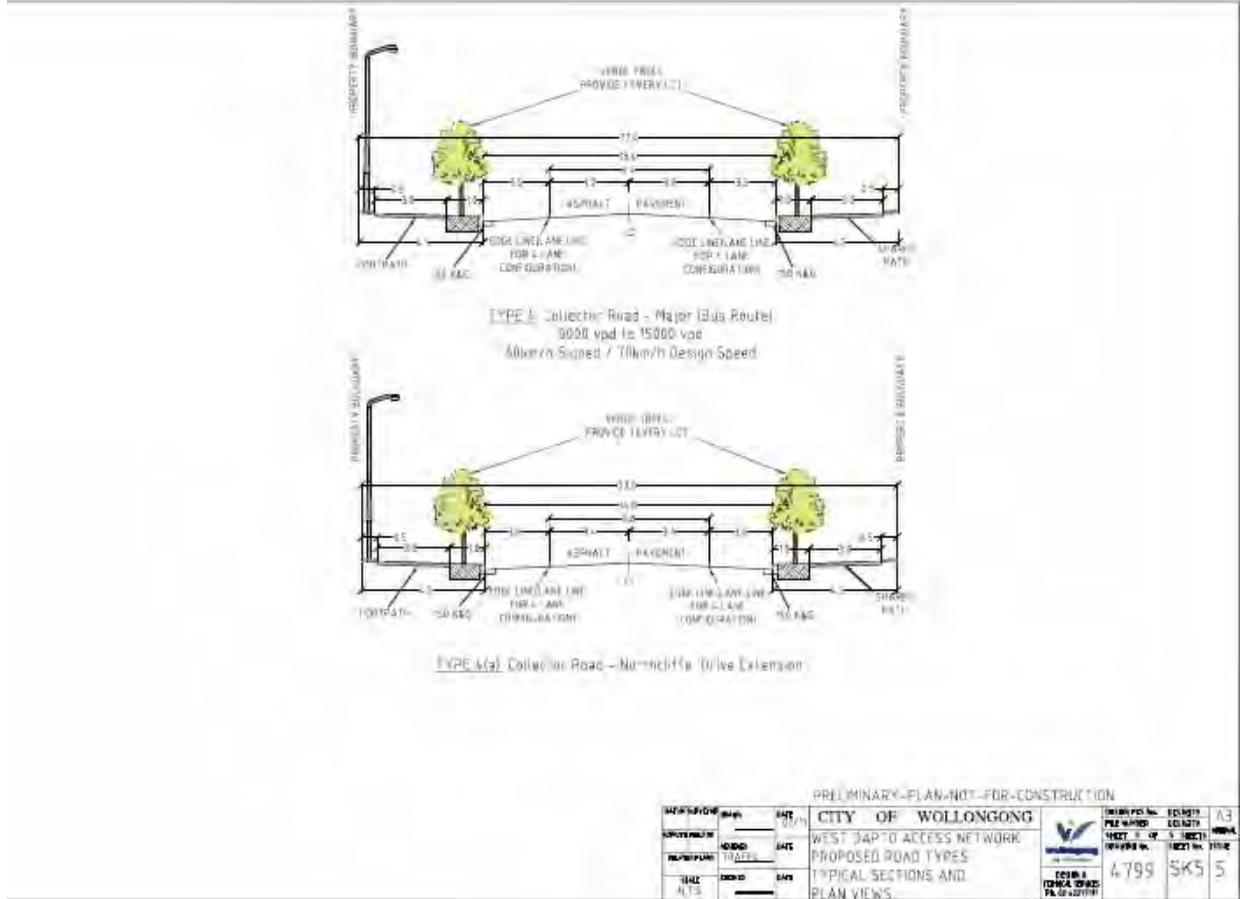
While every effort has been made, to ensure the highest possible quality of data, it should not be considered for the accuracy of the information shown.

CONTRIBUTOR Wollongong City	DATE/REVISION 2015/06/01
APPROVED BY Wollongong City	CREATED BY Wollongong City
DATE/REVISION 2015/06/01	MAP 1 of 1 page

Figure 4.3.5 Proposed Collector Road Type Cross Sections







Council at its meeting of 27 October 2009, endorsed the Initial Access Strategy for West Dapto which overcomes existing legacy issues and enables the existing road network to be upgraded to serve the increased demand as shown in Figure 4.3.6 below.

Figure 4.3.6 Initial access strategy

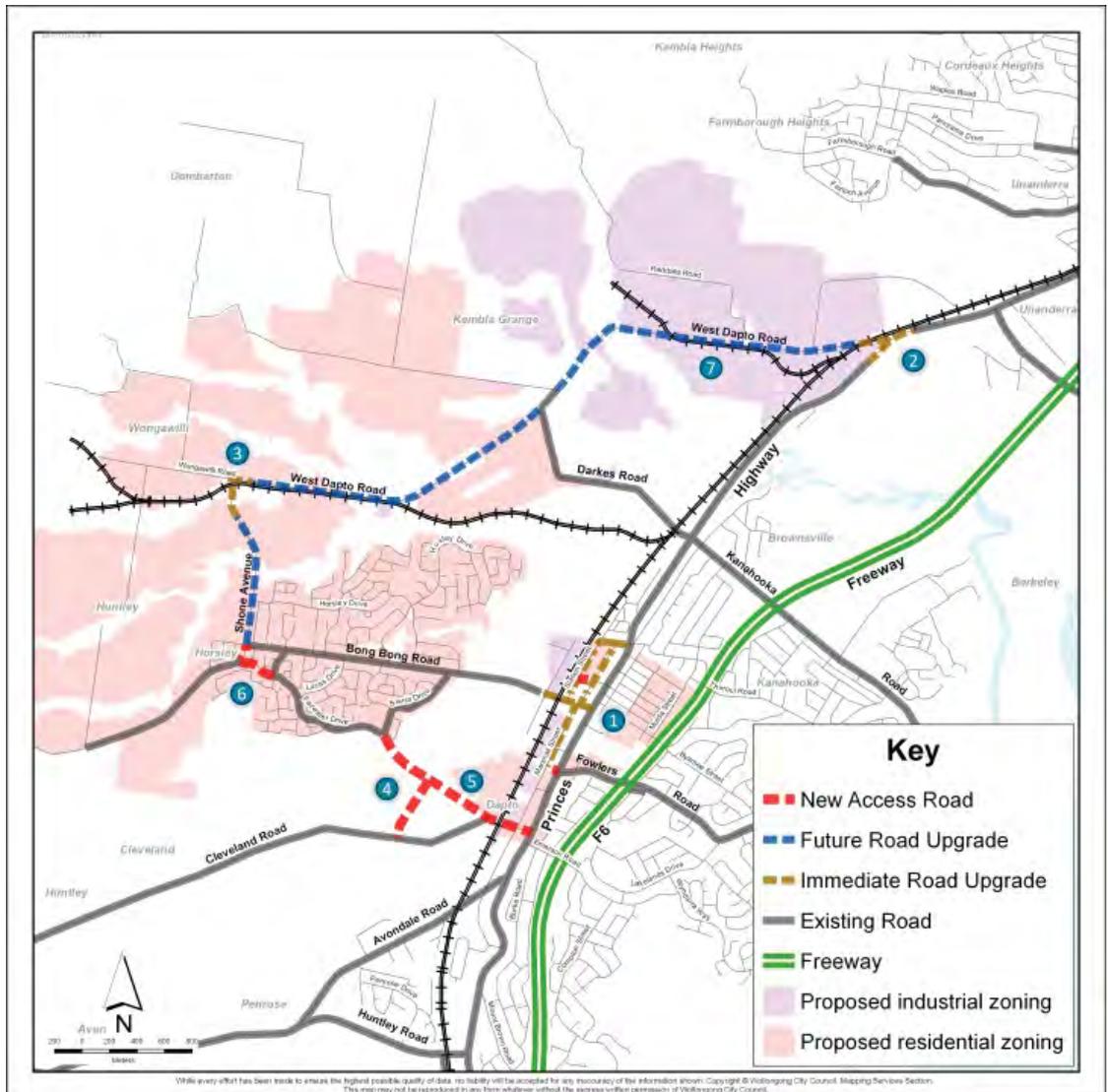


Table 4.3.4 Initial access strategy

Map code	Road Link	Purpose
1a	Bong Bong Road / Princes Highway connections	Improve access along Bong Bong Road across the rail line. Upgrade Bong Bong Road - Station Street intersection. DELAYED
1b	Fowlers Road extension to Marshall Street	The extension of Fowlers Road from the Princes Highway to Marshall Street provides improved distribution of traffic accessing the M1 Freeway and development west of the rail line either by Cleveland Road or through the Dapto Town Centre. A roundabout will be provided at Marshall Street. COMPLETED
2	Princes Highway Interchange with West Dapto Road	Initial access strategy - Rationalise existing traffic movements from West Dapto Road into and out of the Princes Highway with traffic lights. COMPLETED
3	Shone Avenue including bridge works	Upgrade existing road to cater for increased traffic volumes. Bridge works are located to the north end to improve access and safety for the new developments to the west of Horsley. COMPLETED
4	Fairwater Drive East	Provides a connection from the south east end of Horsley to either Cleveland Road or other major east west roads in the north via Road No 1 without travelling through Dapto Town Centre. While Fairwater Drive has been partly constructed by developers of Horsley, it was always envisaged to serve greater West Dapto. COMPLETED
6	Fairwater Drive West	Provides a connection to and from the south west end of Horsley and Bong Bong Village. COMPLETED
7	West Dapto Road reconstruction	To provide interim improvements to facilitate access to adjacent employment lands and early releases of Stages 1 and 2 development prior to closure of the railway level crossing and replacement with the Northcliffe Drive extension.

Following the completion of the Initial Access Strategy, the following key 'local' roads and road related infrastructure required to service the West Dapto Release Area:

Table 4.3.5 Local Road upgrades

Road Link	Purpose
Darkes Road	The upgrade of Darkes Road from the Princes Highway to West Dapto Road as a major collector road provides direct access to the Freeway across the Princes Highway with a bridge over the South Coast rail line.
Cleveland Road	Upgrade of the existing roadway to cater for increased traffic volumes. COMPLETED between railway and Fairwater Drive
Avondale Road	Upgrade of the existing roadway to cater for increased traffic volumes. Level crossing to be closed.
Huntley Road	Upgrade of the existing roadway to cater for increased traffic volumes
Marshall Mount Road	Upgrade of the existing roadway to cater for increased traffic volumes
Yallah Road	Upgrade of the existing roadway to cater for increased traffic volumes

Table 4.3.6 New road requirements

Road Link	Purpose
Princes Highway / Fowlers Rd – Fairwater Drive link	A major collector road connecting Princes Highway / Fowlers Rd intersection with Fairwater Drive, Horsley and with a bridge over the South Coast rail line, Mullet Creek and the Mullet Creek floodplain. Includes provisions for pedestrian / cycleways. BEING DESIGNED
Northcliffe Drive extension	A major collector road to provide a heavy vehicle and volume high traffic linkage from the Princes Highway and M1 Freeway to the northern employment areas and to the northern and western residential areas with a bridge over the South Coast rail line. Construct a grade separated interchange connecting West Dapto Road to Northcliffe Drive via Wylie Road. This will remove the level crossing. This project is not included in the Section 94 plan and will require funding from the Government funding.
Road No 1	A new roadway linking Darkes Road to Avondale Road. Consists of 3 sections: <ul style="list-style-type: none"> • Darkes Road to Bong Bong Road • Bong Bong Road to Cleveland Road – with two subsections, north and south of Fairwater Drive (east) • Cleveland Road to Avondale Road This new linkage allows traffic exiting Horsley to travel north and access the Princes Highway to the Freeway without travelling through the centre of Dapto.
Road No 2	A major north-south collector road that serves the wider western area of the development by providing access from Bong Bong Village and surrounding residential areas and linking to West Dapto Road, Darkes Road or Northcliffe Drive extension.
Road No 3	A minor collector road that provides access from local areas onto the major collector road network and Darkes Road Village.
Road No 4	A minor collector road that provides access from local areas to the major collector road network just north of Darkes Road Village.
Road No 5	A major collector road that serves the southern and western areas of the development by providing links from Stages 3 and 4. It connects Avondale and Huntley Roads in the south to Road No 2 in the north.
Road No 6	A minor collector road that serves the southern and western areas of the development. It connects Avondale Road in the south to Road No.5 in the north at Bong Bong Village then continues south east to connect to Cleveland Road.
Road No 7	This is the extension of Bong Bong Road / Iredale Street west from Shone Avenue to join Road No 2. This link provides access between the new developments, Horsley, Dapto rail station and Dapto Town Centre, which would otherwise be isolated by the surrounding riparian areas.
Road No 8	A new road linking from the intersection of Yallah – Marshall Mount Road to Avondale Road.

The road works proposed are to utilise as far as possible the existing roadways as a matter of financial and practical efficiency. The existing road reserves in many places are sufficient to accommodate a wider carriageway, and the existing carriageways, while not in all cases being structurally adequate, may be successfully overlain where necessary by new pavement without the need for complete reconstruction. The key 'local' roads required to service the West Dapto Release Area are shown in Figure 4.3.3 above.

Footpath/Cycleway requirements

Footpaths and cycleways are an important component of West Dapto and the realisation of a “sustainable” community. A significant emphasis on the design and planning for West Dapto has been the notion of walkable communities which enable sustainable living to occur.

The future strategy for walking and cycling for West Dapto will primarily require solutions at a local level. Walking is typically a preferred travel mode for journeys of up to one kilometre in length while cycling is typically feasible for many journeys of up to 2-5 kilometres on a regular basis. Transit orientated development encourages walking and cycling by locating residential, commercial and retail land uses in close and compatible proximity. To facilitate walking and cycling, it will be necessary to have high quality infrastructure that is well maintained and provides a direct route between key origins and destinations. Personal security is of utmost importance and “safer by design” (CPTED) principles are proposed to be applied.

To address walking infrastructure within the study area, walking routes should follow the road network which should be generally radial for up to one kilometre from each local village or neighbourhood centre. For cycling, the future study area urban form should make provision for either on-road or off-road cycleways as appropriate, giving consideration to the road type, traffic volumes and the local environment, either natural or built. Included in the design of the collector roads are 38km of cycleways. Additionally, 20km of share cycleways/pedestrian paths are proposed around the edge of the urban area in Stage 1/2 and 17km in stages 3 and 4. Additional cycleways will be considered in the redesign of the Yallah-Marshall Mount precinct.

Paved footpaths and or shared paths will be required to be provided adjacent to all future Type 2, 3 and 4 roads to be constructed within West Dapto. (See Figure 6 above) The base year travel data show that 26% of trips within Dapto were walking trips and 0.6% of trips were on cycleways. Future forecasts for walking and cycling indicate over 41,000 walk trips and 1,000 cycle trips per day for the urban release area at current trip rates and mode split. It should be anticipated that with transit orientated development and high quality infrastructure the number of walk and cycle trips should rise considerably.

Shared off-road cycle and footpaths should be a minimum of 2.5 metres in width. Shared paths adjacent to collector roads will be provided in accordance with the dimensions shown in Figure 4.3.5.

The location of the off road shared path network generally following the edges of the residential area is shown in Figure 4.3.8 and will be further refined as more detailed Precinct Plans are submitted by land developers. These off road shared paths of 2.5 metres in width, total a distance of 20km in Stages 1 and 2, and 20 kilometres in length in stages 3 and 4, and 7km in Yallah Marshall Mount, for a cost of \$13 million. Due to their less direct alignment, they would mainly be used for recreation purposes rather than for commuting. The total West Dapto release area would require some 100 kilometres of shared pathway which has been evenly distributed throughout the urban release area in proportion to the population projections anticipated in the various stages.

4.3.4 Works program

Table 4.3.7 below shows the works program for proposed roads and traffic management facilities required to meet demand expected to be generated by future development across the West Dapto area. This also shows the costs to be funded by section 94 development contributions. Costs shown as being funded by “Council Gap contribution” will be reduced via the allocation of any cost savings achieved in construction or acquisition allowances or via State or federal Grant funding.

Figure 4.3.7 Proposed Intersection treatments

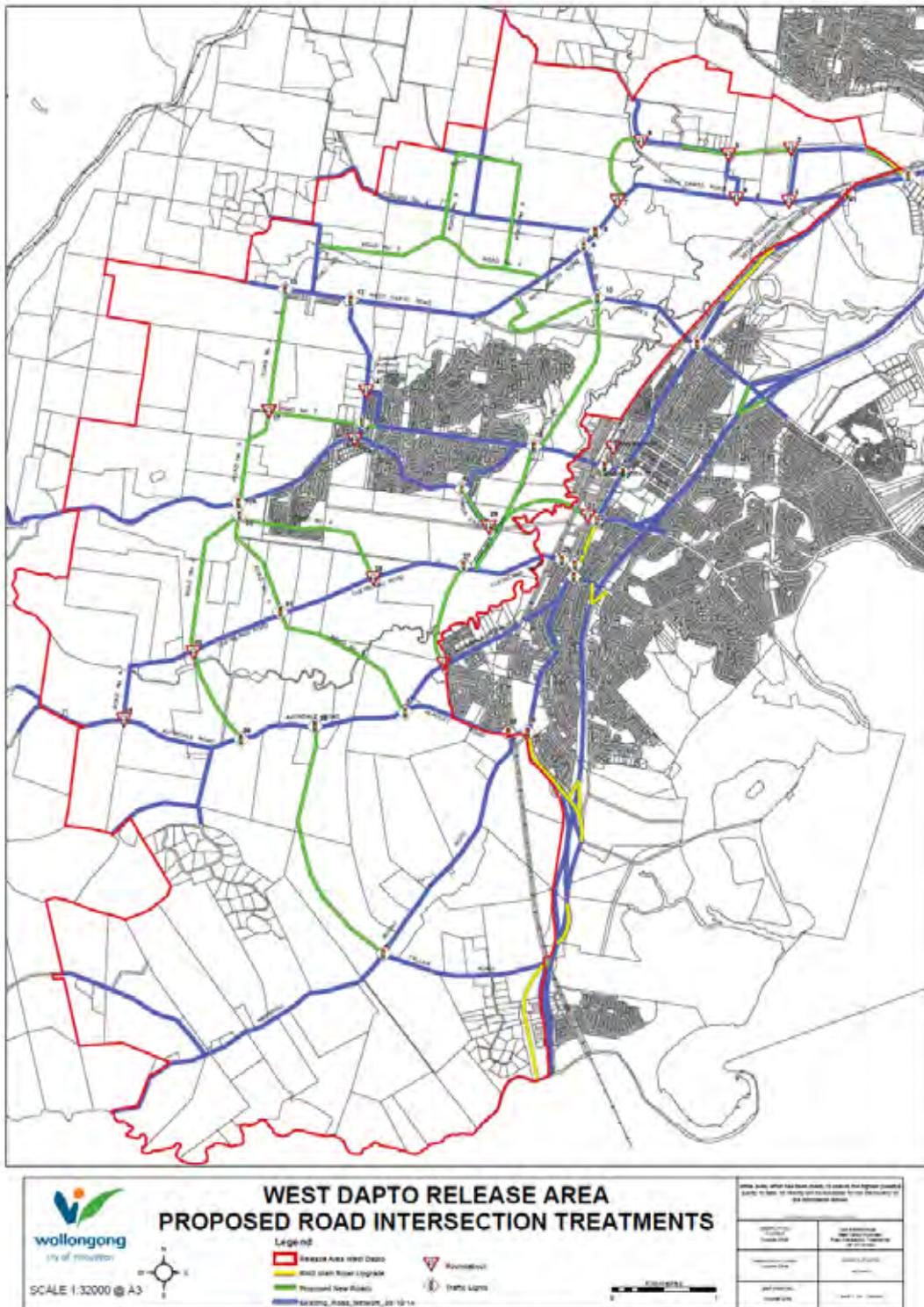


Figure 4.3.8 Proposed Cycleways

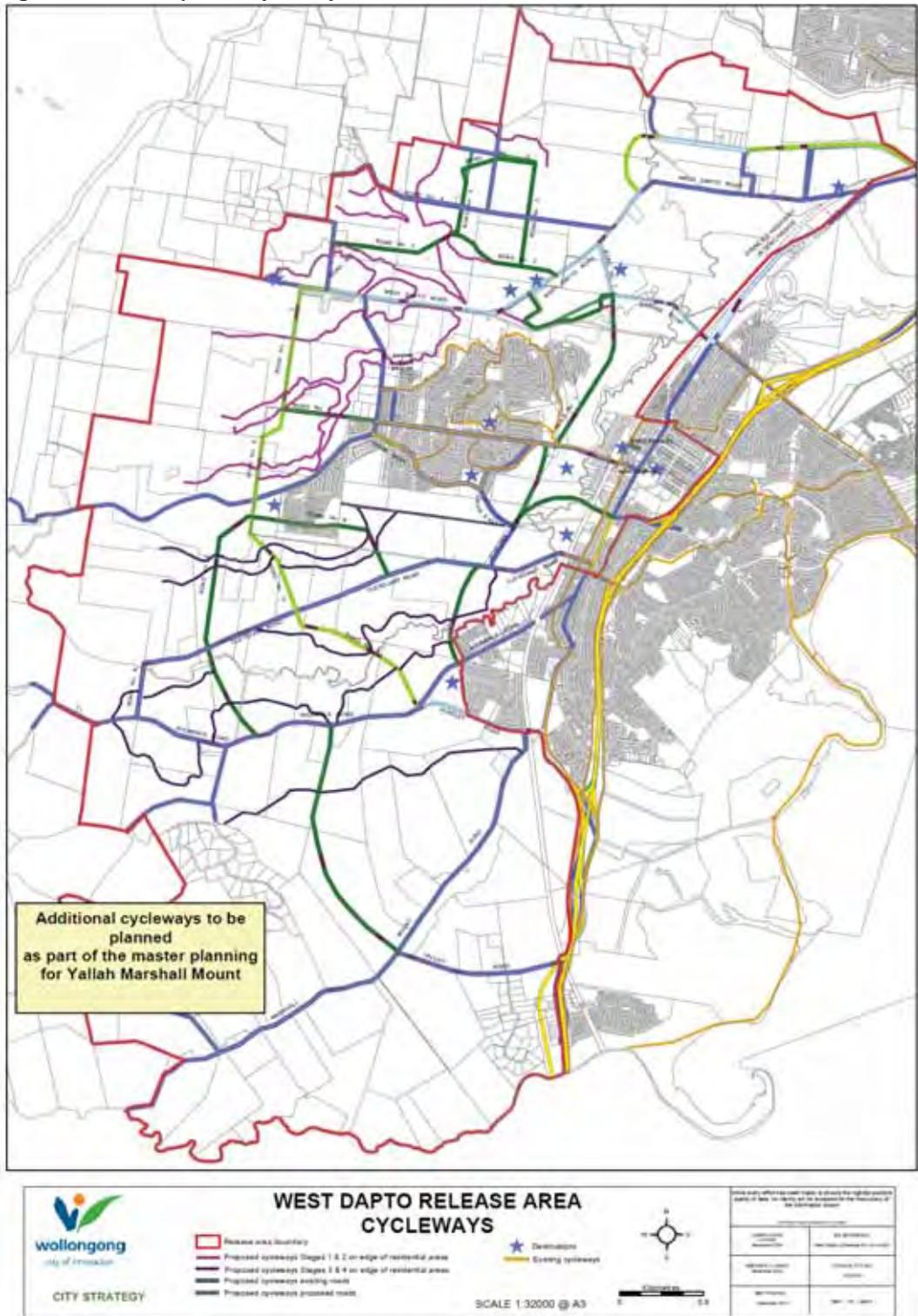


Table 4.3.7 Works program

West Dapto Section 94 - roads																
Summary																
		Length (m)	Acquisition area (ha)	Acquisition cost	Pavement cost	Intersection cost	Water course	Rail level crossing cost	Rail bridge cost	Total	Apportmentment to WD	West Dapto cost	Section 94 Funding contribution	Developer Direct funding	Council / existing development contribution	Council Gap contribution
Completed projects																
Fairwater Drive (West)	2 lanes - new	250.00	0.000	\$ -	\$ 1,936,216	\$ 228,391	\$ -	\$ -	\$ -	\$ 2,164,607	0%	\$ -	\$ -	\$ -	\$ 2,164,607	\$ -
Fairwater Drive (East)	2 lanes - new	477.00	0.954	\$ 695,528	\$ 3,696,784	\$ 1,716,229	\$ 4,432,381	\$ -	\$ -	\$ 10,540,921	91%	\$ 9,597,509	\$ 9,017,072	\$ -	\$ 943,412	\$ 580,437
Road 1 - Muller Creek Parkway (Middle south) (FW Dr E to Cleveland)	2 lanes - new	456.00	0.000	actual costs part of Fairwater Drive East	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	91%	\$ -	\$ -	\$ -	\$ -	\$ -
Fowlers Rd extension (Princess Hwy to Marshall St)	2 lanes - new	85.00	0.000	\$ -	\$ 269,812	\$ 1,048,019	\$ -	\$ -	\$ -	\$ 1,447,831	100%	\$ 264,434	\$ 248,441	\$ -	\$ 1,183,397	\$ 15,982
Cleveland Rd (railway to Road 1)	2 lanes - upgrade	648.00	0.09	\$ 49,696	\$ 1,167,849	\$ -	\$ 5,542,232	\$ -	\$ -	\$ 6,759,776	100%	\$ 6,759,776	\$ 6,350,969	\$ -	\$ -	\$ 408,817
Princess Highway / West Dapto Rd intersection	2 lanes - upgrade	87.00	0.000	\$ -	\$ 1,199,202	\$ 2,220,092	\$ -	\$ -	\$ -	\$ 3,419,294	94%	\$ 3,220,596	\$ 3,025,821	\$ -	\$ 198,698	\$ 194,775
Shone Avenue north (West Dapto Road to Horsley Dr)	2 lanes - upgrade	727.80	1.125	\$ 409,268	\$ 2,688,218	\$ 436,307	\$ 9,718,813	\$ -	\$ -	\$ 13,252,606	91%	\$ 12,066,498	\$ 11,336,741	\$ -	\$ 1,186,108	\$ 729,757
Sub-total		2,730.80	3.07	\$ 1,154,492	\$ 11,088,080	\$ 5,649,037	\$ 19,693,426	\$ -	\$ -	\$ 37,585,036		\$ 31,908,612	\$ 29,979,033	\$ -	\$ 5,676,223	\$ 1,929,779
Existing local roads																
West Dapto Rd	2 lanes / 4 lanes	12,236.16	0.762	\$ 195,267	\$ 26,721,408	\$ 1,973,149	\$ 69,630,839	\$ -	\$ -	\$ 98,520,663	91%	\$ 89,703,064	\$ 65,943,457	\$ 16,618,265	\$ 8,817,599	\$ 7,141,342
Alpacawalla Rd	2 lanes / 4 lanes	622.06	0.914	\$ 2,864,107	\$ 29,297,877	\$ -	\$ -	\$ -	\$ -	\$ 32,161,983	91%	\$ 29,283,486	\$ 27,512,481	\$ -	\$ 2,878,496	\$ 1,771,005
Darkes Rd level crossing	upgrade level crossing	136.00	0.000	\$ -	\$ 458,720	\$ 833,896	\$ -	\$ -	\$ 27,539,487	\$ 28,832,102	100%	\$ 28,832,102	\$ 27,086,307	\$ -	\$ -	\$ 1,745,796
Darkes Road	2 lanes	1,683.10	1.431	\$ 223,290	\$ 9,248,564	\$ 833,896	\$ 8,559,273	\$ -	\$ -	\$ 18,865,023	100%	\$ 18,865,023	\$ 14,185,738	\$ 3,418,850	\$ -	\$ 1,260,434
Shone Ave south	2 lanes	491.00	0.00	\$ -	\$ 2,542,115	\$ 725,941	\$ -	\$ -	\$ -	\$ 3,268,056	91%	\$ 2,975,565	\$ 1,807,482	\$ 954,750	\$ 292,491	\$ 213,332
Bong Bong Rd rail crossing	2 lanes	29.00	0.000	\$ -	\$ -	\$ -	\$ -	\$ 2,809,909	\$ 28,399,360	\$ 31,209,269	99%	\$ 30,957,802	\$ 29,085,538	\$ -	\$ 251,467	\$ 1,872,264
Bong Bong Rd (East) (Horsley to Dapto)	2 lanes	736.00	0.000	\$ -	\$ 3,810,594	\$ 1,146,524	\$ 10,271,127	\$ -	\$ -	\$ 15,228,235	100%	\$ 15,176,938	\$ 14,259,069	\$ -	\$ 51,307	\$ 917,869
Bong Bong Rd (west)	2 lanes	1,996.00	0.544	\$ 299,630	\$ 10,334,137	\$ 573,262	\$ -	\$ -	\$ -	\$ 11,207,029	100%	\$ 11,207,029	\$ 1,595,492	\$ 8,632,000	\$ -	\$ 979,537
Avondale Rd	2 lanes	3,386.00	0.660	\$ 363,521	\$ 17,530,756	\$ 152,679	\$ 2,646,435	\$ 51,774	\$ -	\$ 20,745,165	100%	\$ 20,745,165	\$ 2,535,027	\$ 16,382,800	\$ -	\$ 1,827,338
Cleveland Rd (east of railway)	2 lanes	120.00	0.000	\$ -	\$ 621,291	\$ 1,407,158	\$ -	\$ -	\$ -	\$ 2,028,448	67%	\$ 1,355,851	\$ 1,273,852	\$ -	\$ 51,307	\$ 703,290
Cleveland Rd (west of Road 1)	2 lanes	4,060.00	2.74	\$ 1,491,076	\$ 20,854,662	\$ -	\$ 4,478,562	\$ -	\$ -	\$ 26,824,320	100%	\$ 26,824,320	\$ 6,967,636	\$ 17,618,300	\$ -	\$ 2,238,184
Horsley Road	4 lanes	1,114.00	0.446	\$ 745,432	\$ 5,503,946	\$ 1,407,158	\$ -	\$ -	\$ 3,063,578	\$ 11,210,113	100%	\$ 11,210,113	\$ 10,532,149	\$ -	\$ 477,964	\$ -
Yallah Road	2 lanes	1,923.00	0.658	\$ 362,420	\$ 9,956,196	\$ -	\$ 1,832,147	\$ -	\$ -	\$ 12,150,762	100%	\$ 12,150,762	\$ 7,101,262	\$ 4,168,000	\$ -	\$ 890,500
Marshall Mount Road	2 lanes	5,610.40	0.890	\$ 490,171	\$ 29,047,417	\$ 1,146,524	\$ 6,356,995	\$ -	\$ -	\$ 37,041,107	100%	\$ 37,041,107	\$ 10,267,345	\$ 23,704,911	\$ -	\$ 3,068,851
Sub-total		34,133.72	9.04	\$ 6,534,913	\$ 166,927,662	\$ 10,200,185	\$ 103,775,397	\$ 2,861,683	\$ 58,992,445	\$ 349,292,286		\$ 336,328,307	\$ 220,155,114	\$ 91,498,776	\$ 12,342,689	\$ 25,295,707
New local roads																
Northville Dr - Redhills Rd - West Dapto Rd extension	4 lanes	12,748.25	2.475	\$ 1,022,667	\$ 18,351,480	\$ 2,112,609	\$ 31,088,776	\$ -	\$ -	\$ 52,575,513	100%	\$ 52,546,901	\$ 34,396,931	\$ 13,025,575	\$ 28,611	\$ 5,124,385
Bain Basin St extension	2 lanes	87.60	0.094	\$ 51,938	\$ 453,542	\$ 262,837	\$ -	\$ -	\$ -	\$ 768,319	0%	\$ -	\$ -	\$ -	\$ 768,319	\$ -
Princess Highway to Fairwater Drive link	4 lanes			\$ 2,000,000	\$ 13,500,000	\$ 8,000,000	\$ -	\$ -	\$ 30,000,000	\$ 93,500,000	90%	\$ 84,150,000	\$ 79,060,782	\$ -	\$ 9,350,000	\$ 5,089,218
Road 1 - Muller Creek Parkway (north) (Bong Bong to Darkes)	2 lanes	1,527.00	3.054	\$ 1,690,901	\$ 7,905,926	\$ 573,262	\$ 8,636,383	\$ -	\$ 2,270,135	\$ 20,976,607	100%	\$ 20,976,607	\$ 19,707,985	\$ -	\$ -	\$ 1,268,622
Road 1 - Muller Creek Parkway (Middle north) (FW Dr E to Bong Bong)	2 lanes	728.00	1.456	\$ 447,241	\$ 3,769,164	\$ 152,679	\$ 3,701,307	\$ -	\$ -	\$ 8,070,392	100%	\$ 8,070,392	\$ 7,582,311	\$ -	\$ -	\$ 488,081
Road 1 - Muller Creek Parkway (South) (Cleveland to Avondale)	2 lanes	1,060.00	2.120	\$ 93,414	\$ 4,659,651	\$ 152,679	\$ 9,970,152	\$ -	\$ -	\$ 14,775,896	100%	\$ 14,775,896	\$ 9,286,473	\$ 4,440,600	\$ -	\$ 1,048,653
Road 2	2 lanes - Bridges only funded by S94	193.00	0.366	\$ 17,008	\$ -	\$ -	\$ 11,905,871	\$ -	\$ -	\$ 11,922,879	100%	\$ 11,922,879	\$ 11,201,809	\$ -	\$ -	\$ 721,071
Road 3	2 lanes			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -						
Road 4	4 lanes	4,895.60	8.287	\$ 4,373,805	\$ 27,840,867	\$ 2,300,098	\$ 27,135,207	\$ -	\$ -	\$ 61,649,968	100%	\$ 61,649,968	\$ 57,921,506	\$ -	\$ -	\$ 3,728,462
Road 5	2 lanes - Bridges only funded by S94	0.00	0.000	\$ -	\$ -	\$ 878,620	\$ 11,103,921	\$ -	\$ -	\$ 11,982,541	100%	\$ 11,982,541	\$ 10,432,379	\$ 797,600	\$ -	\$ 752,562
Road 7	2 lanes - Part S94 funded	329.90	0.269	\$ 46,645	\$ 1,185,423	\$ -	\$ 6,168,945	\$ -	\$ -	\$ 7,401,913	99%	\$ 7,327,930	\$ 6,687,257	\$ 190,625	\$ 72,983	\$ 449,849
Road 8 - Yallah to Avondale	2 lanes	2,573.00	5.146	\$ 2,605,324	\$ 12,151,413	\$ 573,262	\$ 6,970,795	\$ -	\$ -	\$ 22,300,794	100%	\$ 22,300,794	\$ 20,952,088	\$ -	\$ -	\$ 1,348,706
Sub-total		24,141.41	23.29	\$ 12,248,945	\$ 89,817,467	\$ 15,006,046	\$ 156,581,258	\$ -	\$ 32,270,135	\$ 305,923,851		\$ 295,703,939	\$ 257,229,521	\$ 18,454,600	\$ 10,219,913	\$ 20,019,818
Total - local roads		61,005.93	35.40	\$ 19,938,350	\$ 267,833,210	\$ 30,855,268	\$ 290,050,081	\$ 2,861,683	\$ 91,262,580	\$ 692,801,173		\$ 663,941,058	\$ 507,363,669	\$ 109,953,376	\$ 28,238,825	\$ 47,245,303
Regional roads - Infrastructure not included in S94 Plan																
Princess Highway	Widening, bridges & intersections	3,058.50	0.141	\$ 77,606	\$ 16,543,025	\$ 833,896	\$ 25,677,818	\$ -	\$ -	\$ 43,132,345	0%	\$ -	\$ -	\$ -	\$ -	\$ -
Northville Rd - Redhills Rd - West Dapto Rd extension	Bridge over railway			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 66,094,769	0%	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total		3,058.50	0.14	\$ 77,606	\$ 16,543,025	\$ 833,896	\$ 25,677,818	\$ -	\$ -	\$ 66,094,769		\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL		64,064.43	35.54	\$ 20,015,956	\$ 284,376,235	\$ 31,689,164	\$ 305,727,899	\$ 2,861,683	\$ 157,357,349	\$ 802,028,287		\$ 663,941,058	\$ 507,363,669	\$ 109,953,376	\$ 28,238,825	\$ 47,245,303

NB: Works Program total cost include portions to be delivered by industry directly via conditions of development consent

4.3.5 Transport infrastructure cost and apportionment

Methodology

The provision of the road and transport infrastructure identified for the West Dapto release area is considered essential in order to allow the proposed development to occur and will primarily benefit that development. West Dapto as planned could not function adequately without such upgrades and are planned to allow for a functioning transport system with sufficient access to services in an efficient but sustainable manner. As such, where any planned works and services are predominantly of benefit to the existing community, the new development will either not be required to contribute to the cost or else, contribute a portion only.

Development and Infrastructure Nexus

The nexus between the proposed infrastructure and the proposed development has been clearly demonstrated through the planning process and quantified by computer transport modelling. With few exceptions, the existing transport infrastructure is deemed adequate for the needs of the existing community only. Clearly, the proposed development requires a significant investment in transport infrastructure. The works necessary and associated costs are set out in a previous section.

This Section 94 Plan determines a contribution for transport infrastructure that includes:

- New collector roads
- Upgrading existing collector roads
- Provision of road bridges
- Provision of bus related infrastructure
- Off road shared paths

Apportionment of Cost

While Figure 4.3.3 shows the proposed framework of higher order roads that are required to service West Dapto, Figure 4.3.9 below indicates those roads that will be partially or totally funded through the application of a Section 94 contribution. It is these roads that form the basis of the Works Program set out in Table 4.3.7. The total cost for the necessary roads, bridges and other identified transport infrastructure is to be apportioned across all new development.

Developers would be required to construct all other necessary roads including all local roads to service future allotments. The need for the provision of higher order collector roads and necessary road width results in the need for land acquisition.

Figure 4.3.9 and the Works Programs identify the portion of the selected roads that are classed as "Difficult Roads" which are required to be constructed to achieve overall road network objectives but will have little to no new adjoining development land to fund construction directly.

Figure 4.3.9 also identifies the main link for emergency access during flood events. Figure 4.3.10 indicates the current envisage flood access network.

Section 94 levies will fund the following necessary road & transport infrastructure groups:

1. Public transport
2. Difficult Roads
3. Flood Access main link
4. Where a necessary higher order collector road is designated as 4 lanes, but not classed as part of "Difficult Roads", the cost difference between a 2 lane major collector road and the 4 lane collector road.
5. Bridges on all roads identified in Figure 4.3.9

Figure 4.3.9 Proposed roads to be funded through Section 94

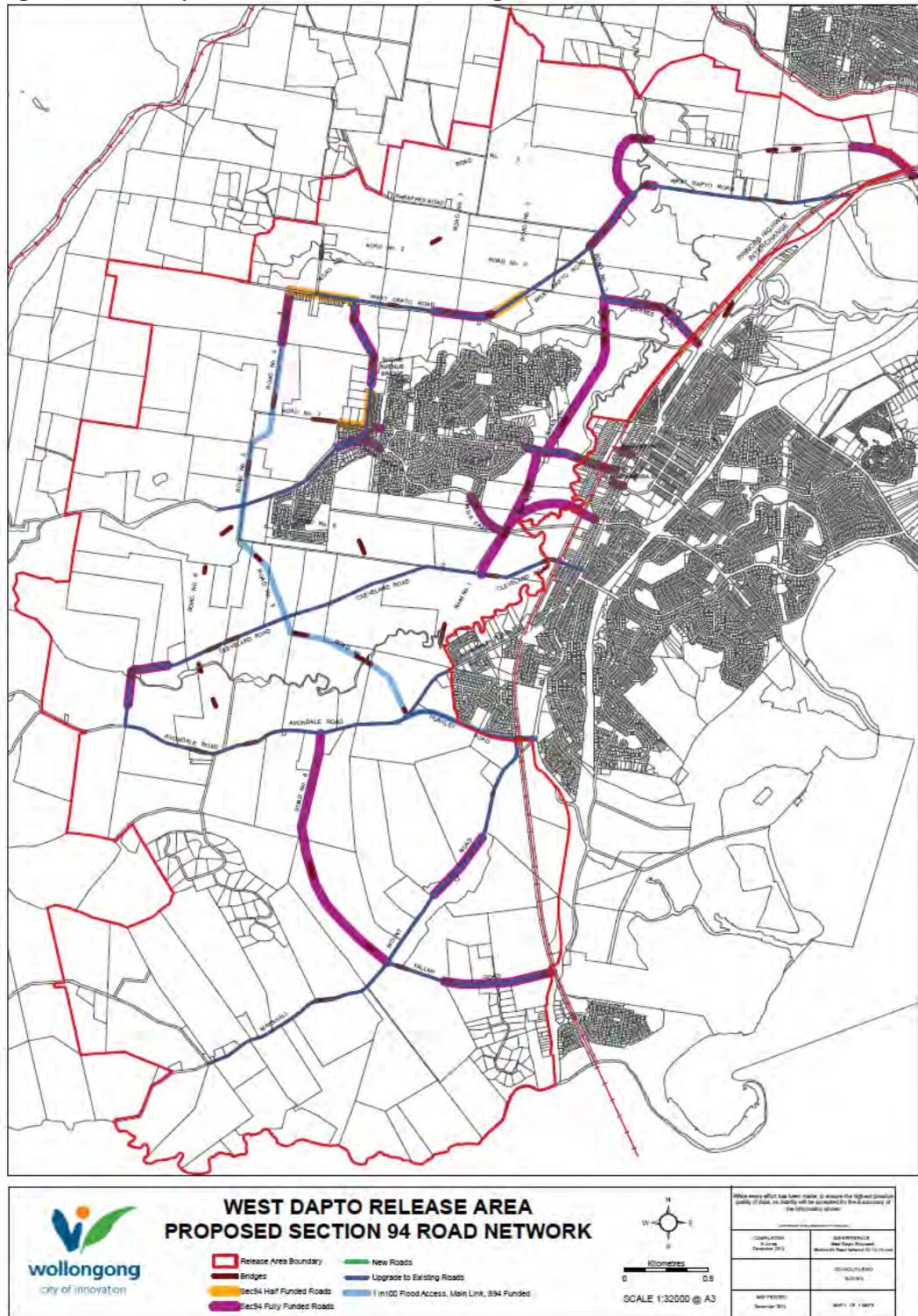


Figure 4.3.10 Proposed Flood access network

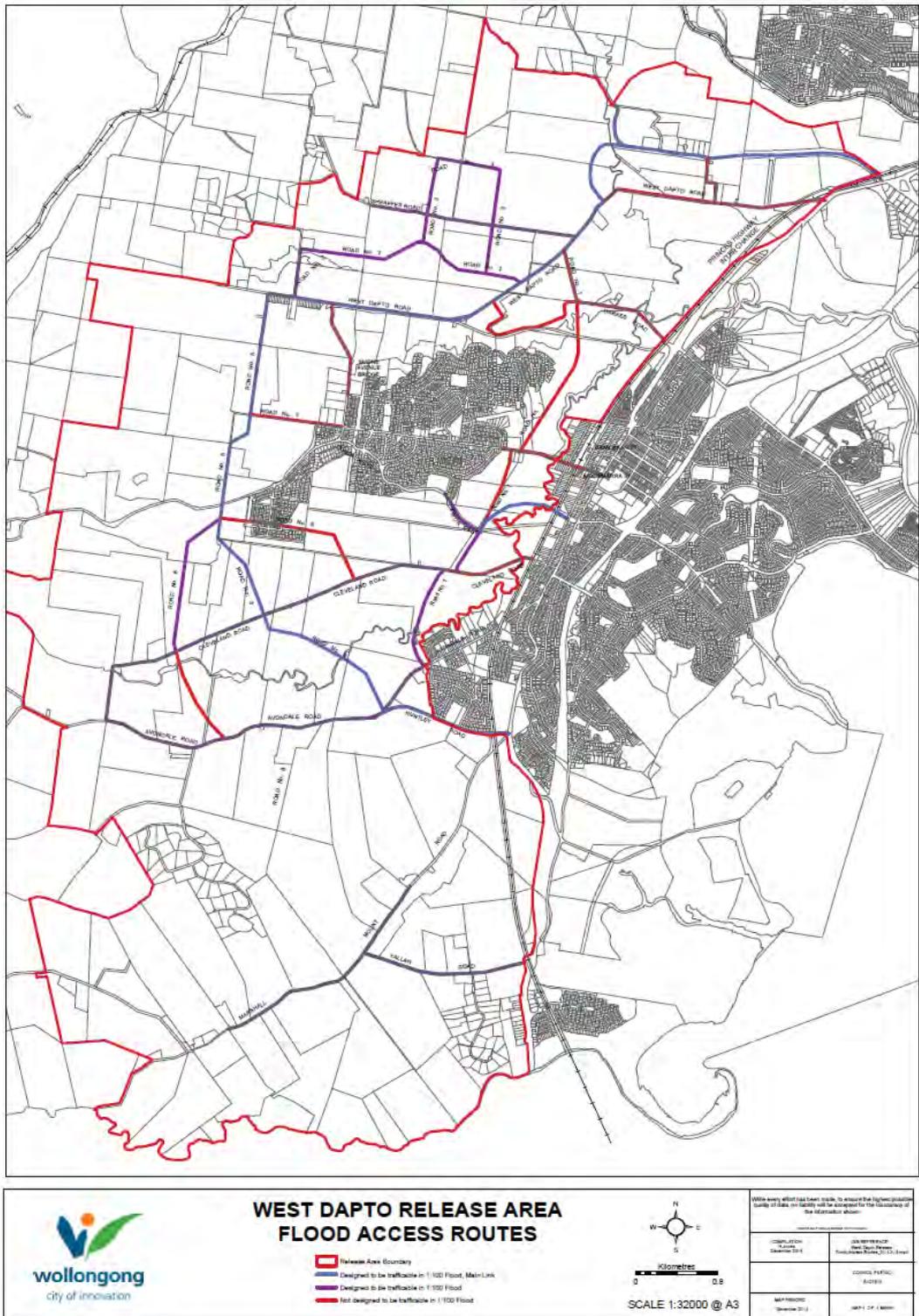


Table 4.3.8 Bus shelters

Road No &/or name	Link Description	Link Length (m)	No. Shelters	Stage
Northcliffe Dr extension	Lawn Cemetery to Railway Line	350	2	1
Northcliffe Dr extension	Lawn Cemetery Entrance to Wylie Rd	680	3	1
Northcliffe Dr extension	Wylie Rd to Reddalls Rd	690	3	1
Reddalls Rd	Northcliffe Dr extension to West Dapto Rd	530	3	1
West Dapto Rd	Reddalls Rd to Northcliffe Dr extension	1190	6	1
West Dapto Rd	east of Catholic Cemetery to Road No.2	1100	6	1
Road No.2	West Dapto Rd to Road No.3	340	2	1
Road No.3	Road No.2 (east) to Road No.2 (west)	2450	12	1
Road No.2	Road No.3 to West Dapto Rd	1470	7	1
West Dapto Rd	rail line to Jersey Farm Rd	1880	9	1
Darques Rd west extension	West Dapto Rd to Road No.1	1200	6	1
Road No.1	Darques Rd to Bong Bong Rd	1600	8	3
Road No.1	Bong Bong Rd to Fairwater Dr	860	4	3
Road No.1	Fairwater Dr to Cleveland Rd	450	2	3
Road No.1	Cleveland Rd to Avondale Rd	1020	5	3
Fairwater Dr (east)	Sierra Dr to Road No.1	390	2	1
Fairwater Dr (west)	Highcroft Bvde to Bong Bong Rd	275	1	1
Shone Ave	West Dapto Rd to Horsley Dr	950	5	1
Road No.2	West Dapto Rd to Road No.7	2750	14	1
Road No.5	Road No.7 to Bong Bong Rd	970	5	3
Road No.5 loop around Bong Bong TC	Bong Bong Rd to Road No.6	1000	5	3
Road No.6	Road No.5 to Bong Bong (sth) extn	900	5	3
Bong Bong (sth) extn	Bong Bong Rd to Road No.6	800	4	3
Bong Bong Rd	Sierra Dr to Marshall St	970	5	1
Cleveland Rd	Marshall St to Road No.1	990	5	3
Cleveland Rd	Road No.1 to Road No.6	920	5	3
Cleveland Rd	Road No.6 to Road No.5	950	5	3
Road No.5	Road No.6 to Cleveland Rd	890	4	3
Road No.6	Road No.5 to Cleveland Rd	1370	7	3
Cleveland Rd	Road No.6 (west) to Road No.8	650	3	3
Road No.8 (Cleveland Rd)	Cleveland Rd to Avondale Rd	530	3	4
Avondale Rd	Road No.6 to Road No.8	1500	8	4
Avondale Rd	Road No.9 to Road No.6	800	4	4
Avondale Rd	Huntley Rd to Road No.9	860	4	4
Huntley Rd	Avondale Rd to Princes Hwy	1250	6	4
Road No.9	Marshall Mt Rd to Avondale Rd	2375	12	YMM
Marshall Mt Rd	Yallah Rd to Huntley Rd	2520	13	YMM
Marshall Mt Rd	Yallah Rd to WCC Boundary	2370	12	YMM
	<i>Totals</i>	42790	214	
	Total shelters required		214.00	
	Cost per shelter		\$30,000	
	Total cost of shelters		\$6,420,000	

Bus Transport Kiosks (larger bus stops)			
Road No &/or name	Link Description	No. Kiosks	Stage
Road No.2	Road No.3 to West Dapto Rd - Darques Town Centre	1	1
Road No.2 & West Dapto Rd	Intersection at Wongawilli	1	1
Road No.5	Bong Bong Rd to Road No.6 - Bong Bong Town Centre	1	1
Road No.1 & Bong Bong Rd	Intersection at east Horsley	1	3
Road No.1 & Cleveland Rd	Intersection at Purrungully Village	1	3
Road No.9 & Avondale Rd	Intersection at Moorland Village	1	4
Marshall Mount Rd	Marshall Mount Village	1	YMM
	<i>Total</i>	7	
	Total kiosks required	7	
	Cost per shelter	\$150,000	
	Total cost of kiosks	\$1,050,000	

Total cost for bus shelter/transport kiosk infrastructure (Bus Stops & Kiosks) **\$7,470,000**
(funding via S-94 contributions)

Dapto Station Multi-Modal Transit Interchange	
Road No &/or name	Description
Bong Bong Rd & Station St etc	Dapto Railway Station Multi-Modal Transit Interchange
Allow for rail, bus, taxi, bicycle, pedestrian, kiss & ride, coach facility	
Attribute 60% use to future West Dapto development (based on population)	
	\$5,000,000
	\$3,000,000

\$2,000,000 Council contribution
(funding via S-94 contributions)

TOTAL PUBLIC TRANSPORT INFRASTRUCTURE COST TO S-94 **\$10,470,000**

West Dapto - Bus Shelters (non - S-94 as existing local areas)			
Road No &/or name	Link Description	Link Length (m)	No. Shelters
Princes Hwy	Northcliffe Dr to Darkes Rd	2850	14
Princes Hwy	Darkes Rd to Cleveland Rd	2450	12
Princes Hwy	Cleveland Rd to Huntley Rd	1750	9
Marshall St	Bong Bong Rd to Cleveland Rd	1000	5
Burke/Laver/Emerson Rds	loop through Mt Brown residential area	2750	14
Penrose Dr/Goolagong St	Avondale Rd to Huntley Rd	930	5
Fairwater Dr	Sierra Dr to Highcroft Bvde	1000	5
Bong Bong/Homestead/Horsley Dr	Road No.1 to Shone Ave	2300	12
<i>Totals</i>		15030	75
Total shelters required			75
Total cost of shelters			\$2,250,000

(WCC to fund)

4.3.6 Contribution rates

Contributions for roads, traffic management and transport facilities will be determined as follows:

Residential

On a per residential dwelling / Lot basis. All developments will make the same contribution (based on dwelling or Lot number) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

Employment Lands

On a net developable land basis. All developments will make the same contribution (based on land area) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

The following contribution rates therefore apply:

Residential Contribution rate (per lot/dwelling):

Zone	Roads	Public transport
R3 Medium Density	\$ 16,081	\$ 1,162
R2 Low Density	\$ 16,081	\$ 1,162
R5 Large Lot Residential	\$ 16,081	\$ 1,162
E4 Environmental Living	\$ 16,081	\$ 1,162
B2 Local Centre	\$ 16,081	\$ 1,162
B1 Neighbourhood Centre	\$ 16,081	\$ 1,162

Employment Lands Contribution rate (per hectare):

Zone	Roads	Public transport
IN3 Heavy Industry	\$ 38,589	\$ 477
IN2 Light Industry	\$ 38,589	\$ 477

4.4 Drainage management

Water cycle management refers to a range of water cycle systems which are an integral component of urban development. It includes the provision of potable water, sewer reticulation and the management of stormwater quality and quantity.

The provision of potable water and sewer reticulation represents a significant component of the water cycle management strategy. Under present institutional arrangements the major capital infrastructure requirements for the provision or procurement of water and sewer falls upon the Sydney Water Corporation.

The remaining aspect of water cycle management relates to the management of stormwater quality and quantity. It is vital that any future development in West Dapto establishes a sustainable balance between current uses, new development and the environment. This will require a range of local measures that will ensure that the quality and quantity of water leaving the site is at least at the level equal to predevelopment levels for a range of storm events.

Typically this is achieved through the provision of a number of measures such as trunk drainage, wet basins, dry basins, water quality facilities, swales, filters and wetlands. These works are mandated by Council as a development standard and requirement. The cost of these facilities is generally borne by developers either as a development standard or through Section 94 levies. It is also common for the facilities to be constructed by the developers at the development stage and the cost of the work offset against required section 94 contributions.

In terms of general water management, the overall master planning approach is to use the 'Treatment Train' (Water Sensitive Urban Design) of detention and water cleansing in order to ensure water quality and flood mitigation once urban runoff reaches the creek systems. The 'Treatment Train' treats water in a progressive way, from source at the house (rainwater tanks, water harvesting) through on-street treatment (BioSwales, Rain Gardens) to riparian edge swales, wetlands and ponds. The street system has been designed to run water down the gentle grades of the contours in a primarily North-South direction.

4.4.1 Existing facilities and current provision level

The existing urban areas of Dapto and Horsley have developed with storm water facilities suitable for the development at that time. Council has also upgraded facilities since to improve the capacity of the system and the quality of the water discharged.

Horsley contains 3 large detention basins that serve the existing development; they are not designed to cater for additional development.

There is no existing contributions plan to provide facilities for storm water within the release area.

4.4.2 Additional facilities required

There is a need for additional and upgraded stormwater and flood management facilities throughout various catchments across the West Dapto area to facilitate and cater for future development. Council has determined that there will be gradual upgrading of the stormwater system within each catchment as development proceeds. The provisions of the DCP allow for the majority of works to be carried out as development proceeds as a condition of consent. The exception is the provision of basin works that are required to remove the potential flooding effect of increased runoff into the systems due to increased impervious area of the development.

Table 4.4.1 Drainage Summary

	Construction costs	Acquisition Area (ha)	Acquisition costs	Total cost	Cost Apportionment to S94 West Dapto (%)	West Dapto cost contribution	Section 94 Funding contribution	Council / existing development contribution	Council - Funding Gap contribution
Watercourse Acquisition	\$ -	\$ 244	\$ 10,751,416	\$ 10,751,416	100%	\$ 10,751,416	\$ 10,751,416	\$ -	\$ -
Detention Basins	\$ 44,976,898	\$ 56	\$ 25,766,736	\$ 70,743,633	100%	\$ 70,743,633	\$ 25,766,736	\$ -	\$ -
Enhanced Storage Areas	\$ 21,480,800	\$ 64.5	\$ 10,657,782	\$ 32,138,581	100%	\$ 32,138,581	\$ 32,138,581	\$ -	\$ -
Trunk drainage	\$ 16,523,692	\$ -	\$ -	\$ 16,523,692	100%	\$ 16,523,692	\$ 16,523,692	\$ -	\$ -
Total	\$ 82,981,390	\$ 365	\$ 47,175,933	\$ 130,157,323		\$ 130,157,323	\$ 85,180,425	\$ -	\$ -

a. Detention basins

To manage the increase in runoff due to increased hard surfaces, Stormwater detention is proposed to be managed within Neighbourhood planning precincts as defined in Wollongong Development Control Plan 2009 – Draft Chapter D16: West Dapto Release Area which will take into account either individual or multiple Mullet Creek subcatchments to reflect existing conditions. Accordingly,

detention basins that provide for the storage capacity equivalent to the 58 single sub catchment detention basins as shown (Table 4.4.4) are required. In addition, each neighbourhood plan will need to address water quality requirements which may or may not be a function of the proposed basin. The location of each basin will be determined as part of the Neighbourhood Plan for each precinct.

It has been estimated that of the 58 hectares of land required to accommodate the basins, 50% may be located within residential zoned lands and 50% likely to be located within riparian corridors. This assumption has been made to quantify likely land valuations.

To support the neighbourhood planning process in achieving an efficient stormwater system and address the potential inequity, that only some not all land owners within a Neighbourhood precinct will lose potential developable land area, Council will provide development contributions funding of land value for approved detention basins constructed in accordance with approved Neighbourhood plans or within individual developments considered sufficiently large enough to warrant their own detention basin so long as the provision of the individual basin is not done so to the detriment of the applicable Neighbourhood precinct.

The benefits arising from the proposed infrastructure is uniformly spread throughout each Neighbourhood / sub-catchment as this infrastructure will be providing the backbone for adequately conveying stormwater runoff originating on all parts of the catchments through and out of each catchment. The primary beneficiary is however the developed areas where the increased run off from urban development needs to be adequately conveyed without impact upon downstream properties. It is expected that the bulk of stormwater infrastructure will bypass the existing urban centres of Horsley and Dapto. There is therefore minimal benefit to these existing developed areas.

There will be significant infrastructure provision for the improvement of storm water quality throughout all catchments. None of these works is made necessary by the existing urban areas, nor will there be any substantial improvement in amenity to those areas.

Therefore the cost of the proposed works will be apportioned 100% to future development. As the generation of additional stormwater and the need to provide the proposed facilities is a product of the intensity of development i.e. the more intensive development generates a greater impact on runoff. The apportionment will be based on population as the more intense development will also generate increased population. The apportionment for stormwater management facilities is therefore 100% to residential and non residential development.

The construction costs of detention basins are to be funded directly by development within the applicable Neighbourhood.

Table 4.4.2 Detention Basins

No. of	Precinct / Stage	Land Use	Precinct	GROSS	Mullet Ck Detention Basins (m2)	Duck Ck Detention Basins (m2)	YIELD	Mullet Ck Detention Basins (m3)		Mullet Ck Land Acq		Duck Ck Detention Basins (m3)		Duck Ck Land Acq		
								#	\$	#	\$	#	\$			
								#	\$	#	\$	#	\$	#	\$	
								#	\$	#	\$	#	\$	#	\$	
25	Stage 1 Refurb to Develop other "Mullet Ck Basin Catch"			105,369				45,000	\$ 4,485,000	\$ 244,400						
11	Stage 2 Refurb to Develop other "Mullet Ck Basin Catch"			140,000				154,000	\$ 15,167,647	\$ 4,273,917						
9	Stage 3 Refurb to Develop other "Mullet Ck Basin Catch"			58,427				66,261	\$ 4,229,741	\$ 1,777,949						
10	Stage 4 Refurb to Develop other "Mullet Ck Basin Catch"			112,251				121,142	\$ 1,126,256	\$ 3,415,823						
Stage 5 - LIPS																
1	Yallahs Marshland Mount	Enterprise Corridor	YMH56 PI	58,774		2,207	113				4,171.27	\$ 305,918	\$ 58,851	\$ 25,328		
1	Yallahs Marshland Mount	Environmental Living	YMH56 PI	103,165		3,811	33				10,852.97	\$ 838,972	\$ 151,430	\$ 49,720		
1	Yallahs Marshland Mount	Single Unit Residential	YMH56 PI	227,368		7,142	107				23,244.36	\$ 1,152,213	\$ 213,394	\$ 66,802		
1	Yallahs Marshland Mount	Small Residential	YMH56 PI	48,219		1,528	—				4,884.50	\$ 241,130	\$ 44,833	\$ 22,410		
1	Yallahs Marshland Mount	Low Density Residential	YMH56 PI	811,085		28,388	1,039				85,163.97	\$ 4,221,670	\$ 781,791	\$ 390,885		
1	Yallahs Marshland Mount	Neighbourhood Centre	YMH56 PI	28,444		305	36				2,709.96	\$ 137,663	\$ 26,483	\$ 12,745		
64		Sub-Total		1,287,363		44,352		608,584	\$ 37,710,215	\$ 15,958,231	\$ 7,295,115	133,014	\$ 8,598,603	\$ 1,221,590	\$ 810,707	
		Total				44,352				\$ -23,924,348			\$ 44,306,818		\$ 1,832,390	

b. Enhanced storage areas

The detention basins mitigate the increased runoff due to increases in hard surfaces in the urban area. To offset the increases in flood impacts due to increase roughness in the riparian corridors, five Enhanced Storage Areas (ESAs) are proposed. The ESAs would be located along the creek and would involve embankments across the floodplain to the tops of the banks of the existing low flow channels.

Table 4.4.3 Enhanced Storage Basins

Location arranged north to south	Approx. Area (ha)	Approx Storage Volume (m2)	Approx Cost (\$) (excl land acquisition)	Land cost at \$ per Ha below \$150,000	Total cost	Total cost indexed
FOREST CREEK	12	150,000	\$ 4,500,000	\$ 1,800,000	\$ 6,300,000	\$ 6,939,951
ROBINS CREEK	9	100,000	\$ 3,000,000	\$ 1,350,000	\$ 4,350,000	\$ 4,791,871
REED CREEK	10.5	140,000	\$ 2,500,000	\$ 1,575,000	\$ 4,075,000	\$ 4,488,936
MULLET CREEK	14	160,000	\$ 3,500,000	\$ 2,100,000	\$ 5,600,000	\$ 6,168,845
DUCK CREEK	19	180,000	\$ 6,000,000	\$ 2,850,000	\$ 8,850,000	\$ 9,748,978
Total	64.5	730000	\$ 19,500,000	\$ 9,675,000	\$ 29,175,000	\$ 32,138,581

c. Waterway / drainage management

To enable Council to manage the drainage function of the watercourses the NSW Growth Centres Commission recommended that Council acquire the watercourse. This will provide for the long term management of the watercourse, including drainage works and weed management. It will overcome problems in other parts of the City, where the watercourses are on private land, and Council can only manage them in public reserves and road reserves. In these areas, the community still expects Council to "clean out" the watercourse even though it is in their ownership.

It is estimated that 244 hectares of watercourses will need to be acquired, at a rate of \$40,000 per hectare, which equates to \$9.76 million. These areas are shown as "Drainage Management" in Figure 4.4.1.

Figure 4.4.1 Drainage management

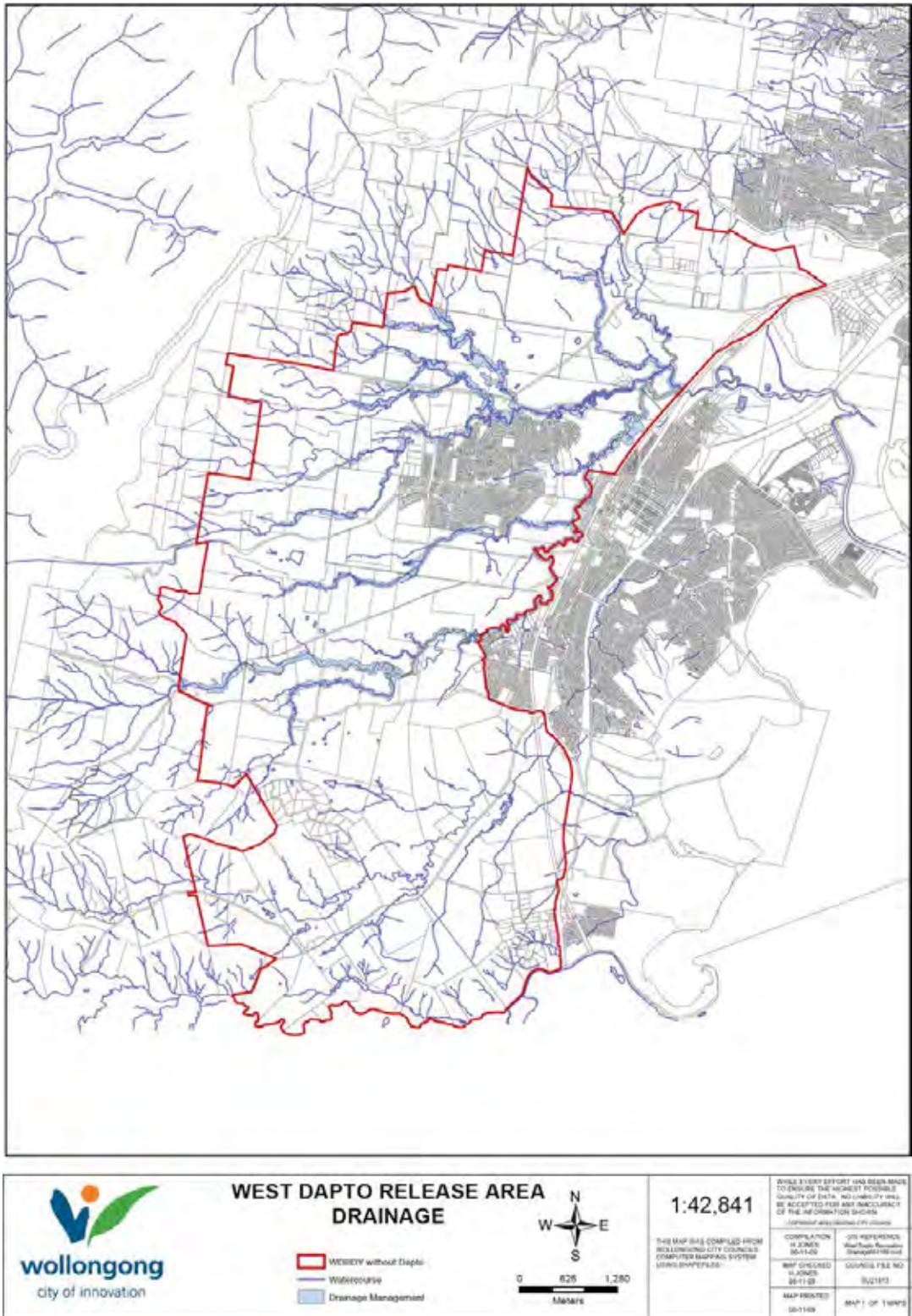


Figure 4.4.2 Mullet Creek Sub-catchments

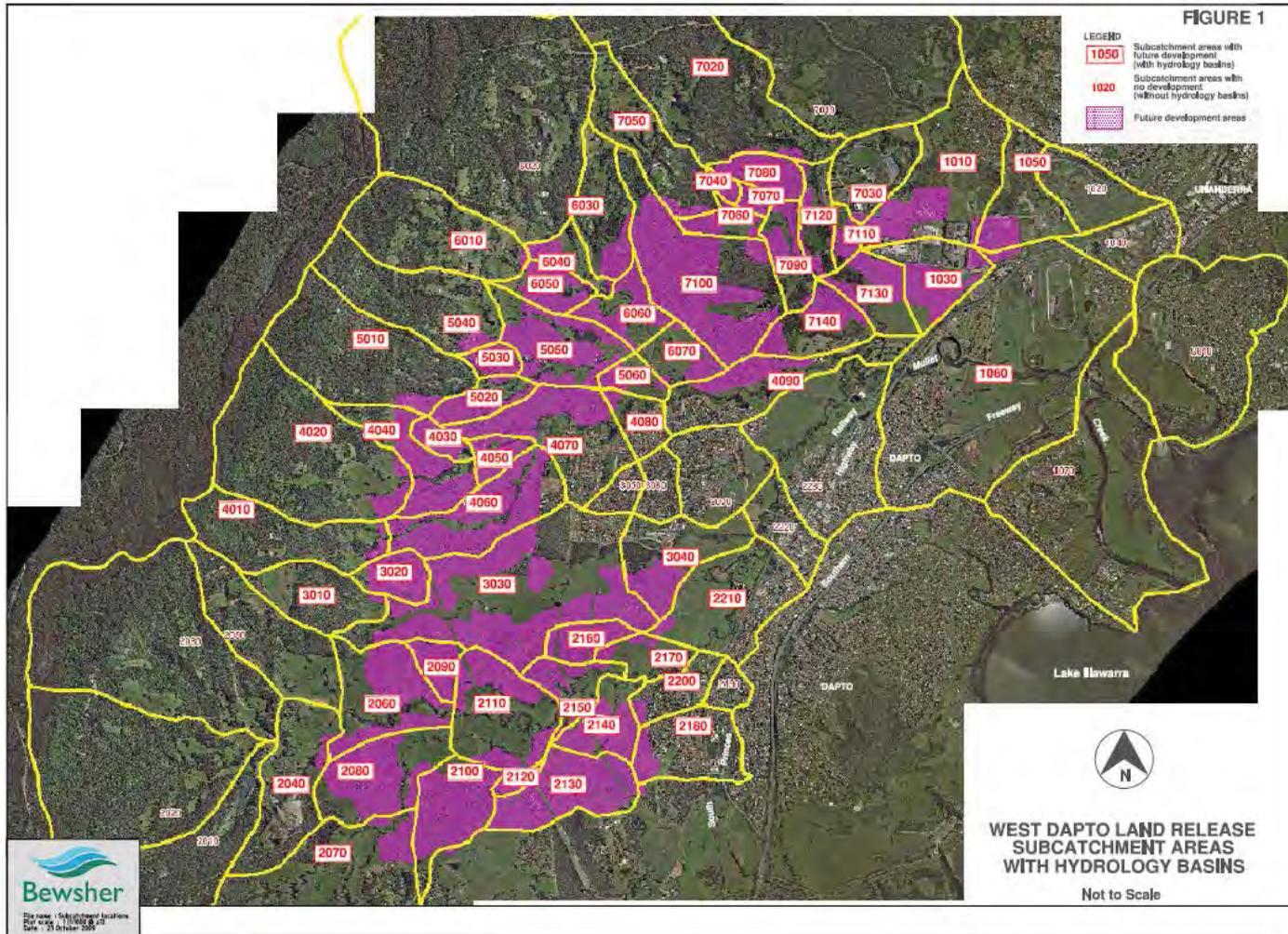


Table 4.4.4

stage	ID	Catchment Area, ha	Dev. Area_2009_total	Basin_vol_2009_total_m³	Basin area m² (if depth = 1.3m)	Basin flood storage cost per below \$/m³	Wetland area_m²	Wetland_v ol_m³ (if depth = 0.8)	Wetland cost per below \$/m³	Construction cost	Contingency 25%	Total cost incl contingency	Land acquisition				Total cost 2010 indexation 2010-15	Total cost 1.1016
													area (ha)	\$ 500,000	\$ 250,000	Land cost		
1	1010	146.31	23.83	11,915	9165	\$536,175	2621	2097	\$94,367	\$630,542	\$157,635	\$788,177	1.37	343,701.92	171,850.96	\$ 515,553	\$ 1,303,730	\$1,436,162
1	1030	61.72	22.85	11,425	8788	\$514,125	2514	2011	\$90,486	\$604,611	\$151,153	\$755,764	1.32	329,567.31	164,783.65	\$ 494,351	\$ 1,250,115	\$1,377,101
1	1050	68.98	12.08	6,045	4650	\$270,065	1380	1064	\$47,878	\$319,903	\$79,375	\$399,277	0.70	174,375.00	87,187.50	\$ 261,563	\$ 681,439	\$729,629
1	1060	440.74	3.20	1,640	1262	\$73,900	361	269	\$12,982	\$85,789	\$18,967	\$104,756	0.19	47,307.69	23,653.85	\$ 70,962	\$ 179,448	\$197,670
1	4090	93.45	17.82	7,128	5483	\$320,760	1960	1568	\$70,567	\$391,327	\$97,832	\$489,159	0.82	205,615.38	102,807.69	\$ 308,423	\$ 737,582	\$378,600
1	5030	15.85	11.77	4,708	3622	\$211,860	1295	1036	\$46,609	\$258,469	\$64,617	\$323,087	0.54	135,807.69	67,903.85	\$ 203,712	\$ 526,798	\$580,310
1	5040	120.21	3.93	1,572	1209	\$70,740	432	346	\$15,563	\$86,303	\$21,576	\$107,879	0.18	45,346.15	22,673.08	\$ 68,019	\$ 175,898	\$193,768
1	5050	82.44	40.89	16,356	12582	\$736,020	4498	3598	\$161,924	\$897,944	\$224,486	\$1,122,431	1.89	471,807.69	235,903.85	\$ 707,712	\$ 1,830,142	\$2,016,047
1	5060	20.55	5.71	2,353	1810	\$105,885	628	502	\$22,612	\$128,497	\$32,124	\$160,621	0.27	67,875.00	33,937.50	\$ 101,813	\$ 262,433	\$289,091
1	6010	128.78	1.40	400	308	\$18,000	110	88	\$3,960	\$21,960	\$5,490	\$27,450	0.05	11,538.46	5,769.23	\$ 17,308	\$ 44,758	\$49,304
1	6030	66.65	10.96	4,384	3372	\$197,280	1206	964	\$43,402	\$240,682	\$60,170	\$300,852	0.51	126,461.54	63,230.77	\$ 189,692	\$ 490,544	\$540,374
1	6040	24.83	9.59	3,836	2951	\$172,620	1055	844	\$37,976	\$210,596	\$52,649	\$263,246	0.44	110,653.85	55,326.92	\$ 165,981	\$ 429,226	\$472,827
1	6050	31.76	18.01	7,204	5542	\$324,180	1981	1585	\$71,320	\$395,500	\$98,875	\$494,375	0.83	207,807.69	103,903.85	\$ 311,712	\$ 806,086	\$887,968
1	6060	42.40	25.01	10,004	7695	\$450,180	2751	2201	\$99,040	\$549,220	\$137,305	\$686,525	1.15	288,576.92	144,288.46	\$ 432,865	\$ 1,119,390	\$1,233,097
1	6070	34.75	8.63	3,488	2683	\$156,960	949	759	\$34,175	\$191,135	\$47,784	\$238,919	0.40	100,615.38	50,307.69	\$ 150,923	\$ 389,842	\$429,441
1	7020	250.55	2.46	1,230	946	\$55,350	271	216	\$9,742	\$65,092	\$16,273	\$81,365	0.14	35,480.77	17,740.38	\$ 53,221	\$ 134,586	\$148,257
1	7030	80.75	0.83	415	319	\$18,675	91	73	\$3,287	\$21,962	\$5,490	\$27,452	0.05	11,971.15	5,985.58	\$ 17,957	\$ 45,409	\$50,022
1	7040	6.77	0.11	2,655	1965	\$114,975	562	450	\$20,236	\$135,211	\$33,803	\$169,013	0.29	73,701.92	36,850.96	\$ 110,553	\$ 279,566	\$307,964
1	7050	90.59	0.52	1,288	973	\$73,240	368	293	\$16,557	\$89,793	\$22,948	\$112,741	0.13	38,230.77	24,115.38	\$ 62,346	\$ 157,087	\$206,091
1	7060	21.87	12.3	5,512	4118	\$240,930	1353	1082	\$49,708	\$290,638	\$72,410	\$363,048	0.62	154,442.31	77,221.15	\$ 231,663	\$ 593,711	\$654,030
1	7070	9.14	9.07	4,535	3488	\$204,075	998	798	\$35,917	\$239,992	\$59,998	\$299,990	0.52	130,817.31	65,408.65	\$ 196,226	\$ 496,216	\$546,622
1	7080	30.02	29.1	14,550	11192	\$654,750	3201	2561	\$115,236	\$769,986	\$192,497	\$962,483	1.68	419,711.54	209,856.77	\$ 629,567	\$ 1,592,050	\$1,753,769
1	7090	37.98	15.9	7,950	6115	\$357,750	1749	1399	\$62,964	\$420,714	\$105,179	\$525,893	0.92	229,326.92	114,663.46	\$ 343,990	\$ 869,883	\$958,245
1	7100 ESA	170.46	114.33	48,248	35775	\$2,081,180	12609	10073	\$453,530	\$2,534,710	\$633,671	\$3,168,381	5.34	334,076.92	167,038.46	\$ 501,115	\$ 1,189,489	\$1,694,600
1	7110	14.30	6.54	3,270	2515	\$147,150	719	576	\$25,898	\$173,048	\$43,262	\$216,310	0.38	94,326.92	47,163.46	\$ 141,490	\$ 357,801	\$394,146
1	7120	35.97	7.5	3,750	2885	\$168,750	825	660	\$29,700	\$198,450	\$49,613	\$248,063	0.43	108,173.08	54,086.54	\$ 162,260	\$ 410,322	\$452,002
1	7130	47.90	18.77	9,385	7219	\$422,325	2065	1652	\$74,329	\$496,654	\$124,164	\$620,818	1.08	270,721.15	135,360.58	\$ 406,082	\$ 1,028,899	\$1,131,211
1	7140	53.57	23.04	10,822	8325	\$486,990	2534	2028	\$91,238	\$578,228	\$144,557	\$722,786	1.25	312,173.08	156,086.54	\$ 468,260	\$ 1,191,045	\$1,312,031
2	2030 ESA	267.33	114.92	45,968	35360	\$2,068,560	12641	10113	\$455,083	\$2,523,643	\$630,911	\$3,154,554	5.30	1,326,000.00	663,000.00	\$ 1,989,000	\$ 5,143,554	\$5,666,034
2	4010	107.72	3.29	1,316	1012	\$59,220	362	290	\$13,028	\$72,248	\$18,062	\$90,310	0.15	37,961.54	18,980.77	\$ 56,942	\$ 147,253	\$162,211
2	4020	226.22	8.87	3,548	2729	\$159,660	976	781	\$35,125	\$194,785	\$48,696	\$243,481	0.41	102,346.15	51,173.08	\$ 153,519	\$ 397,001	\$437,328
2	4030	15.89	13.78	5,512	4240	\$248,400	1516	1213	\$54,569	\$302,969	\$75,652	\$378,621	0.64	159,000.00	79,500.00	\$ 238,500	\$ 616,761	\$679,411
2	4040	66.06	40.7	16,280	12523	\$732,600	4477	3582	\$161,172	\$893,772	\$223,443	\$1,117,215	1.88	469,615.38	234,807.69	\$ 704,423	\$ 1,821,638	\$2,006,679
2	4050	20.14	14.62	5,848	4498	\$263,160	1608	1287	\$57,895	\$321,055	\$80,264	\$401,319	0.67	168,692.31	84,346.15	\$ 253,038	\$ 654,357	\$720,827
2	4060	99.35	67.94	27,176	20905	\$1,222,920	7473	5979	\$299,042	\$1,491,962	\$372,991	\$1,864,953	3.14	783,923.08	391,961.54	\$ 1,175,885	\$ 3,040,838	\$3,349,724
2	4070 ESA	105.18	44.73	17,892	13763	\$805,140	4920	3936	\$171,131	\$976,271	\$245,668	\$1,221,939	2.06	516,115.38	258,057.69	\$ 774,173	\$ 2,002,012	\$2,205,375
2	4080	29.27	2.48	972	748	\$43,740	267	214	\$9,623	\$53,363	\$13,341	\$66,704	0.11	28,038.46	14,019.23	\$ 42,058	\$ 108,761	\$119,809
2	5010	169.43	6.3	2,520	1938	\$113,400	693	554	\$24,948	\$138,348	\$34,587	\$172,935	0.29	72,692.31	36,346.15	\$ 109,038	\$ 281,973	\$310,616
2	5020	30.51	18.67	7,468	5745	\$336,060	2054	1643	\$73,933	\$409,993	\$102,458	\$512,452	0.86	215,423.08	107,711.54	\$ 323,135	\$ 836,626	\$920,509
2	5030	22.42	19.24	7,816	6012	\$351,720	2149	1720	\$77,378	\$429,098	\$107,276	\$536,373	0.90	255,461.54	127,730.77	\$ 383,192	\$ 974,565	\$1,063,403
3	2110	103.05	33.35	13,340	10262	\$600,300	3669	2935	\$132,066	\$732,366	\$183,092	\$915,458	1.54	384,807.69	192,403.85	\$ 577,212	\$ 1,492,669	\$1,644,294
3	2150	37.13	13.56	5,424	4172	\$244,080	1492	1193	\$53,698	\$297,778	\$74,444	\$372,222	0.63	156,461.54	78,230.77	\$ 234,692	\$ 606,914	\$668,564
3	2160	27.23	21.63	8,652	6595	\$389,340	2379	1903	\$85,655	\$474,995	\$118,749	\$593,744	1.00	249,576.92	124,788.46	\$ 374,365	\$ 968,109	\$1,066,443
3	2170	32.62	5.4	2,160	1662	\$97,200	594	475	\$21,384	\$118,584	\$29,646	\$148,230	0.25	62,307.69	31,153.85	\$ 93,462	\$ 241,692	\$266,242
3	2210	112.91	2.44	976	751	\$43,920	268	215	\$9,662	\$53,582	\$13,396	\$66,978	0.11	28,153.85	14,076.92	\$ 42,231	\$ 109,209	\$120,302
3	3010	67.65	1.09	436	335	\$19,620	120	96	\$4,316	\$23,936	\$5,984	\$29,920	0.05	12,576.92	6,288.46	\$ 18,865	\$ 48,786	\$53,742
3	3020	30.37	24.46	9,784	7526	\$440,280	2691	2152	\$96,862	\$537,142	\$134,285	\$671,427	1.13	282,230.77	141,115.38	\$ 423,346	\$ 1,094,773	\$1,205,980
3	3040	78.55	18.41	7,364	5665	\$331,380	2025	1620	\$72,904	\$404,284	\$101,071	\$505,355	0.85	212,423.08	106,211.54	\$ 318,635	\$ 823,989	\$907,890
4	2040	102.36	2.7	1,080	831	\$48,600	297	238	\$10,692	\$59,292	\$14,823	\$74,115	0.12	31,153.85	15,576.92	\$ 46,731	\$ 120,846	\$133,121
4	2060	93.03	45.49	18,136	13997	\$818,820	5004	4033	\$180,140	\$998,960	\$249,740	\$1,248,701	2.10	524,884.62	262,442.31	\$ 787,327	\$ 2,036,027	\$2,242,946
4	2070	185.44	11.91	4,764	3665	\$214,380	1310	1048	\$47,164	\$261,544	\$65,396	\$326,940	0.55	137,423.08	68,711.54	\$ 206,135	\$ 533,064	\$587,512
4	2080	91.31	43.46	18,784	15218	\$800,280	5470	4352	\$195,892	\$1,096,172	\$272,535	\$1,368,707	2.28	570,692.31	285,346.15	\$ 856,038	\$ 2,213,515	\$2,438,564
4	2100	70.99	56.35	22,540	17338	\$1,014,300	6199	4959	\$223,146	\$1,237,446	\$303,363	\$1,540,809	2.60	659,182.31	329,591.15	\$ 988,773	\$ 2,522,096	\$2,778,269
4	2120	8.24	6.27	2,538	1929	\$112,860	690	542	\$24,829	\$137,689	\$34,422	\$172,112	0.29	72,346.15	36,173.08	\$ 108,519	\$ 280,631	\$308,137
4	2130 ESA	80.25	24.92	18,817	\$1,106,640	\$678,635	5510	4430	\$1,350,101	\$3,437,525	\$1,667,525	\$5,105,050	2.84	708,384.62	354,192.31	\$ 1,062,577	\$ 2,751,703	\$3,031,219
4	2140	45.62	24.23	9,820	7554	\$441,900	2701	2160	\$97,218	\$539,118	\$134,790	\$673,908	1.13	285,384.62	142,692.31	\$ 428,077	\$ 1,098,801	\$1,210,417
4	2180	72.64	8.11	3,244	2495	\$145,980	892	7										

4.4.3 Works program

Table 4.4.1 shows the works program for water cycle management facilities required to be indirectly funded to meet demand expected to be generated by future development across the West Dapto area. The exact location and size of each detention basin will be determined as part of the Neighbourhood Plan for each precinct. This will allow flexibility in the development of the drainage system that can cater for development proceeding in several places simultaneously.

Development will be required to ensure downstream properties are not affected by increased storm flows; the basins as originally built may serve short term functions in this respect as well as the long term flood storage.

4.4.4 Contribution rates

Contributions for drainage management facilities will be determined as follows:

Residential

On a per residential dwelling / Lot basis. All developments will make the same contribution (based on dwelling or Lot number) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

Employment Lands

On a net developable land basis. All developments will make the same contribution (based on land area) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

The following contribution rates therefore apply:

Residential Contribution rate (per lot/dwelling):

Zone	Drainage
R3 Medium Density	\$ 4,906
R2 Low Density	\$ 4,906
R5 Large Lot Residential	\$ 4,906
E4 Environmental Living	\$ 4,906
B2 Local Centre	\$ 4,906
B1 Neighbourhood Centre	\$ 4,906

Employment Lands Contribution rate (per hectare):

Zone	Drainage
IN3 Heavy Industry	\$ 3,520
IN2 Light Industry	\$ 3,520

4.5 Section 94 plan Administration

4.5.1 Introduction

There are significant costs associated with administering section 94 funds. Council staff are involved in preparation of the contributions plan, its ongoing review and implementation. Staff administration costs that have been used to calculate the contribution are comprised of those expenses relative only to those personnel directly responsible for the formulation and/or administration of the plan. These costs have been capitalised over the life of the plan to arrive at a total capital cost to the council.

In addition to the capital costs associated with staff, it is necessary to provide office space and support facilities for council staff directly involved in administration of the plan. This not only relates to the space used for administration of the section 94 plan but also in providing for all the required services and facilities that the council provides to serve the incoming population.

The council is also required to manage, monitor and maintain the plan. The effective coordination and administration of the plan will require additional work by council officers that is outside the work required for normal day to day activities. The types of administrative roles which the council will have to undertake includes:

- Provide advice to applicant and the general public regarding the operation the plan.
- Administration of the plan and ensure that the contributions are used to provides the public facilities for which they were intended.
- Monitor the receipt and authorise the expenditure of cash contributions in respective trust accounts and the recoupment of costs already met.
- Assess the merit of land proposed for dedication.
- Assess any works in kind proposed in partial or full satisfaction of a contribution.
- Monitor the dedication and development of land contributions.
- Recommend to the council the appropriate interim use and ultimate development of dedicated land, the acquisition of appropriate land for the identified public purpose, the reuse of existing council facilities (including land) for an alternative public purpose, or the use of funds for the purposes of provision through joint venture or other arrangement.
- Monitor and program works identified in the works schedule.
- Regularly review the works program in accordance with the levels of contribution received and expended, and seek council adoption of these.
- Regularly review the rates for contribution in accordance with construction costs, land valuations, levels of demand, population and demographic changes and recommend to council amendments where necessary.
- Determine the appropriate time for provision of public facilities having regard to the works schedule; the availability of funds, demand generated by development, the time funds have been held, expected additional funds, alternative funding sources and maintenance implications.
- Monitor the implications arising from development including the demands created for additional facilities for which contributions are not currently sought, the needs of specific one off developments, the costs of development and land acquisition, the extent and type of development and the effect of this on the works program.
- Advise council of appropriate management, expenditure and policy implications regarding development contributions including those arising from legal decisions and State Government policy.
- Determine the extent of recurrent costs and assess the implications to council to provide these.
- Assess whether a credit or reassessment of the contribution may be appropriate and how that may be determined.
- Prepare and make available the necessary information required by the EP & A Regulation including the Contributions Register, input to council annual financial reporting and the annual statement for the contributions plan in force.
- Seek legal advice, provide evidence and attend to Land and Environment Court hearings on appeals relating to the imposition of contributions.

The cost of assistance in plan preparation/review, studies to ascertain demand and to ensure fair and equitable apportionment, as well as the costs for obtaining independent valuation and legal

documents associated with land acquisition are also additional costs to the council in the administration of the Section 94 contributions plan. While the land acquisition costs can be effectively included in the costs of individual facilities, the costs of professional fees are less predictable. Therefore the costs of these works have been capitalised over the life of the plan.

Administrative costs and apportionment

The future administration of the section 94 functions is solely for future development. The capital costs associated with the administrative centre have been apportioned and separated from other costs associated with the centre that house other council functions. There is no apportionment of the capital costs associated with salaries, administrative and professional costs. Incoming development will be responsible for these costs.

4.5.2 Works program

Council employs a full time planner for administration of section 94 funds and the salary costs for this officer will be capitalised over the life of this plan. There will also be other staff costs in administration, accounting and expenditure of section 94 funds. It is considered reasonable that 25% of the salary costs of two council officers for these purposes be included in the plan. The total of these costs will be \$150,000 per year or \$7,500,000 over the anticipated remaining 50 year life of the Plan. This cost includes an allowance of \$500,000 s for the review of the Plan and associated investigations in the future.

There is no need to reduce the above works program by the funds collected as such funds are collected on an annual basis based on direct salary and on-costs.

4.5.3 Contribution rates

Contributions for Section 94 Plan Administration will be determined as follows:

Residential

On a per residential dwelling / Lot basis. All developments will make the same contribution (based on dwelling or Lot number) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

Employment Lands

On a net developable land basis. All developments will make the same contribution (based on land area) towards facilities in this plan, regardless of the projected level of use by each facility by each development type.

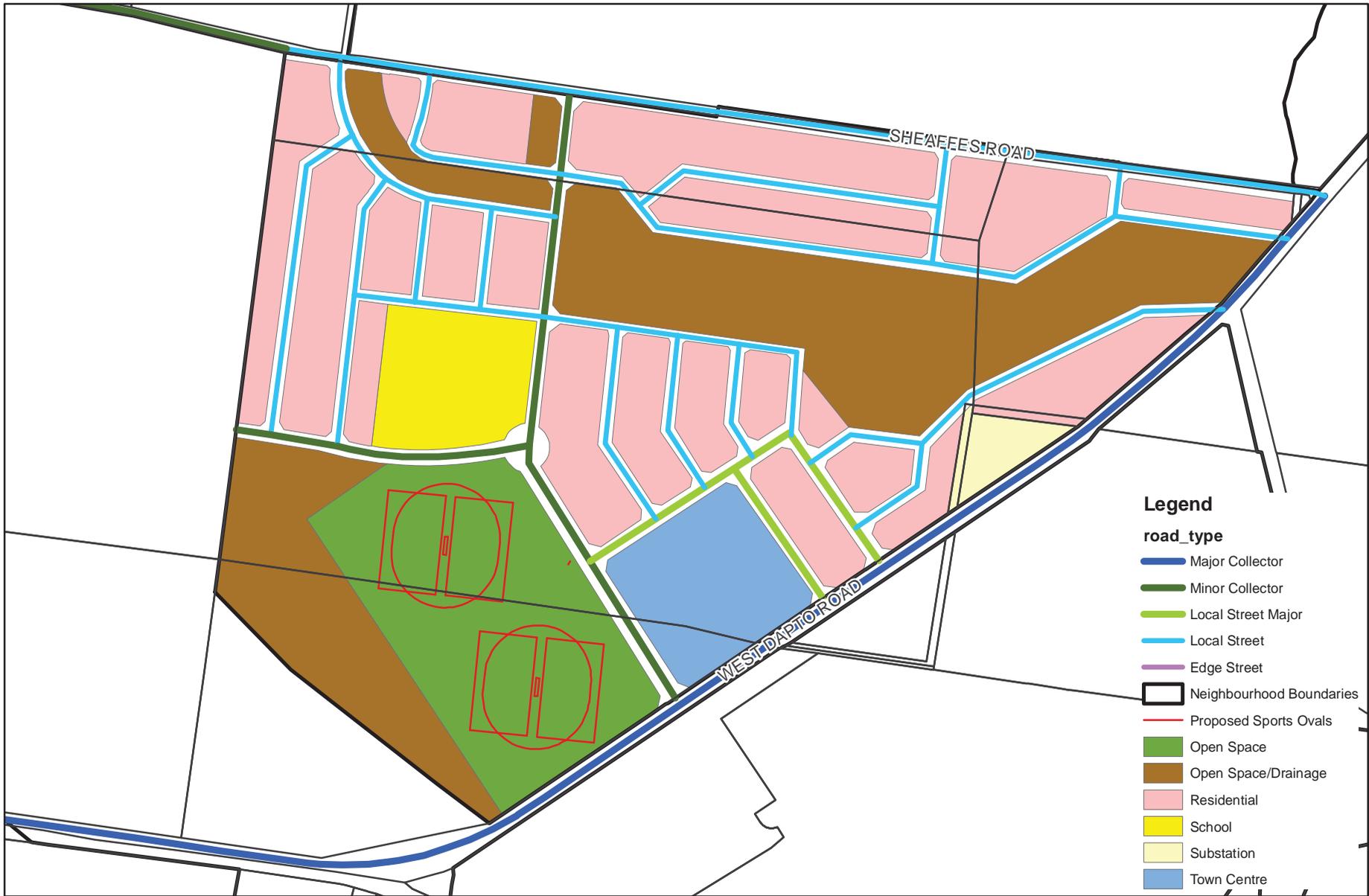
The following contribution rates therefore apply:

Residential Contribution rate (per lot/dwelling):

Zone	Administration
R3 Medium Density	\$ 502
R2 Low Density	\$ 502
R5 Large Lot Residential	\$ 502
E4 Environmental Living	\$ 502
B2 Local Centre	\$ 502
B1 Neighbourhood Centre	\$ 502

Employment Lands Contribution rate (per hectare):

Zone	Administration
IN3 Heavy Industry	\$ 262
IN2 Light Industry	\$ 262

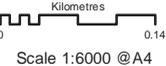


Legend

road_type

- Major Collector
- Minor Collector
- Local Street Major
- Local Street
- Edge Street
- Neighbourhood Boundaries
- Proposed Sports Ovals
- Open Space
- Open Space/Drainage
- Residential
- School
- Substation
- Town Centre

Revised Neighbourhood Plan

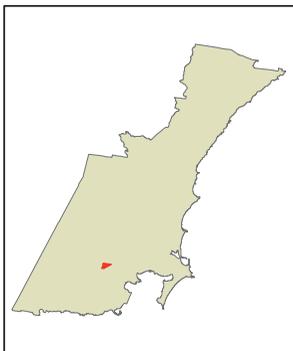


Planning Proposal
 Land Zoning Map

Zoning

- B2
-  E2 Local Centre
-  E3 Environmental Conservation
-  IN2 Environmental Management
-  R2 Light Industrial
-  R3 Low Density Residential
-  RE1 Medium Density Residential
-  RE2 Public Recreation
-  RU2 Private Recreation
-  SP1 Rural Landscape
-  SP2 Special Activities
-  Infrastructure
-  Zoning Changes

Cadastre
 Cadastre 19.08.15 © Wollongong City Council

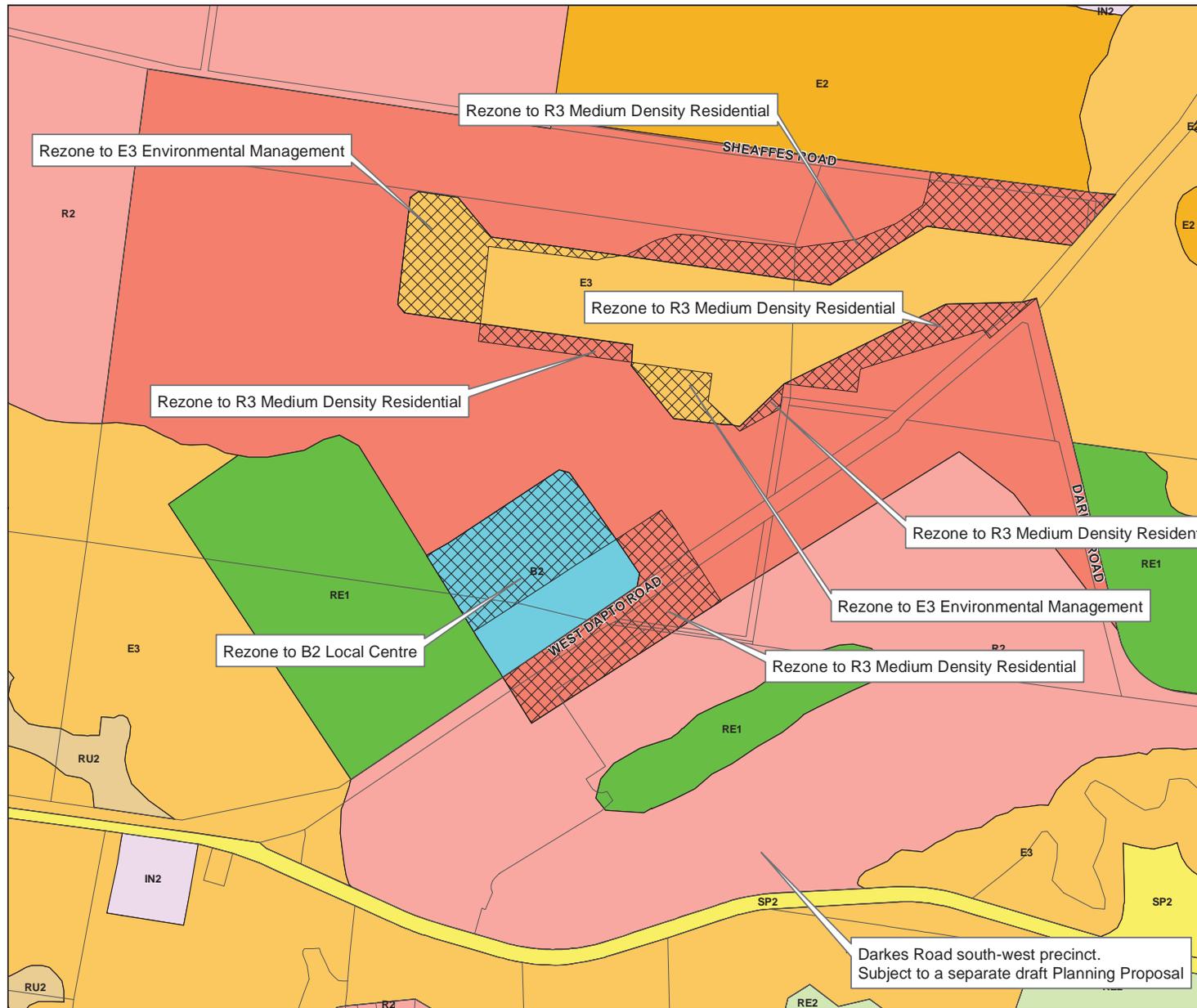


0  0.2
 Kilometres

Projection: GDA 1994
 MGA Zone 56

Scale 1:5,000 @ A3

Map Identification number: SheaffesRoad_PP_Zoning.mxd
 Amended 19.08.15

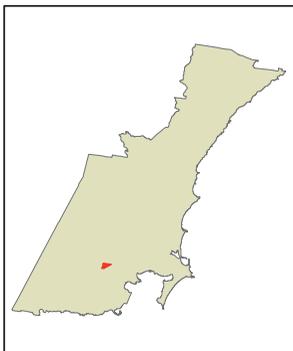


Planning Proposal
 Lot Size Map

Minimum Lot Size (sq m)

- C 299
- F 449
- T 999
- AA 9.99ha
- AB 39.99ha
- Zoning changes

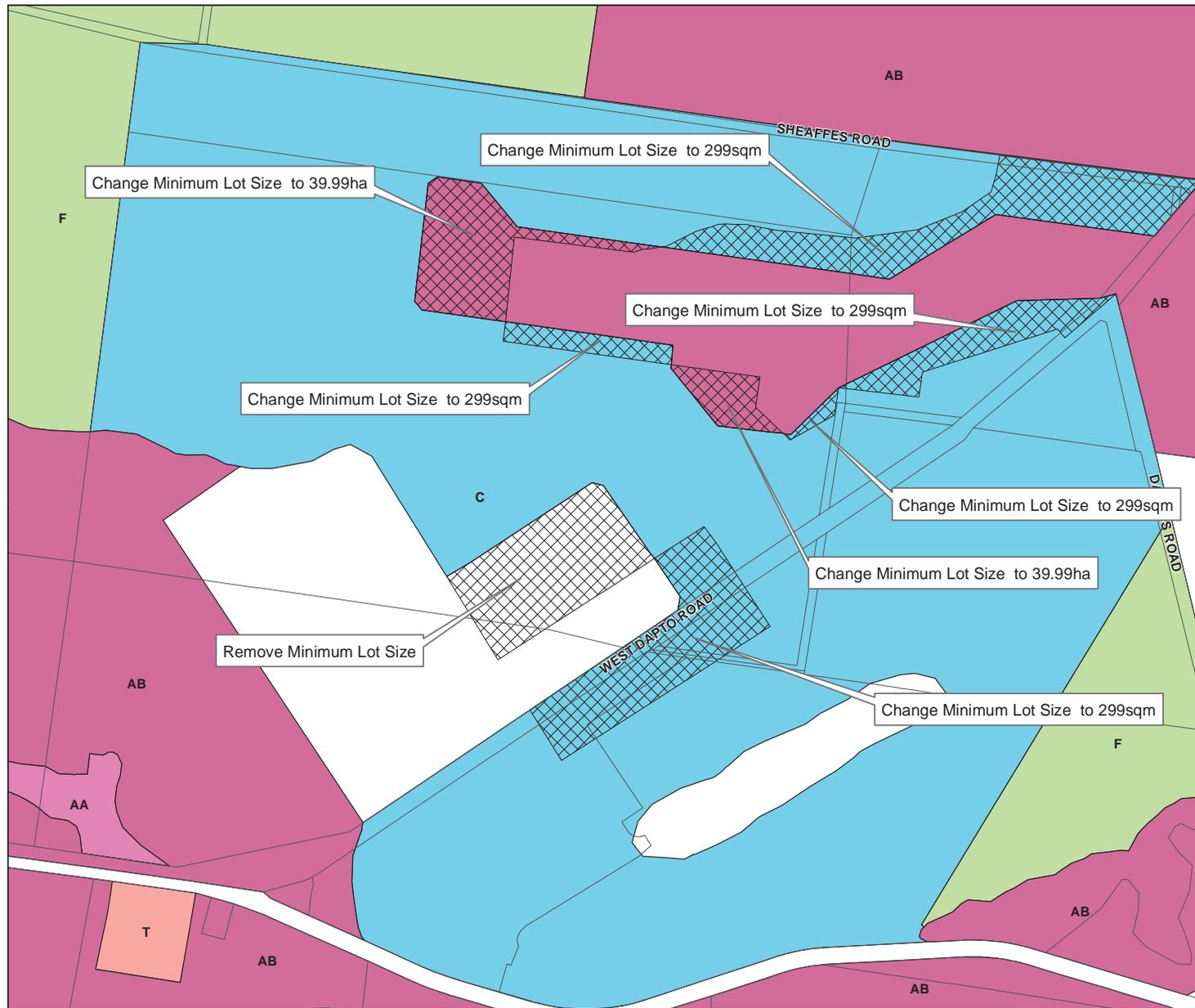
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 Cadastre 27.01.14 © Wollongong City Council



0  0.18
 Kilometres

Projection: GDA 1994
 MGA Zone 56
 Scale 1:5,000 @ A3

Map Identification number:
 SheaffesRoad_PP_MinLotSize.mxd





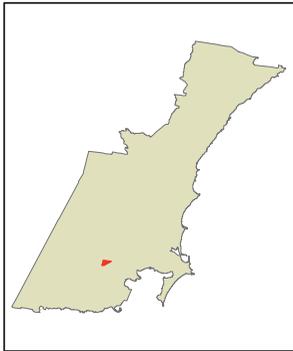
WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Planning Proposal Floor Space Ratio Map

Maximum Floor Space Ratio (n:1)

A	0.3
D	0.5
I	0.75
P	1.2
S	1.5
T	2.0
U	2.5
V	3
	Zoning changes

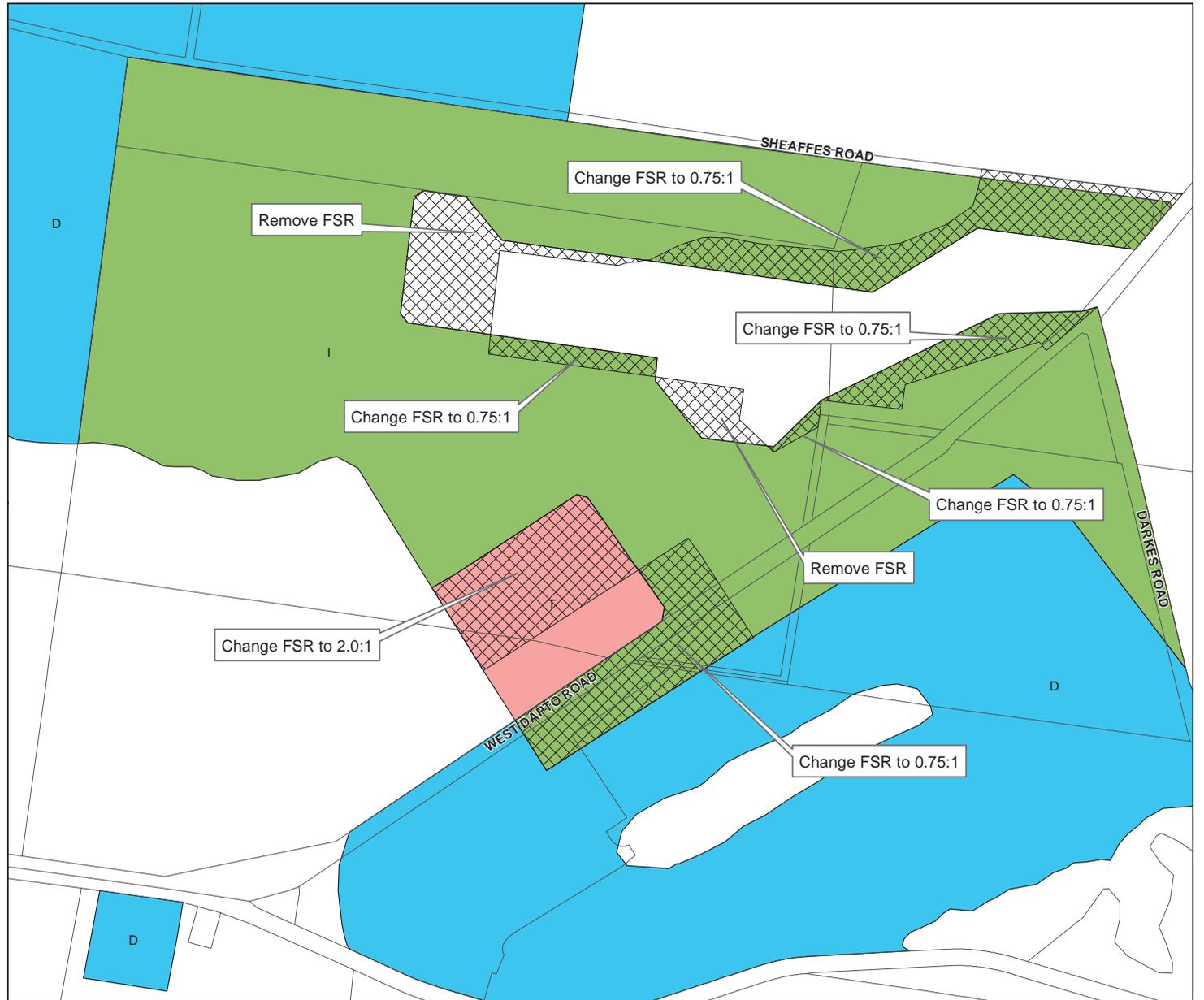
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 Cadastral 27.01.14 © Wollongong City Council



Projection: GDA 1994
MGA Zone 56

Scale 1:5,000 @ A3

Map Identification number:
SheaffesRoad_PP_FSR.mxd



Planning Proposal
 Height of Building Map

Maximum Building Height (m)

 Zoning Changes

-  J 9
-  M 12
-  N 13
-  O1 15
-  O2 16
-  Q 20
-  S 24

Cadastral

 Cadastral 27.01.14 © Wollongong City Council



N



0 0.18

Kilometres

Projection: GDA 1994
 MGA Zone 56

Scale 1:5,000 @ A3

Map Identification number:
 SheaffesRoad_PP_Heights.mxd





Part D – Locality Based DCPs / Precinct Plans

Chapter D16: West Dapto Release Area

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Document Control			
Document ID: Wollongong DCP 2009 – D16 West Dapto Release Area			
Rev No	Adoption Date	In force date	Revision Details
1	14/12/10	17/12/12	Adopted
2	27/7/11	3/8/11	Incorporate Shone Ave Neighbourhood Plan
3	26/11/12	8/12/12	Update Wongawilli North Neighbourhood Plan
4	27/5/13	1/6/13	Incorporate Sheaffes Rd Neighbourhood Plan
5	9/12/13	14/12/13	Incorporate Reddalls Rd Industrial Neighbourhood Plan
6	24/3/14	2/4/14	Incorporate Darkes Rd South West Neighbourhood Plan and updated road network diagrams
7	3/8/15	12/8/15	Incorporate Avondale Road North, Huntley Neighbourhood Plan
8	24/8/15	9/9/15	Incorporate Shone Avenue / West Dapto Road Neighbourhood Plan
9	14/9/15	XX/9/15	Incorporate West Dapto Rd / Sheaffes Rd (south) Neighbourhood Plan

1 INTRODUCTION

This chapter is intended to implement the development structure of the West Dapto Release Area as outlined in the West Dapto Master Plan (Figure 4.2) and to provide guidance on the future development of the land at West Dapto. It is aimed at achieving the vision for West Dapto which is:

West Dapto will grow over several decades as a series of integrated communities within the spectacular natural landscape of riparian valleys and escarpment backdrop. These communities will be highly accessible and be linked with public transport as well as being designed to encourage walking and cycling. Local places and centres will provide for shopping, services and jobs, and significant new areas will be developed for employment generation for new residents. The natural and cultural heritage of the area will be integrated with new urban development and a long term strategy to oversee the timely implementation of infrastructure will deliver sustainable and high quality suburbs.

Other parts of this DCP continue to apply to the West Dapto Release Area in conjunction with this chapter. In this regard Part A of the DCP contains the Introduction and Part B Land Use Based Planning Controls. Part C provides Specific Land Use Controls and Part E General (City Wide) Controls.

2 LAND TO WHICH CHAPTER APPLIES

This chapter applies to all land within the West Dapto Release Area (Figure 3.1).

3 OBJECTIVES

The controls within this chapter are designed to deliver a development strategy for the West Dapto Release Area which will guide the growth of new suburbs and neighbourhoods, protect the environment and integrate with existing communities.

The objectives of this chapter as follows:

- (a) To enable the development of the West Dapto Release Area for residential, employment, industrial and environmental conservation areas in a manner consistent with the Wollongong LEP (West Dapto) 2010 and the West Dapto Master Plan (Figure 4.2).
- (b) To ensure the development of the West Dapto Release Area is carried out in an environmentally, economically and socially sustainable manner.
- (c) To provide for the retention and enhancement of the environmental qualities of the area whilst allowing for the appropriate development of land to support the economic and social needs of the community.
- (d) To provide for a range of dwellings to increase housing choice and availability in the Illawarra region (Refer to Figure 6.6).
- (e) To ensure that housing is of a high design standard, ecologically sustainable and energy efficient.
- (f) To improve employment opportunities and economic growth in the Illawarra region whilst ensuring that commercial and industrial development is of a high design standard, ecologically sustainable and energy efficient.
- (g) To ensure new development is consistent with the desired future character for the area as stated within the LEP and this chapter.
- (h) To ensure the creation of safe, secure and liveable environments.
- (i) To support the provision of safe and efficient public transport services which link the surrounding areas and release area, for the use of residents and workers within the region.

- (j) To protect, conserve and enhance riparian and environmentally sensitive areas and only allow for development which is compatible with the conservation values of these areas.
- (k) To ensure that development in the Darkes Road and Bong Bong town centres contributes to the creation of retail, business, commercial and community hubs and provides significant local employment opportunities.
- (l) To preserve the environmental, cultural and built heritage of West Dapto.
- (m) To protect development in the area from flooding and the threat of bushfires.
- (n) To protect areas of high scenic value.

4 URBAN STRUCTURE

4.1 West Dapto Master Plan

The West Dapto Master Plan (Figure 4.2) has been prepared to guide the development of the release area over the next thirty to forty years. The Master Plan provides for development of the area.

The future urban structure and master plan for West Dapto is shown in Figures 4.1 and 4.2. It is characterised by a series of residential precincts generating approximately 17,000 dwellings. It may be appropriate for development to occur simultaneously within several separate sites of Stages 1 and 2. The residential precincts will be separated by an extensive system of riparian/open space corridors. The release area will also include protection and integration of heritage landscapes and items into the urban structure.

The approval of the Wollongong LEP (West Dapto) 2010 has released the potential for 6,676 dwellings and 175 hectares of employment land in Stages 1 & 2 of the release area. The release of Stages 3 & 4 and the Yallah-Marshall Mount precinct have been deferred pending further review. Stages 1 & 2 are characterised by:

- Development potential for approximately 6,676 dwellings representing lot supply to cater for the predicted demand of the next 15-20 years.
- The expansion of the Dapto Town Centre to a major regional centre, acting as the primary retail destination within West Dapto to provide higher order goods, regional community facilities, employment opportunities, higher density housing and a transport interchange, serving both the existing and future communities.
- Bong Bong Town Centre to service the southern part of the release area comprising approximately 15,000m² of floor space providing for retail needs, local services, community facilities and the like.
- Darkes Road Town Centre comprising approximately 7,500m² of floor space to provide for a range of shops, to meet local convenience needs, local services, community facilities and the like.
- Integration of Horsley into the overall urban structure for West Dapto by providing direct access from new development to the west through Horsley via Bong Bong Road and providing a new north-south link to the east of Horsley.
- The Kembla Grange employment area, containing 175 hectares of new employment land.

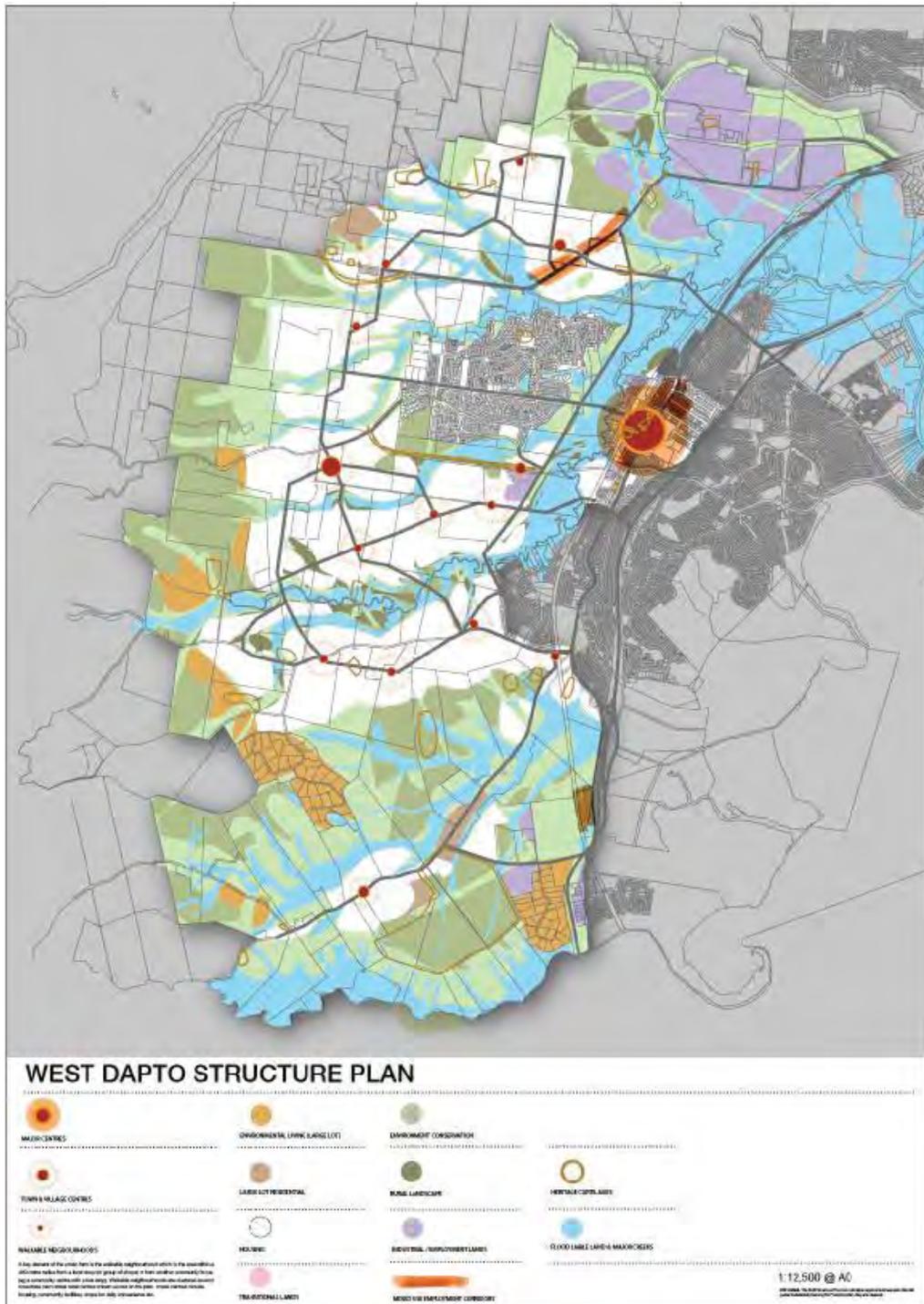
Protection and rehabilitation of conservation areas, including remnant vegetation areas

Stages 3 & 4 which will be the subject of further review and are currently deferred will ultimately include:

- Further development potential for approximately 8,749 new dwellings.

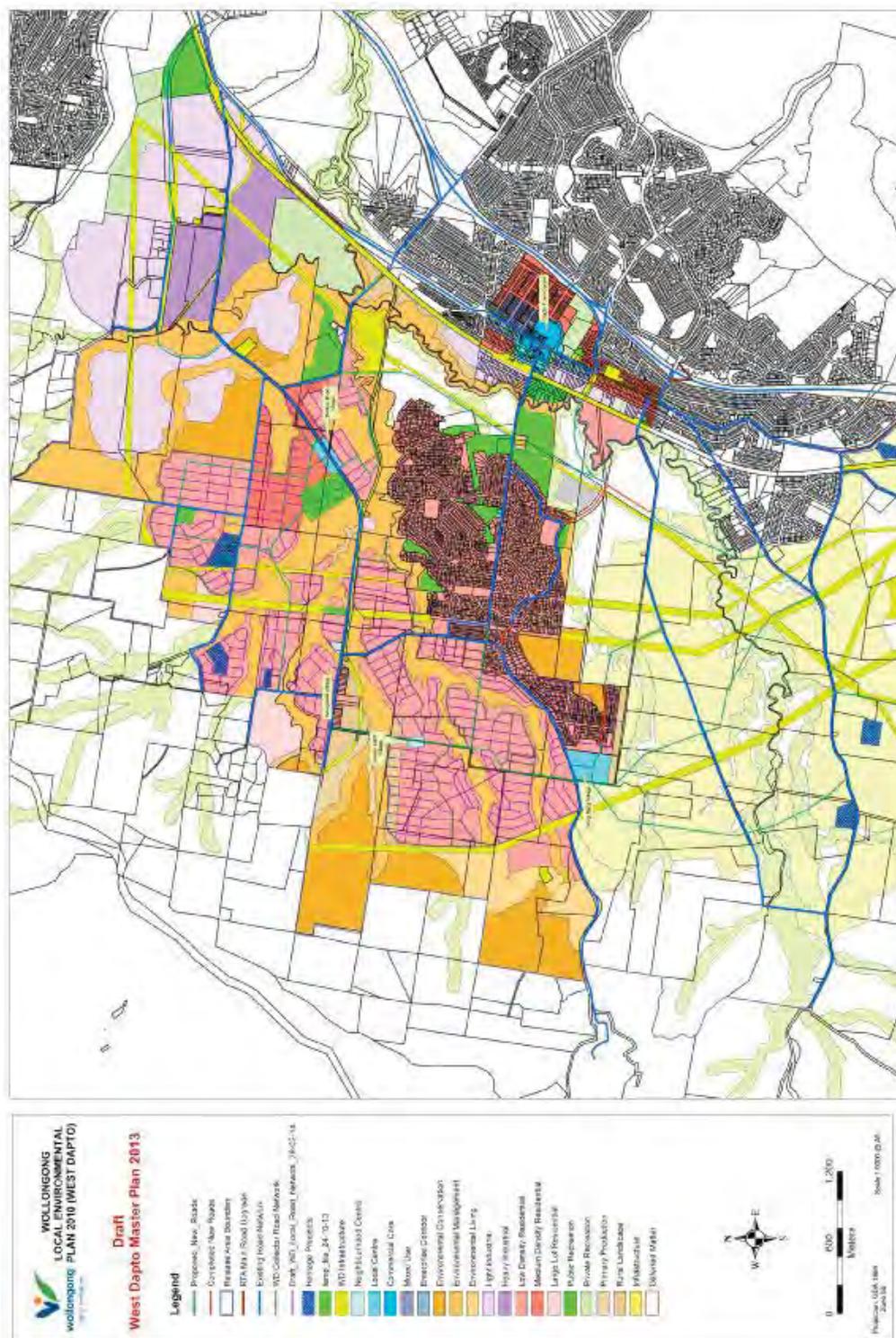
The development potential of the Yallah – Marshall Mount precinct is currently being reviewed and will form a future amendment to the LEP and this DCP.

Figure 4.1 West Dapto Structure Plan



(GCC 2008)

Figure 4.2 West Dapto Master Plan (stages 1 & 2) Staging



NB: This plan is subject to review by various Planning Proposal amendments.

Development of the West Dapto Release Area could potentially take over 40 years to develop, depending on the rate of lot take up. If the take up is slow, this is likely to have major implications in terms of the provision of social and physical infrastructure to service the area. It is critical that development does not occur on multiple fronts as this will result in the early years in a fragmented urban structure and insufficient mass of people in any one area to support the provision of services.

Land will be released according to a logical and progressive land release program which builds upon existing infrastructure and services and which avoids multiple development fronts.

The development front will commence in the north of the release area where existing water and sewer are available without the need for extensive augmentation. Starting from the north will also facilitate the early upgrading of West Dapto Road and consolidation of Kembbla Grange as a major employment precinct.

Stages 1 and 2 of the release will be rezoned initially as this area provides a lot supply that caters for the predicted demand over the next 15-20 years. Later stages of the release will be subject to further review and will be rezoned over time as work is completed and demand requires. The potential staging of the Yallah Marshall Mount precinct in the south of the site will also be reviewed in the light of the Calderwood release within the adjacent Shellharbour LGA. This land may be rezoned to coincide with this release where adequate justification exists.

5 NEIGHBOURHOOD PLANS

A Neighbourhood Plan is an immediate step between the West Dapto Masterplan and a Development Application. The Neighbourhood Plan allows issues to be considered on a neighbourhood/precinct/catchment scale.

A Neighbourhood Plan enables adjoining land owners to jointly consider common constraints and design issues. The Neighbourhood Plan will be exhibited as an amendment to the West Dapto Masterplan and should be in place prior to the determination of the development application.

5.1 Requirement for a Neighbourhood Plan

A Neighbourhood Plan is required:

- To supplement the information prepared by Council to support the rezoning of West Dapto. Council did not have sufficient resources to consider every property in detail and Council's consultants were not granted access to all properties. Copies of the studies undertaken by Council are available on CD (Note the West Dapto Aboriginal Heritage Study is not a public document).
- To consider issues, mitigate impacts or propose solutions on a precinct / neighbourhood / catchment scale, rather than property by property.
- To ensure adjoining land owners consider the proposals, concepts and development timeframes of each other.
- To encourage the integration of development sites, development sequencing and economies of scale.
- To update the West Dapto master plan (Figure 4.2) with more detailed information.
- To avoid problems of other release areas, where development on adjoining lots is not integrated.

After the exhibition and adoption of a Neighbourhood Plan, Development Applications can be lodged by individual landowners (or their consultants), for development in their part of the neighbourhood. A

Development Application can be submitted on behalf of a number of landowners, provided owners consent is obtained. Any proposed variation to the agreed Neighbourhood Plan will require justification, and any variation on or near a property boundary will require agreement of the adjoining owner.

The Neighbourhood Plan process:

1. Discuss site with Council's Land Use Planning Team
2. Prepare draft Neighbourhood Plan
3. Council officers review and report draft Neighbourhood Plan to Council as an amendment to the Wollongong DCP 2009 – Chapter D16 West Dapto Release Area master plan
4. Exhibition
5. Council officers review submissions, consult with landowner / consultant over any amendments and report submissions and revised Neighbourhood Plan to Council
6. Council adopts Neighbourhood Plan as an amendment to the DCP
7. Lodgement of Development Applications

5.2 Matters to be addressed in a Neighbourhood Plan

A Neighbourhood Plan should include:

1. Site location and description
2. Land capability assessment, addressing issues such as:
 - Existing land use.
 - Wollongong LEP (West Dapto) 2010 provisions (including Zoning, Minimum Lot Size, FSR, Building Height, Flooding, Heritage, Acid Sulfate Soils, riparian corridors etc).
 - Any other relevant legislation (eg any SEPPs, Illawarra Regional Strategy).
 - The neighbourhood's setting within West Dapto, eg proximity to commercial centres, main roads, community services.
 - Flooding.
 - Bushfire.
 - Topography, known Geotechnical constraints, known Contamination constraints.
 - Biodiversity (EECs, bushland, significant trees, habitat).
 - Known or likely Heritage sites, including Indigenous Heritage cultural issues.
 - Existing road network.
 - Available utilities & services and existing easements.
 - Need for community and recreation facilities.
 - Visual character.
 - Noise impacts (e.g. from the main roads, industrial areas or public & private railways).
3. A Neighbourhood concept plan, and supporting documentation, showing proposed:

- Residential, retail, employment, recreation and conservation areas.
- Road layout & hierarchy.
- Indicative dwelling density & yield.
- Public transport, bicycle and pedestrian routes.
- Drainage management concepts (water quantity & quality).

Note – where a drainage/water quality solution is developed at a catchment or neighbourhood level, Council will acquire the agreed detention basin site through the West Dapto Section 94 Plan.

- Buffers to heritage items.
- Riparian corridors, buffers and proposed future use.
- Location of schools, community facilities, recreation facilities and parks, including any proposed public land.

5.3 Matters to be addressed in Development Applications

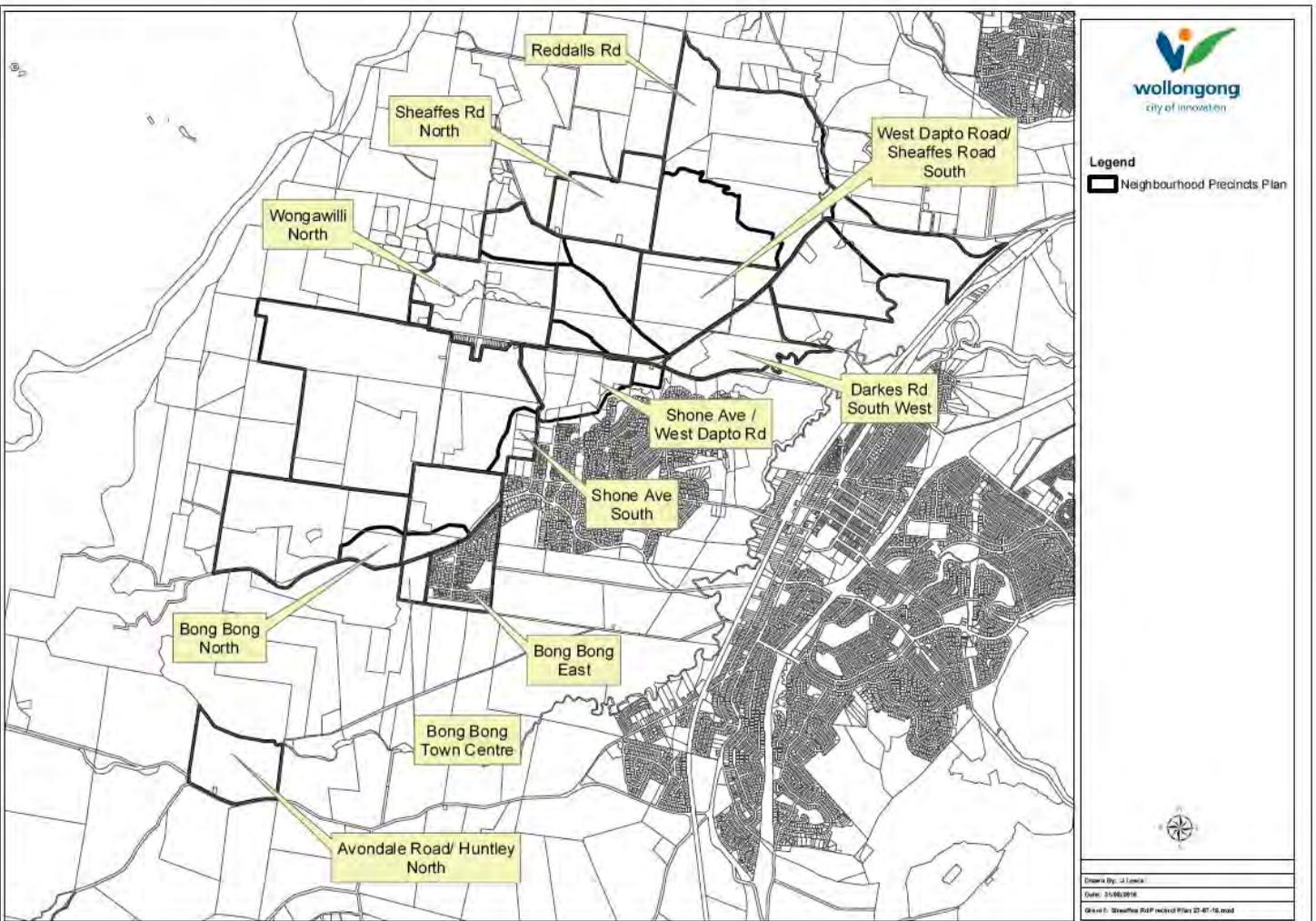
The documentation accompanying the Development Application for subdivision will have to provide more detailed site specific information and specialist reports, addressing issues such as:

- Detailed site survey by a registered surveyor.
- Development plans – lot layout, road design.
- Flora and fauna assessment and future management (Chapters E18, E23).
- Drainage/flooding/water quality modelling (Chapters E13, E14, E22).
- Land contamination assessment (Chapter E20).
- Bushfire management (chapter E16).
- Traffic assessment (Chapter E3).
- Aboriginal heritage assessment (Chapter E10).
- Noise assessment (where relevant) (Chapter E4).
- Pedestrian and bicycle routes, including accessibility for persons with a disability (Chapter E1).
- Crime Prevention through Urban Design (Chapter E2) etc

The documentation accompanying a Development Application for a Dwelling House on a newly subdivided lot should have regard to Part A and B1 (Dwelling Houses) of this DCP and any variations to the generic controls under this chapter (e.g. the standard setbacks in individual neighbourhoods may have been varied).

An application for a Dwelling House can also be undertaken in accordance with the requirements of SEPP Exempt and Complying Development, which can be assessed by Council or a Private Certifier.

Figure 5.1 Defined Neighbourhoods



Adopted Neighbourhood Plans

The following Neighbourhood Plans have been adopted for the purposes of this Part:

Neighbourhood Plan	Submitted by	Adoption Date
5.3.1. Bong Bong East and north	Stockland	14 December 2010
5.3.2. Bong Bong Town Centre (draft – see chapter 6.1.2)	Vinta Group / Bong Bong Town Centre	14 December 2010
5.3.3. Wongawilli north (excluding the village area)	Cardno Forbes Rigby and Jones Flint and Pike.	26 November 2012
5.3.4 Shone Avenue south	KF Williams	26 July 2011
5.3.5 Reddalls Road Industrial	Beadnell	9 December 2013
5.3.6 Sheaffes Road North	SMEC Urban	8 April 2013
5.3.7 Darkes Road South West	Don Fox Planning	24 March 2014
5.3.8 Avondale Road North, Huntley	Urbis	3 August 2015
5.3.9 Shone Avenue / West Dapto Road	KF Williams	24 August 2015
5.3.10 West Dapto Road / Sheaffes Road (south)	Watts Consulting & Wollongong City Council	14 September 2015

5.3.1 Bong Bong East and North

Figure 5.3.1.1 Neighbourhood Plan 1 - Bong Bong East and North



The following variations to development standards have been accepted:

Chapter B1 Residential Development - Section 4.5 Front setbacks – controls 1 and 2 are replaced with:

1. The following setback requirements apply from the primary street frontage to the front façade of the building:
 - a) Front building line: 4.5 metre minimum setback, except for garages which must be setback at least 5.5 metres from the property boundary on the primary road.
 - b) Articulation zone: An articulation zone up to a maximum of 1.5 metres measured from the foremost edge of the building line may be incorporated within the front setback zone. The following building elements are permitted in the articulation zone:
 - i) an entry feature or portico,
 - ii) a balcony, deck, patio, pergola, terrace or verandah,
 - iii) a window box treatment,
 - iv) a bay window or similar feature,
 - v) an awning or other feature over a window,
 - vi) a sun shading feature.
 - c) A building element must not extend above the eave gutter line, other than a pitched roof to an entry feature or portico that has the same pitch as the roof on the dwelling house.

- d) The maximum area of all building elements within the articulation zone, other than a building element listed in (v) or (vi) above, must not be more than twenty five percent of the area of the articulation zone, measured through the horizontal plane of the elements.
2. For corner allotments the following setback requirement applies from the secondary street frontage to the façade of the building:
 - a) Secondary building line: 2 metre minimum setback.

Chapter B1 Residential Development - Section 4.6 Side and rear setbacks – controls 1 to 3 are replaced with:

1. A dwelling house and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house with a building height at any point up to 3.8 metres on an allotment with an area greater than or equal to 450m² must have a setback from a side boundary of at least 900mm. This control does not apply to a secondary street frontage.
2. Any part of a dwelling house that has a building height in excess of 3.8 metres and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to a dwelling house on an allotment with an area greater than or equal to 450m² must have a setback from a side boundary of at least the sum of 900mm and an amount that is equal to one quarter of the additional building height above 3.8 metres. This control does not apply to a secondary street frontage.

N.B. A two storey dwelling house may have its ground floor component (up to 3.8 metres in height) setback 900mm from the side boundary with the second storey setback further as required by the formula in (2).

A dwelling house that is part two storey and part single storey may have the single storey portion of the dwelling house (up to 3.8 metres) setback 900mm from the side boundary and the two storey portion of the dwelling house setback further as required by the formula in (2).

3. On an allotment with an area less than 450m² and a lot width 10m or less, where an easement for access and maintenance as well as driveway crossing locations (which are located so as not to adversely impact on-street parking capacity) are provided on title, a zero side setback may be applied to one side for the single storey component of the dwelling. The two storey component of the dwelling is to be setback further as required by the formula in (2). This control does not apply to a secondary street frontage.

The following additional controls to apply:

6. A dwelling house and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house with a building height at any point up to 3.8 metres must have a setback from the rear boundary of at least 3 metres.
7. A dwelling house with a building height of more than 3.8 metres and any carport, garage, balcony, deck, patio, pergola, terrace or verandah that is attached to the dwelling house must have a setback from the rear boundary of at least 3 metres, plus an amount that is equal to three times the additional building height above 3.8 metres up to a maximum setback of 8 metres.
8. Despite (6) and (7), an allotment that has a rear boundary with a laneway may have a building line that abuts that boundary for up to 50 per cent of the length of that boundary.

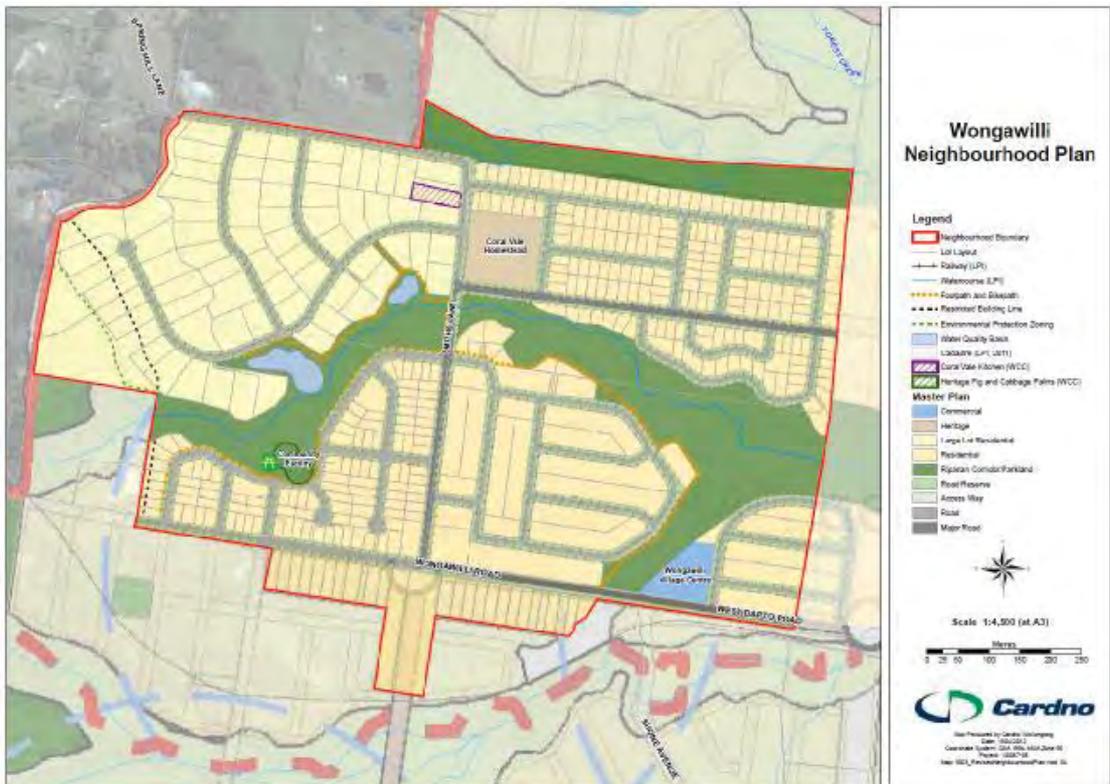
Chapter B2 Residential Subdivision – Section 13 Cut and Fill land reshaping works – does not apply to master planning of land and precinct subdivision applications.

5.3.2 Bong Bong Town Centre

Refer to Section 6.1.3.

5.3.3 Wongawilli - north

Figure 5.3.3.1 Wongawilli north Neighbourhood Plan

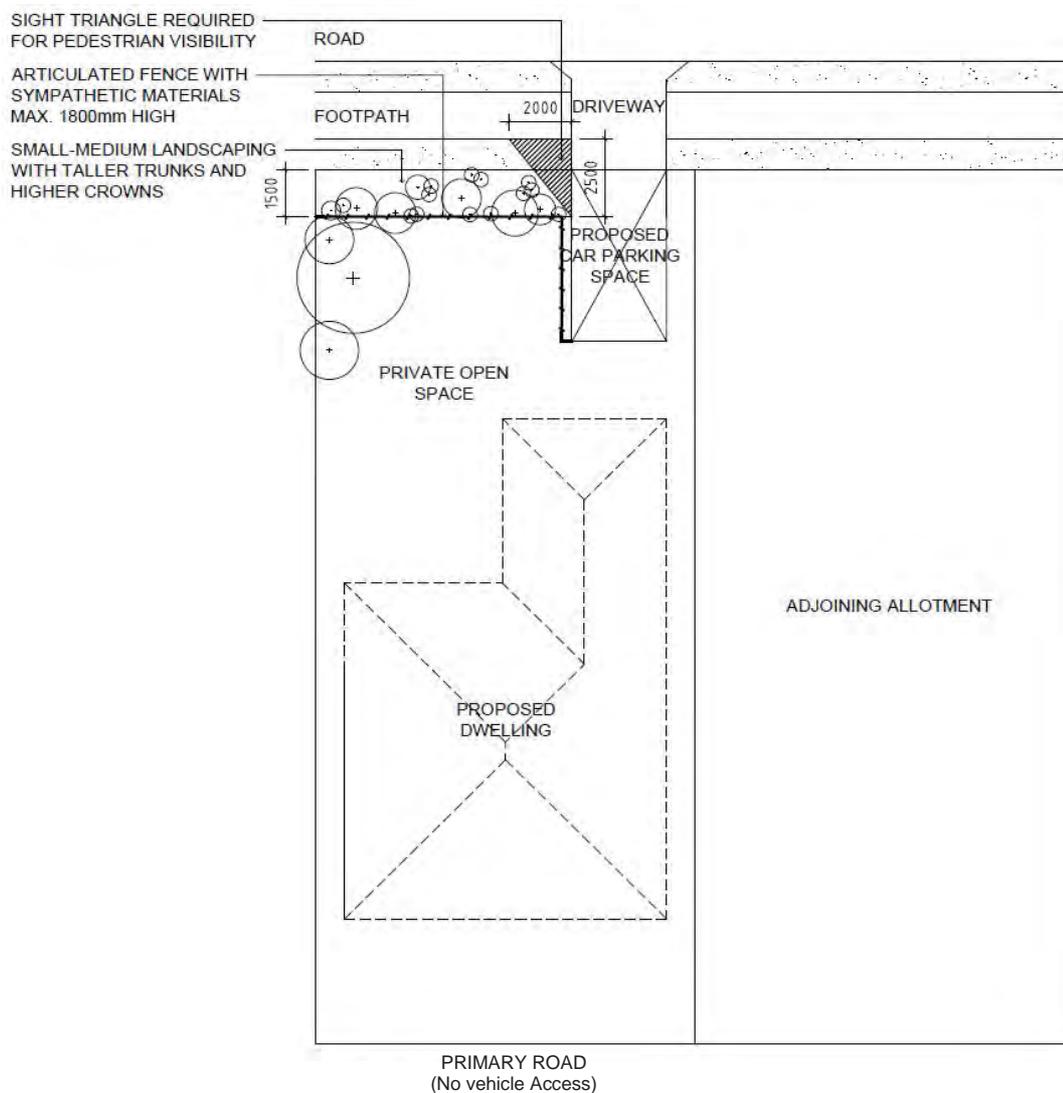


The following modified and additional controls to apply:

1. Minimum Lot width fronting Wongawilli Road and Smiths Lane of 15m;
2. Minimum front building line setback of 4.5m for all lots fronting Wongawilli Road and Smiths Lane;
3. The maximum length of cul-de-sacs that provide access to lots fronting Wongawilli Road Should not exceed 130m;
4. For Lots with a dual road frontage:
 - a. Wongawilli Road and Smiths Lane is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
 - b. All dwellings must face, address and activate the primary road frontage of Wongawilli Road and Smiths Lane;

- c. Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
 - d. Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure 5.3.3.2;
 - e. Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in figure 5.3.3.2. Examples of Articulated fencing include, but are not limited to:
 - i. Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
 - ii. Timber Lap and Cap;
 - iii. Colourbond solid to 1.2m with Colourbond lattice style top sections.
5. For Lots backing onto or adjoining the Rural Fire Service (RFS) Property:
- a. Dwelling house, secondary dwelling and any habitable areas must be setback at least 10m from the rear or common property boundary that adjoins the RFS property;
 - b. Outbuildings and garages must be setback at least 5m from the rear of common boundary that adjoins the RFS property.

Figure 5.3.3.2 Dual frontage property secondary frontage treatment



5.3.4 Shone Avenue - south

Figure 5.3.4.1 Shone Avenue south Neighbourhood Plan

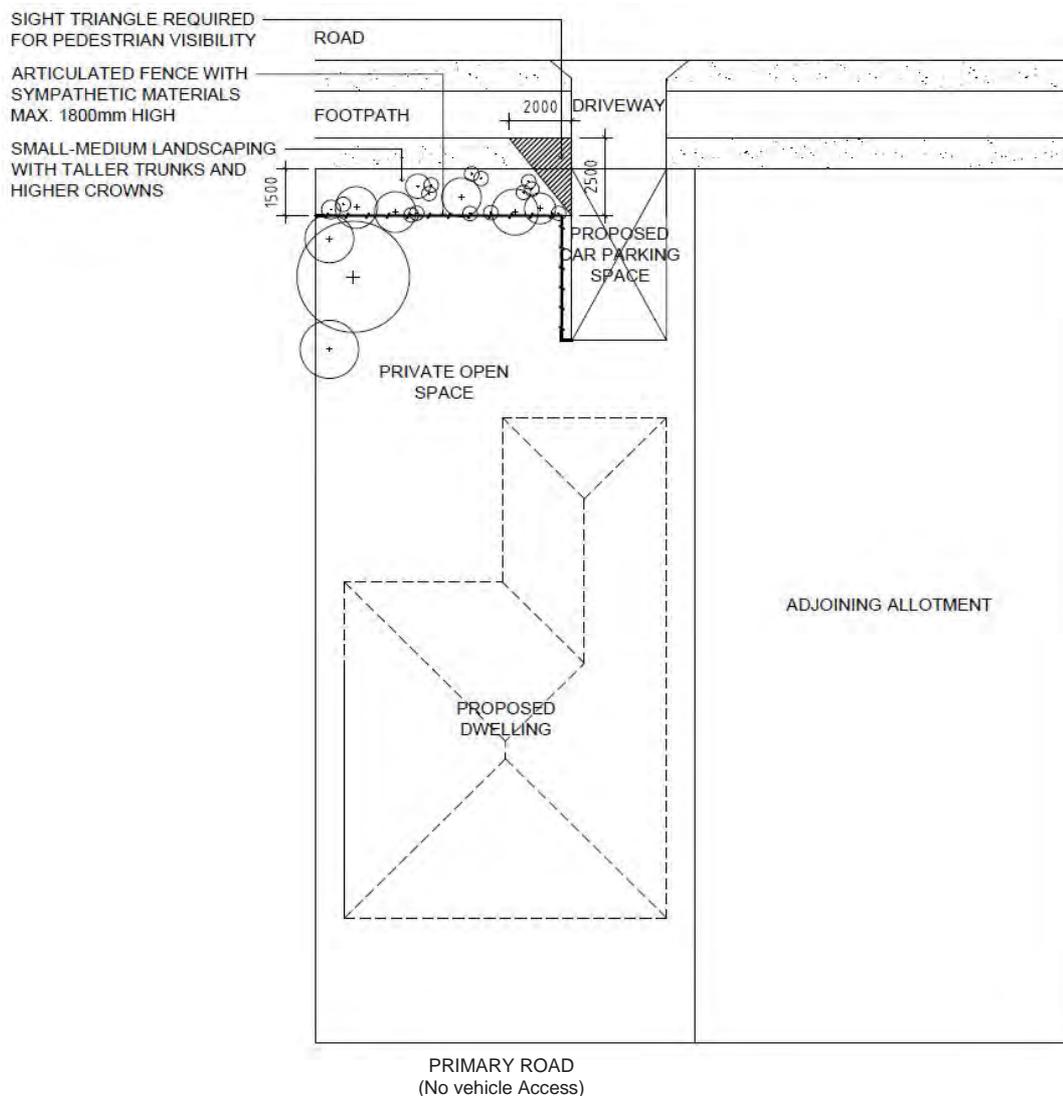


The following modified and additional controls to apply:

1. For Lots with a dual road frontage:
 - a. Shone Avenue and Iredell Road are considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
 - b. All dwellings must face, address and activate the primary road frontage of Shone Avenue and Iredell Road;
 - c. Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
 - d. Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure 5.3.4.2;
 - e. Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in figure 5.3.4.2. Examples of Articulated fencing include, but are not limited to:
 - i. Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
 - ii. Timber Lap and Cap;

- iii. Colourbond solid to 1.2m with Colourbond lattice style top sections.

Figure 5.3.4.2 Dual frontage property secondary frontage treatment



5.3.5 Reddalls Road Industrial

Figure 5.3.5.1 Reddalls Road Industrial Neighbourhood Plan



The following additional controls to apply:

1. The proposed cycleway must have adequate passive surveillance to ensure safety by design.
2. Indicative future bus stop locations should be identified and shown on road types capable of handling bus routes. A minimum number of stops should be located in a manner to ensure that the majority of lots are within 400 metres of a bus stop.
3. Any proposed development of the neighbourhood will require the applicant upgrading the relevant section of Reddalls Road to a standard that is suitable for the normal range of Heavy vehicles at no cost to Council. These upgrade works would also include any required intersection treatment to Reddalls Road and the new proposed Access Road as well as any necessary road safety works.

5.3.6 Sheaffes Road North

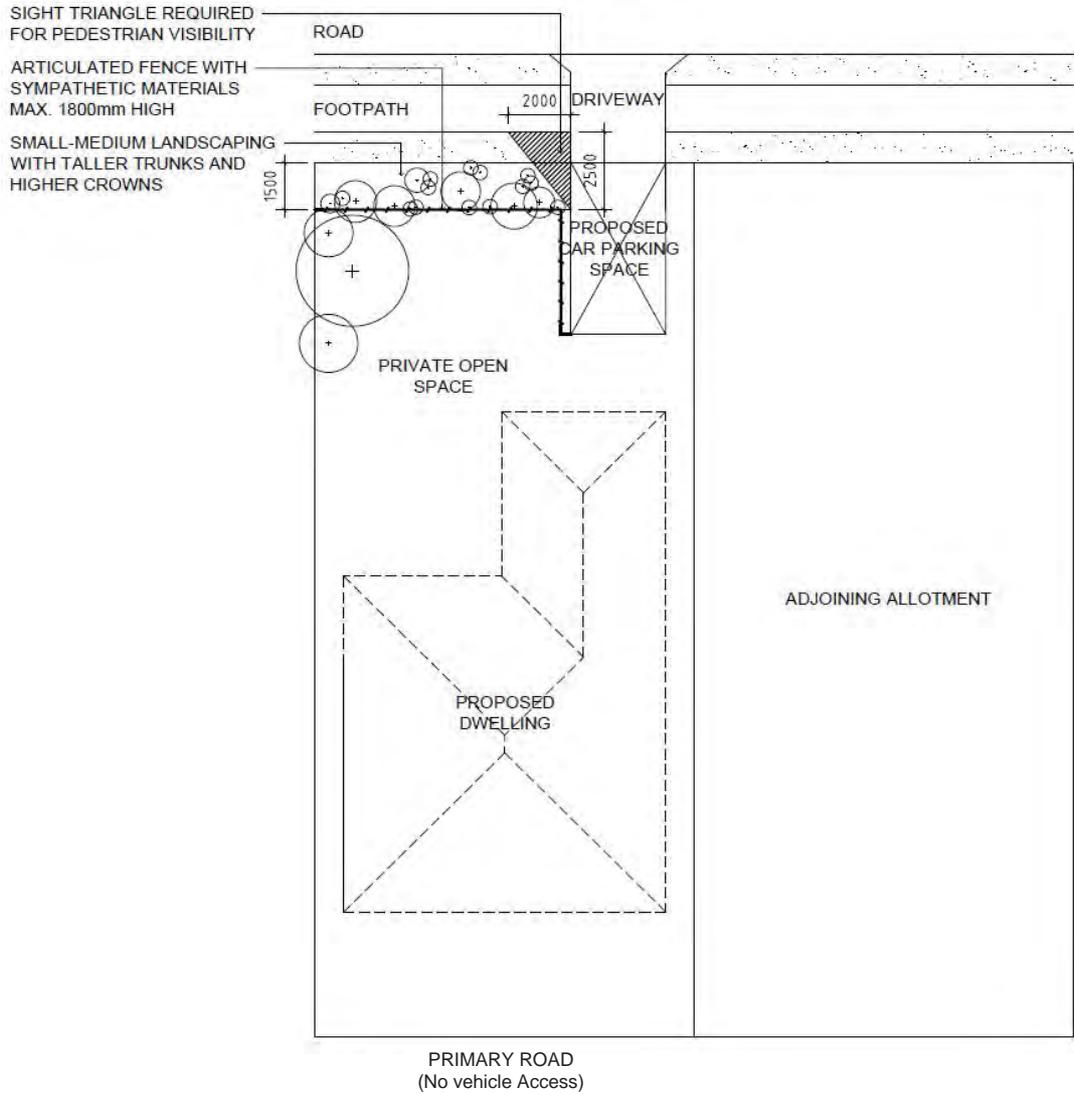
Figure 5.3.6.1 Sheaffes Road North Neighbourhood Plan



The following modified and additional controls to apply:

1. For Lots with a dual road frontage:
 - a. Sheaffes Road and Paynes Road is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;
 - b. All dwellings must face, address and activate the primary road frontage of Sheaffes Road and Paynes Road;
 - c. Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
 - d. Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure 5.3.6.2;
 - e. Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in figure 5.3.6.2. Examples of Articulated fencing include, but are not limited to:
 - iv. Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
 - v. Timber Lap and Cap;
 - vi. Colourbond solid to 1.2m with Colourbond lattice style top sections.

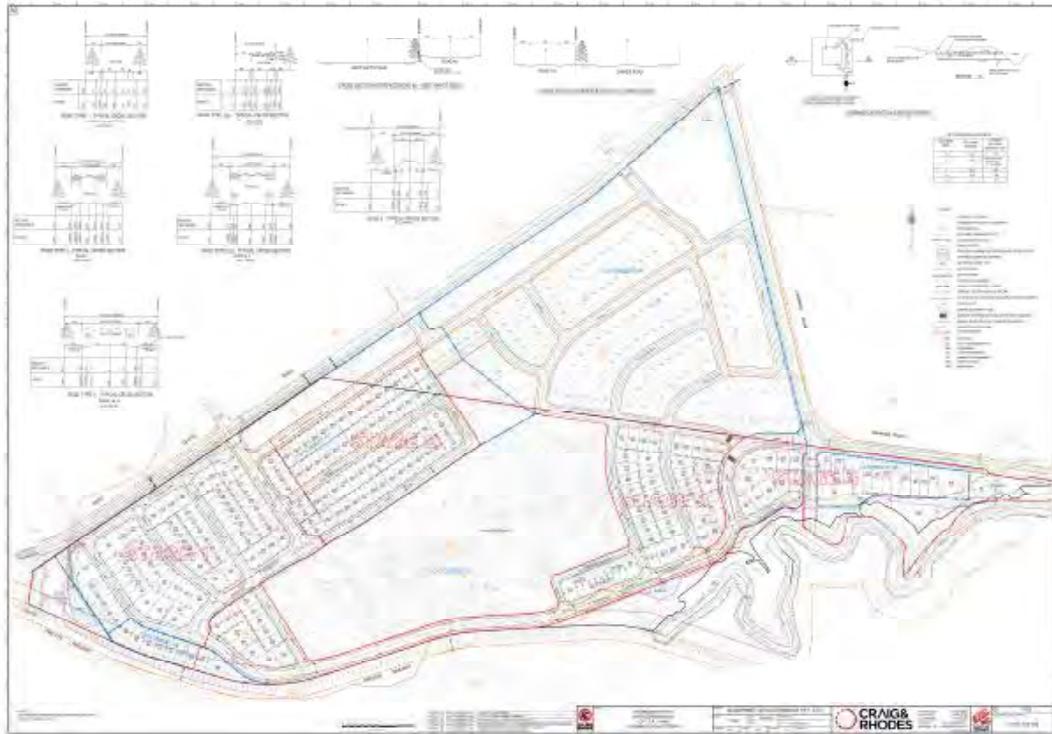
Figure 5.3.6.2 Dual frontage property secondary frontage treatment



5.3.7 Darkes Road South West

(NB: This Section 5.3.7 relies on finalisation of a separate Planning Proposal Process for amendment to minimum lot size and zoning.

Figure 5.3.7.1 Darkes Road South West Neighbourhood Plan

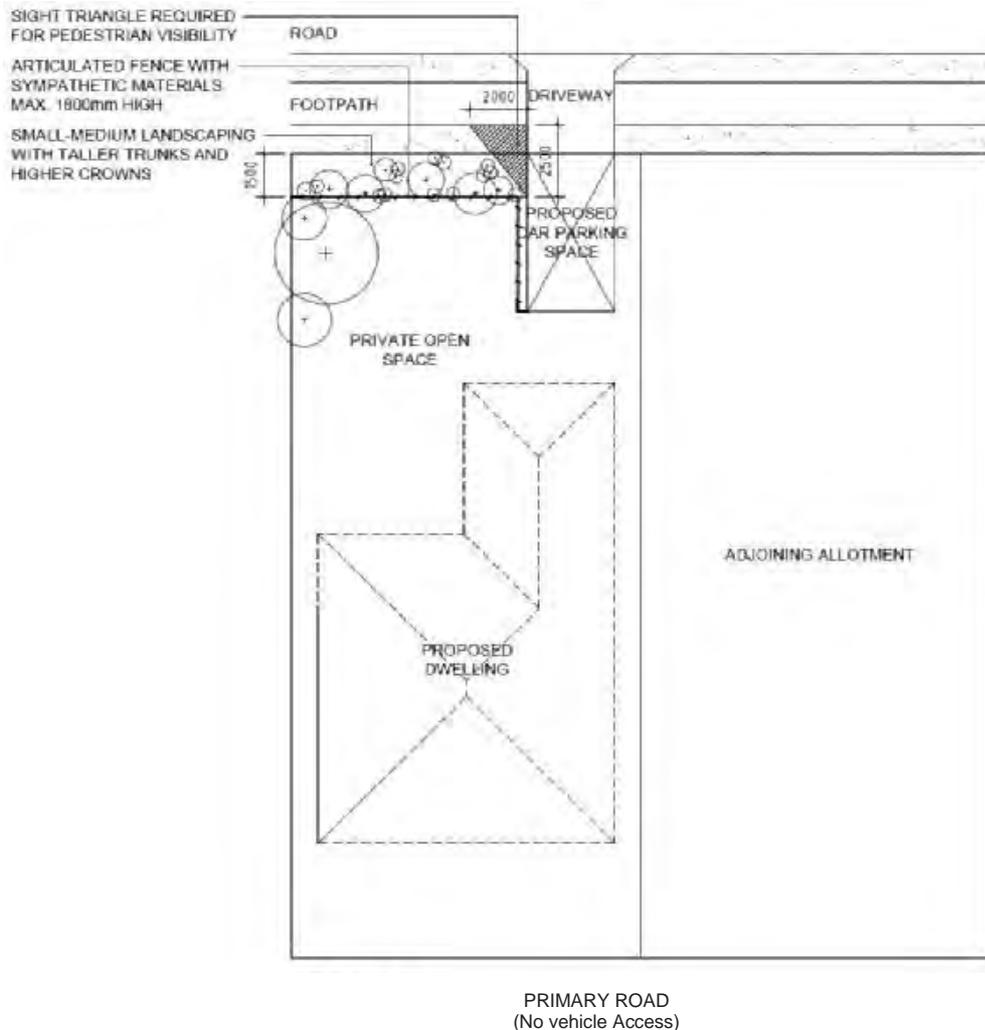


The following modified and additional controls to apply:

1. Lot Width, Depth and Aspect are to be in accordance with Figure 5.3,7.1 above and are not required to comply with Chapter B2 Section 6 Subdivision Lot Layout – Aspect & Solar Access Orientation as well as Section 8 Lot Width & Depth Requirements. The relevant issues have been considered and the lot layout and details shown are considered acceptable. Should the lot layout depart substantially from that shown then compliance with Chapter B2 is required unless variation is sought in accordance with Chapter A1.
2. On an allotment with an area less than 450m² and a lot width 10m or less, where an easement for access and maintenance as well as driveway crossing locations (which are located so as not to adversely impact on-street parking capacity) are provided on title, a zero side setback may be applied to one side for the single storey component of the dwelling. The two storey component of the dwelling is to be setback further as required by the formula in (2). This control does not apply to a secondary street frontage.
3. For Lots with a dual road frontage:
 - a. West Dapto Road and Darkes Road is considered to be the primary road frontage and the internal unnamed road is considered to be the secondary road frontage and the rear of the lots;

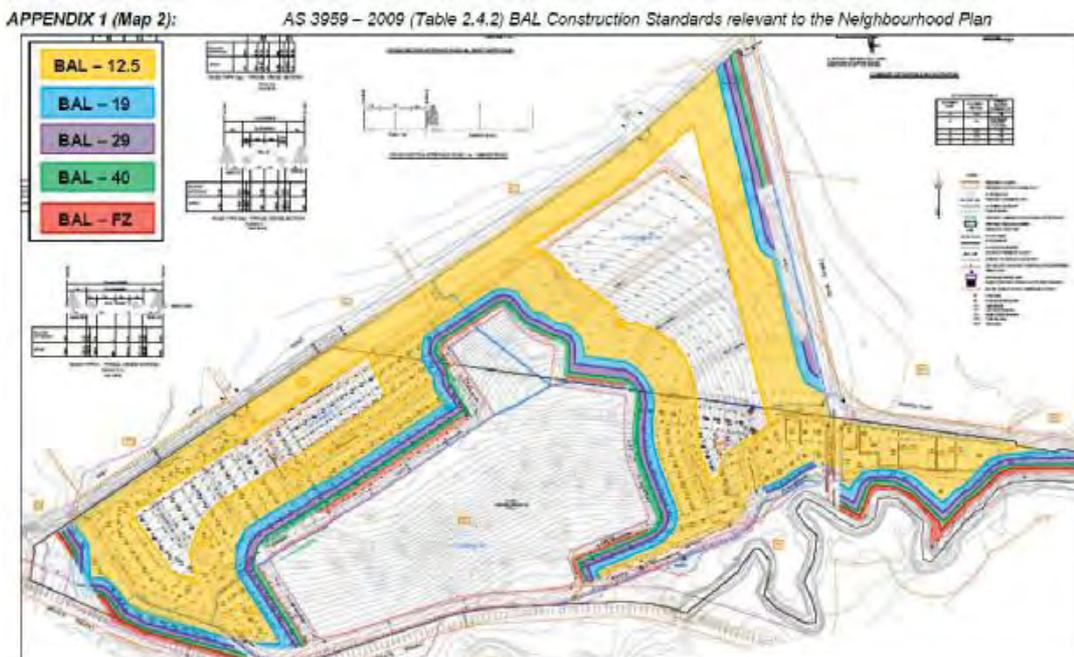
- b. All dwellings must face, address and activate the primary road frontage of West Dapto Road and Darkes Road;
- c. Car ports or garages must be located and accessed from the secondary road frontage rear of the lots;
- d. Minimum rear setbacks are to remain in accordance with Chapter B1, garages and carports are to have a minimum rear setback of 5.5m in accordance with the principles shown in figure 5.3.7.2 below;
- e. Fencing and landscaping treatment of the secondary road frontage is in accordance with the principles shown in figure 5.3.7.2. Examples of Articulated fencing include, but are not limited to:
 - vii. Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
 - viii. Timber Lap and Cap;
 - ix. Colourbond solid to 1.2m with Colourbond lattice style top sections.

Figure 5.3.7.2 Dual frontage property secondary frontage treatment



4. For all development applications outside of the area denoted as Stage 1:
 - a. An Aboriginal Heritage Assessment is to be undertaken in accordance with the Wollongong Development Control Plan 2009 Chapter E10
 - b. Additional archaeological investigations are required to be undertaken to the previously recorded archaeological sites and three (3) potential archaeological deposits (PADs) identified. This work is required in order to better determine the significance and extents of these areas.
 - c. In-principle support for the intended mitigation or Aboriginal Heritage Impact Permit (AHIP) proposals is to be gained from the NSW Office of Environment and Heritage (OEH) prior to the determination of the associated development application.
 - d. Further consultation with Local Aboriginal Groups is to be undertaken within the assessment of any future Development Applications.
 - e. Consideration of the impacts of the proposal on identified Non-Indigenous Archaeological Deposits located on the site during the preparation of the Heritage reports and which are subject to Section 140 of the NSW Heritage Act 1977.
 - f. Conservation planning related to any retained structures or features on the site (e.g. The Silo and gardens).
 - g. Interpretation planning relating to the history and heritage significance of the development area.
5. Bushfire Matters
 - a. Certain construction standards apply for development on Bushfire Prone Land. The applicable Construction Standards for proposed development are to reflect the Bushfire Attack Level (BAL) as identified at Figure 5.3.7.3 below.
 - b. Given that the site is identified as Bush Fire Prone Land, when a development application for subdivision is made, the development will require a Bush Fire Safety Authority to be issued by the NSW RFS under Section 100B of the Rural Fires Act 1997. The RFS has indicated that it is likely that by condition of the Bush Fire Safety Authority, restriction on the titles of the lots requiring the provision and maintenance of the necessary APZ's will be required.

Figure 5.3.7.3 BAL Construction Standards relevant to the Neighbourhood Plan



6. Access
 - a. An appropriate access track is to be provided to the Detention Basin A1 to facilitate sufficient maintenance access for Council.
 - b. Appropriate access is also to be provided to the Wongawilli Rail Spur Line from the Detention Basin A1 and from Road 01.
 - c. The final form of the access track is to be determined in conjunction with Council Engineering Officers within the assessment of future Development Applications. Hardstand access will be required.
7. There may be scope to amend the current Council Drainage Acquisition Maps to reflect more up to date flood mapping of the area. This is to be further investigated within future Voluntary Planning Agreements (VPAs) and assessment of Development Applications.

5.3.8 Avondale Road North, Huntley

Figure 5.8.1 Avondale Road North, Huntley Neighbourhood Plan



- g. Fencing and landscaping treatment of the secondary road frontage must ensure that clear lines of sight are maintained for motorists and pedestrians to and from the lot, and ensure the design complements the objectives of passive surveillance. To help soften the visual impact and improve the streetscape appearance of the fence, and allow visual connection between the dwelling and the street, any fence will be required to be well articulated and landscaped with appropriate planting. Articulated fencing should be provided to a maximum height of 1.8 metres. Examples of articulated fencing include, but are not limited to:
- i. Masonry to 1.2m high with open type lattice or slates above with masonry elements no wider than 150mm;
 - ii. Timber Lap and Cap;
 - iii. Colourbond solid to 1.2m with Colourbond lattice style top sections.

NB. Fences in bush fire prone areas shall be of a metal or masonry construction only.

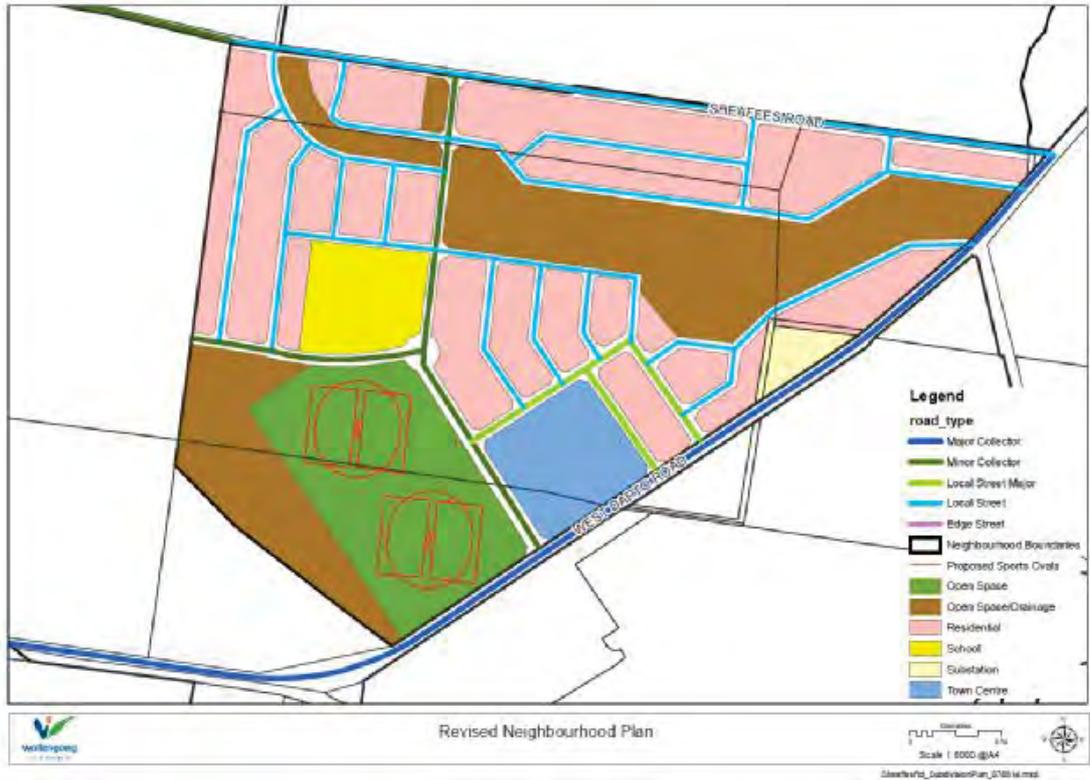
- h. Any gates associated with the secondary street fence should open inwards so as to not obstruct the road reserve
- i. Where garage door openings face the secondary road they shall be a maximum of 50% of the width of the dwelling. Refer to Chapter B1: Residential Development for other car parking and access controls.

2. For Lots backing onto West Dapto Road:

- a. An acoustic building exclusion zone of 25 metres applies along the length of the rail corridor to reflect Noise Report recommendations;
- b. A sound wall is to be erected by the developer along the length of the rail corridor, as indicated in the Neighbourhood Plan.

5.3.10 West Dapto Road / Sheaffes Road (south)

Figure 5.3.10.1 West Dapto Road / Sheaffes Road (south) Neighbourhood Plan



6 DEVELOPMENT CONTROLS

6.1 Town Centres

6.1.1 Town Centres and Villages

Dapto major regional centre, Bong Bong Road district centre, Darkes Road village centre and the three village centres are key elements in the overall structure of West Dapto, providing focal points and contributing to the “legibility” of the urban framework, particularly as important nodes in the bus network.

A district centre (~15,000m²) is planned within the central western (Bong Bong Road) part of the release area and a village centre (~7,500m²) planned in the northern (Darkes Road) area to service the release area. These are intended to create local retail, business, commercial and community hubs providing significant local employment opportunities. They will complement rather than compete with the higher order major regional centre of Dapto.

The Town Centres will form the most urban parts of West Dapto and have a variety of building typologies with urban characteristics such as increased height, minimal or zero street setbacks and street level awnings and verandahs. The public domain is intended to reflect an urban character, with high quality hard and soft landscape and paved footpaths with advanced planting of shade trees. Parking will be at the rear of blocks and underground as well as good on street provision of kerbside parking – building setbacks to accommodate front parking lots will not be permissible, as these detract from the street qualities sought in these centres.

In addition three small village centres are planned (Wongawilli, Avondale and Yallah) to meet local shopping needs. They are to comprise a few local shops (like the existing Horsley shops), as well as providing opportunities for local business, a bus stop, community facilities such as a primary school and a choice of housing types. These would take on the role of the local centre and be the focus for the new communities at West Dapto in addition to convenience stores to be co-located with service stations if demand requires.

Controls for Neighbourhood Plans must give consideration to the ability to develop adjoining areas including linkages to those areas. New town centres are encouraged to prepare a Workplace Travel Plan and Travel Access Guides.

Objectives:

- (a) To ensure that the residents of West Dapto have access to well designed, attractive town and village centres which act as retail, business, commercial and community hubs consistent with the overall centre hierarchy for West Dapto.

Controls:

1. Development Applications for the development of including town centres are to be consistent with the matters contained in sections 5.1, 5.2, 5.3 and 6 of this chapter in relation to centres.

6.1.2 Design Principles

Town Centres are to be designed to comply with the following principles:

1. Establish streets with at least two storey buildings where possible. Taller buildings of 4-6 stories are encourage in the core of the town centre.
2. Active retail street frontages are encourage. Upper floors can be commercial or residential uses.

3. Create a lively mix of uses within the centres, providing opportunities for employment, commerce, retailing, living, entertainment and community activities
4. Early stages of development are likely to focus on Supermarket and associated small specialty shops, therefore these should be designed as complete compositions which create places within their own right
5. Buildings are to present urban characteristics to the street in relation to setback, form and streetscape/building design.
6. Residential densities in and around the centres are to be increased in line with density requirements at Section 2.3.1 in order to create a choice of housing opportunity within the West Dapto development area at locations with high amenity which are well serviced
7. Parking lots and areas are generally not to be visible from the streets, allowing built form to perform its correct street defining urban function.
8. Establish a high quality, high value public domain with strongly urban characteristics and design.

6.1.3 Bong Bong Town Centre

In the area where Bong Bong Road adjoins the north-south arterial route a new district town centre is to be established, based on a north-south running main street. The Bong Bong Town Centre is to be the primary town centre in the release area being centrally located and at a greater distance to Dapto Town centre than the proposed Darkes Road Town Centre. The Bong Bong Town Centre is to be a supermarket based centre with a range of shops and would accommodate around 15,000m² of retail floor space.

Figure 6.1 Bong Bong Town Centre – Conceptual layout



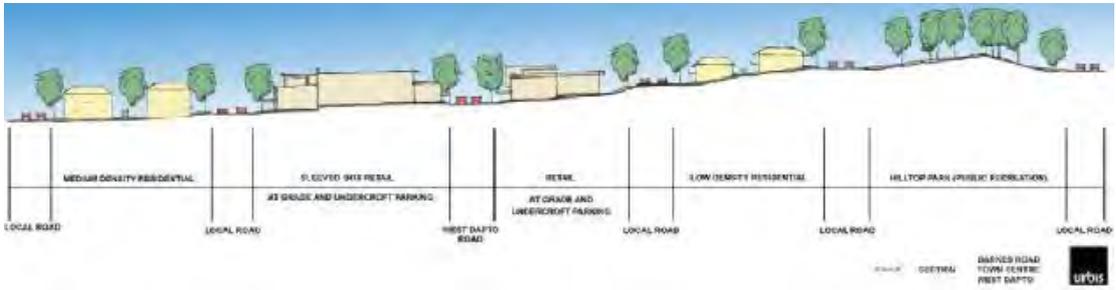
6.1.4 Darkes Road Town Centre

Along West Dapto Road a smaller secondary town centre (large village centre) is to be established based on the east–west route becoming a main street. While activity in terms of residential and business use is expected along the length of the centre, only the core part will contain the primary retail and commercial functions. It is envisaged that this centre would accommodate around 6,000m² of retail floor space to support the employment lands.

Figure 6.2 Darkes Road Town Centre – Conceptual layout



Figure 6.3 Darkes Road Town Centre – Conceptual Cross section



6.1.5 Development Controls

Development in the Town Centres is to comply with the following development controls:

1. Taller buildings of 4-6 stories are encouraged in the core of the town centre. Lower scale buildings up to 3 stories in height should surround and support the in the centre core.
2. The street wall height should have a 2-3 storey building form.
3. Single storey buildings should have a 2 storey front façade.
4. Building setbacks on main streets to be nil (zero) while other streets are generally to have a setback of between 0 – 2.5 m.
5. Side and rear building setbacks are as follows:

Setback	Distance
Side	Zero
Rear	Zero where adjoins allotment zoned B2 Local Centre or 5-6m where adjoins allotment zone R3 Medium Density Residential

6. No requirements for on site open space / landscaping in the 'core' area.
7. Provision of a shared parking facilities area is encouraged with access via laneways of minor streets.

6.2 Village Centres / Local Nodes

Three small villages are proposed totalling ~7,500m² of floor space possibly at Wongawilli, Avondale and Yallah. These, in addition to 2,000m² spread through the release area in convenience stores attached to petrol stations and the like, will cater for local convenience shopping throughout the release area.

Village and local centres are to develop as localised business and higher density residential opportunities at key places / intersections where bus stops, community facilities and local open space come together to create an urban focal point for the local community.

Figure 6.4 Wongawilli Village Centre – Conceptual design



6.2.1 Design Principles

1. Establish a strong urban form that clearly distinguishes the village centre / local node from surrounding areas.
2. Create a lively mix of uses and building types within the village centre / local node that creates the opportunity to meet the daily convenience needs of surrounding communities. Village centres should accommodate a 1,000-1,500m² supermarket and variety shops.
3. Parking lots and areas are generally not to be visible from the streets, allowing built form to perform a clearly street defining urban function.
4. Positive Interface with the street and activation of the street is important.
5. Establish a high quality, high value public domain with strongly urban characteristics and design.
6. Ensure a focus on amenity taking into consideration factors such as prevailing winds, shade and shelter. Ensure positive interface with any adjacent open space or water body as an attractive feature.

6.2.2 Development Controls

1. Building setbacks can be either street aligned (zero) or setback up to 5m to create commercial forecourts or residential courts to the street.
2. Variation of setback is encouraged to create an informal organic character.
3. Building height of up to 2 storeys is encouraged to create an urban village character with upper floor uses including small scale commercial and residential developments.
4. Parking to be provided at the rear of buildings in the form of rear laneways and parking areas accessed from the rear laneways / car courts.
5. All shops should address street and be entered by front from the major street where possible or secondary street.
6. Size of shops is limited to 1500m².

7. Community congregation areas to be north facing and where possible take advantage of escarpment views.
8. Major and Secondary street parking to be maximised.

6.3 General Development Controls

Development controls in this chapter are closely linked with and cross reference other chapters of the Wollongong Comprehensive Development Control Plans.

Development controls applying to development in the West Dapto Urban Release Area should also address the following chapters:

- E1: Access for People with Disability
- E2: Crime Prevention through Environmental Design (CPTED).
- E6: Landscaping
- E16: Bush Fire Management

Variation control – Bushfire Management Activities should not occur in land zoned E2 Environmental Conservation which aim to protect Endangered Ecological Communities or significant bushland. Bushfire Management Activities can occur within the floodplain and riparian land management areas, to maximise residential development in the Residential zones for West Dapto.

- E20: Contamination
- E22: Erosion and Sediment Control

6.3.1 Flora and fauna

Environment Protection Areas

The intrinsic West Dapto environment has formed the basis for the creation of a new urban structure and a backdrop to the creation of new communities. Areas of sensitivity have been included in environmental protection zones and will be subject to stringent development controls with rigorous controls applying in the most sensitive areas.

Areas of highest sensitivity have been, or will be in future stages, zoned Environment Conservation with minimal development allowed in these areas. This includes the main development interfaces with the escarpment on the western edge of the release area and interfaces with the predominantly west-east running creek corridors. Environment Conservation land will form a transitional development edge with lower densities of development adjacent to these areas. Increased opportunity for planting will be accommodated to complement the wooded slopes and riparian corridors.

Areas which have high conservation values and where revegetation and ongoing management is required have been, or will be, zoned Environment Management. Limited compatible development is allowed in these areas.

Areas of lesser environmental significance, but which still require sensitive design and siting have been, or will be, included in the Environmental Living zone. In these areas residential development will be allowed but on large lots and having regard to environmental criteria.

Elsewhere, areas of significant remnant vegetation will be conserved and enhanced and incorporated into the open space network as areas for passive recreation.

1. Refer to Chapter E17: Preservation and Management of Trees and Vegetation, Chapter E18: Threatened Species.

6.3.2 Indigenous and European Heritage

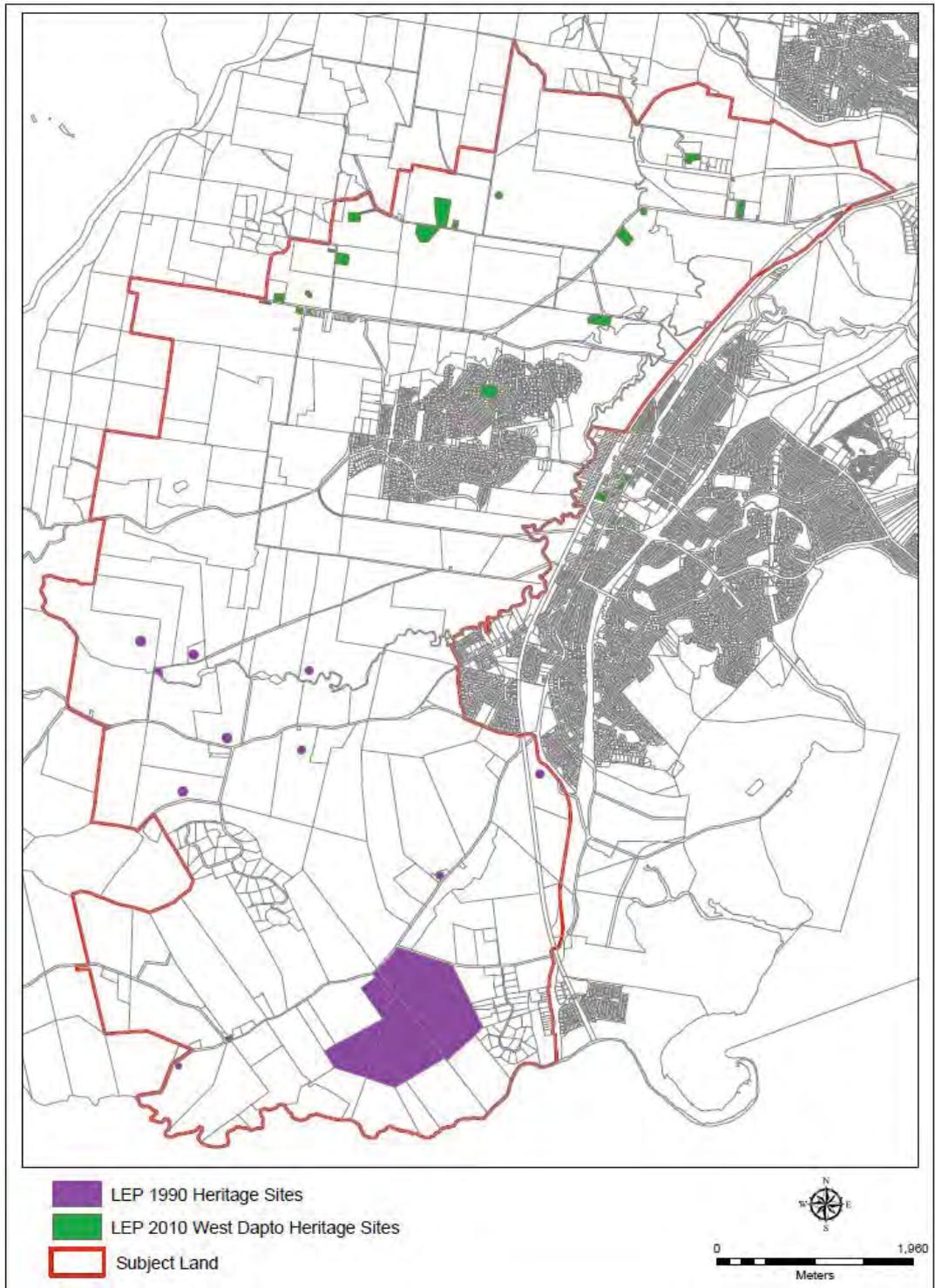
Heritage

The West Dapto area has strong links to the past, both in the recent history of pastoralism and mining, and the prehistoric and post-contact Aboriginal occupation of the coastal hinterland. As well as the presence of known archaeological sites within the study area, the coastal floodplain has been identified as having potential to demonstrate further archaeological evidence of Aboriginal occupation.

This chapter aims to conserve the heritage significance of West Dapto. The identification of heritage items has been factored in to the formulation of the development structure. As a result, a number of heritage items are identified to be retained in the future development of West Dapto and have been identified as items of environmental heritage under West Dapto LEP. These have been selected for their level of significance, physical condition and integrity, contribution to the cultural landscape and character of the area, interpretive value and ability to represent a key historic theme. Figure 4.7 identifies relevant items within the West Dapto Release area. In addition to the statutory controls contained under the LEP this DCP contains requirements in relation to these items.

1. Refer to Chapter E10: Aboriginal Heritage for specific controls relating to Aboriginal Heritage.
2. Refer to Chapter E11: Heritage Conservation, “NSW Heritage Manual” and the heritage provisions of West Dapto LEP.

Figure 6.4 Heritage Map



6.3.3 Views and Vistas

Land within the release area has been assessed for visual quality. Land falls into three categories of visual sensitivity, as indicated on Figure 6.5 and in the following table:

Zone	Objective
Zone A: High Concern for Visual Resource	Development within areas of high scenic quality must be sympathetic to that visual quality as the ability of the area to absorb change is low.
Zone B: Moderate Concern for Visual Resource	Changes to landforms, final contouring and revegetation programs will significantly contribute to reduce the visual impact and therefore must be minimised wherever possible.
Zone C: Low Concern for Visual Resource	Proposed development within this zone should remain visually subordinate to the characteristic existing landscape (note figure 6.5 does not show any land as Zone C)

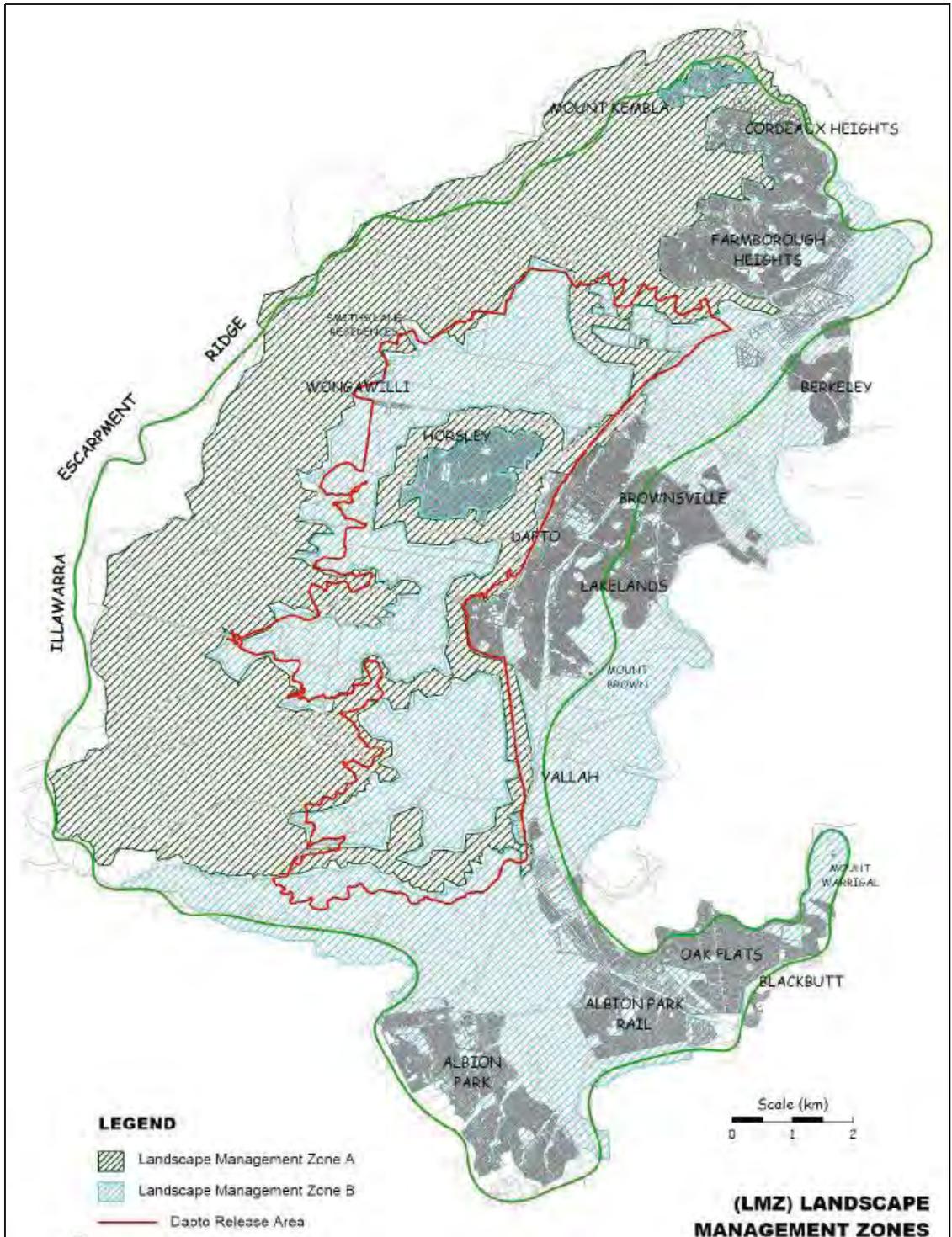
Objectives:

- (a) To minimise the impact of development on the scenic quality of the release area and surrounding visual catchment.
- (b) To ensure development within the visual zones identified above is consistent with the objective for that zone.

Controls:

1. A visual impact assessment is to be prepared by the applicant and submitted with any Development Application. The visual impact assessment is to demonstrate how retention of the visual quality of the area in which development is proposed has been considered in the design of the proposal particularly having regard to the visual zone in which the land is located.
2. Subdivision patterns and road layouts are to have regard to the retention of view corridors and vistas through, and to, areas of high scenic quality.
3. Primary Street planting is to be undertaken and established prior to the commencement of individual lot development or housing construction to minimise the visual impacts of proposed development.
4. In areas of high visual scenic quality (Zone A), development is to have a maximum height of 2 storeys and a maximum site coverage of 50%.

Figure 6.5 Views and Vistas



6.3.4 Water Management

West Dapto is bisected by a series of watercourses that form part of the Mullet Creek and Duck Creek catchments. During heavy rain they can experience intense floods of short duration (rapid rise & fall of the creek levels). The residential areas of West Dapto have been designed to be above the 1% Annual Exceedence Probability (AEP) flood level. Larger flood events could occur which could result in inundation in residential areas.

To manage the increase in runoff due to increased hard surfaces, Stormwater detention is proposed to be managed within Neighbourhood planning precincts which will take into account either individual or multiple Mullet Creek sub catchments to reflect existing conditions. In addition, each neighbourhood plan will need to address water quality requirements which may or may not be a function of the proposed basin. The location of each basin will be determined as part of the Neighbourhood Plan for each precinct.

To support the neighbourhood planning process in achieving an efficient stormwater system and address the potential inequity (that only some not all land owners within a Neighbourhood precinct will lose potential developable land area) Council will provide section 94 contributions funding. This will be equivalent to the land value for approved detention basins constructed in accordance with approved Neighbourhood plans or within individual developments considered sufficiently large enough to warrant their own detention basin. The funding is available provided that the location and design of the individual basin is not done so to the detriment of the applicable Neighbourhood precinct.

To provide for long term drainage management, Council will acquire the watercourses and provide for enhanced storage areas as sites are developed, through the section 94 contributions.

Objectives:

- (a) To create a network of interconnected multi-functional creek corridors within the West Dapto release area which act as creeks, flood ways, flora and fauna habitat, water quality treatment areas, cyclist and pedestrian access, and drainage corridors.
- (b) To conserve and restore remnant native vegetation along creek lines, escarpment vegetation to provide linkages and “stepping stones” for wildlife movement.
- (c) To introduce wildlife corridors and establish riparian vegetation within natural creeklines, providing a functioning habitat for birds, fish and diverse native flora.
- (d) To protect and restore a range of aquatic habitats within the creeks.
- (e) To enhance long-term environmental protection of the receiving waters and Lake Illawarra.
- (f) To facilitate the provision of an integrated approach to Water Management development within West Dapto.
- (g) To ensure the integration of various functions into the multiple use drainage systems of West Dapto to achieve aesthetic, recreational, environmental and economic benefits.
- (h) To provide appropriate landscape treatments that enhance the required functions of the riparian corridors and reduce the impact of utilitarian drainage structures on the amenity of the open space.
- (i) To ensure that development is designed to minimise the risk posed by flooding.
- (j) To protect the environment of Lake Illawarra.

Controls:

1. A water cycle management report is to be submitted with Development Applications for subdivision in accordance with the Water Cycle Management Study (URS, 2004) and the Floodplain Risk Management Study and Plan (Bewsher Consulting, 2006). The report must address water cycle management, water quality management, watercourse and corridor management, conservation and rehabilitation of aquatic habitat, and floodplain management. It must also address the requirements of the NSW Department of Environment, Climate Change and Water (DECCW).
2. Land that remains below the 1% AEP flood level after flood management works, approved by the consent authority, is not suitable for urban development.
3. Subdivision of land is not to create any additional flood affected residential allotments. A flood affect allotment is defined as being wholly or partly below the Flood Planning Level (FPL) (i.e. the 1% AEP flood level plus a freeboard of 500mm).
4. There is to be no net removal of flood plain storage capacity.
5. Residential dwellings are to be located clear of the effect of the FPL with floor levels above the FPL (i.e. the 1% AEP flood level plus a freeboard of 500mm).
6. Subdivisions are to be design according to Water Sensitive Urban Design principles. Development applications are to include a statement indicating how the proposed design complies with these principles. Refer to Chapter E15: Water Sensitive Urban Design.
7. Detention basins are required for each sub-catchment to control the increase in runoff. Consideration will be given to proposals for larger basins that serve multiple sub-catchments or other innovative design. The location of basins needs to be agreed to by adjoining land owners as part the Neighbourhood Plan. Where a basin is on an adjoining property, owners consent and the creation of an easement is required. The design of detention basins shall enable the colonisation by native fish species moving upstream from Mullet and Duck Creeks.
8. Refer to Chapter E13: Floodplain Management and Chapter E14: Stormwater Management for additional controls relating to floodplain and stormwater management.

Note: Flood events may be larger that the Flood Planning Level of 1% AEP which may impact on properties and dwellings.

6.3.5 Riparian Corridors

Open Space and Riparian Corridors

West Dapto is dissected by fast flowing creeks and extensive areas of flood prone land. These areas are not suitable for residential development but instead offer an opportunity for recreation, visual separation and conservation. The corridors will result in significant amounts of open space creating wider landscapes within easy reach of all parts of the new development areas, meaning walking, cycling, recreation and nature will form a part of daily life. These riparian corridors have been, or will be, zoned for Environment Protection with limited development being allowed in these areas.

Adjacent to this land certain land is, or will be, zoned Rural Landscape. The intention of these areas is to provide a buffer to the riparian corridors where the land is either not suitable for residential development or has environmental values. The outdoor recreational facilities will be located outside of the core riparian area to protect the environmental values.

Open space is to be provided throughout the development area in the form of local parks and district parks for primarily passive recreation, larger formal areas for active recreation, environmental reserves of retained bushland habitats, and riparian corridors which link the escarpment to the wide floodplains. These will be combined with avenues of intensive planting and water management running through the urban street pattern to create a connected web of open space. This will encourage walking and create a sense of nature interacting with urbanity.

Existing parks and recreational facilities have been zoned through the LEP and new parks will be designed into new neighbourhoods.

To provide for long term drainage management, Council will acquire the main watercourses as sites are developed, through the section 94 contributions. Land between the watercourse and the 1% Annual Exceedence Probability flood level can either be:

1. Retained in private ownership and used for grazing, recreational activities or other permissible uses, or
2. Dedicated to Council at no cost to Council, for use as bushland, agricultural purposes or recreational purposes. There is no Section 94 off-set for the dedication / transfer of this land.

Objectives:

- (a) To conserve and rehabilitate riparian corridors within the West Dapto release area having regard to the significant environmental and other values of this land.
- (b) To ensure that revegetation of riparian corridors is consistent with the Flooding Strategy.

Controls:

1. Development Applications shall identify the proposed land use and ownership of the riparian land.
2. Revegetation of riparian corridors shall not increase the flood risk to surrounding residential land.
3. Refer to Chapter E23: Riparian Land Management for controls relating to riparian lands.
4. The extent of riparian management activities is limited to the width of the 1% AEP flood level, which has been typically mapped as the boundary of the E3 Environmental Management and R2 Low Density Residential zone.
5. The Riparian Land Management Area can include land used for bushfire mitigation activities.



6.3.6 Open Space and Recreation

Objectives:

- (a) To ensure the future residents of West Dapto have access to a range of high quality, functional areas for passive and active recreation.

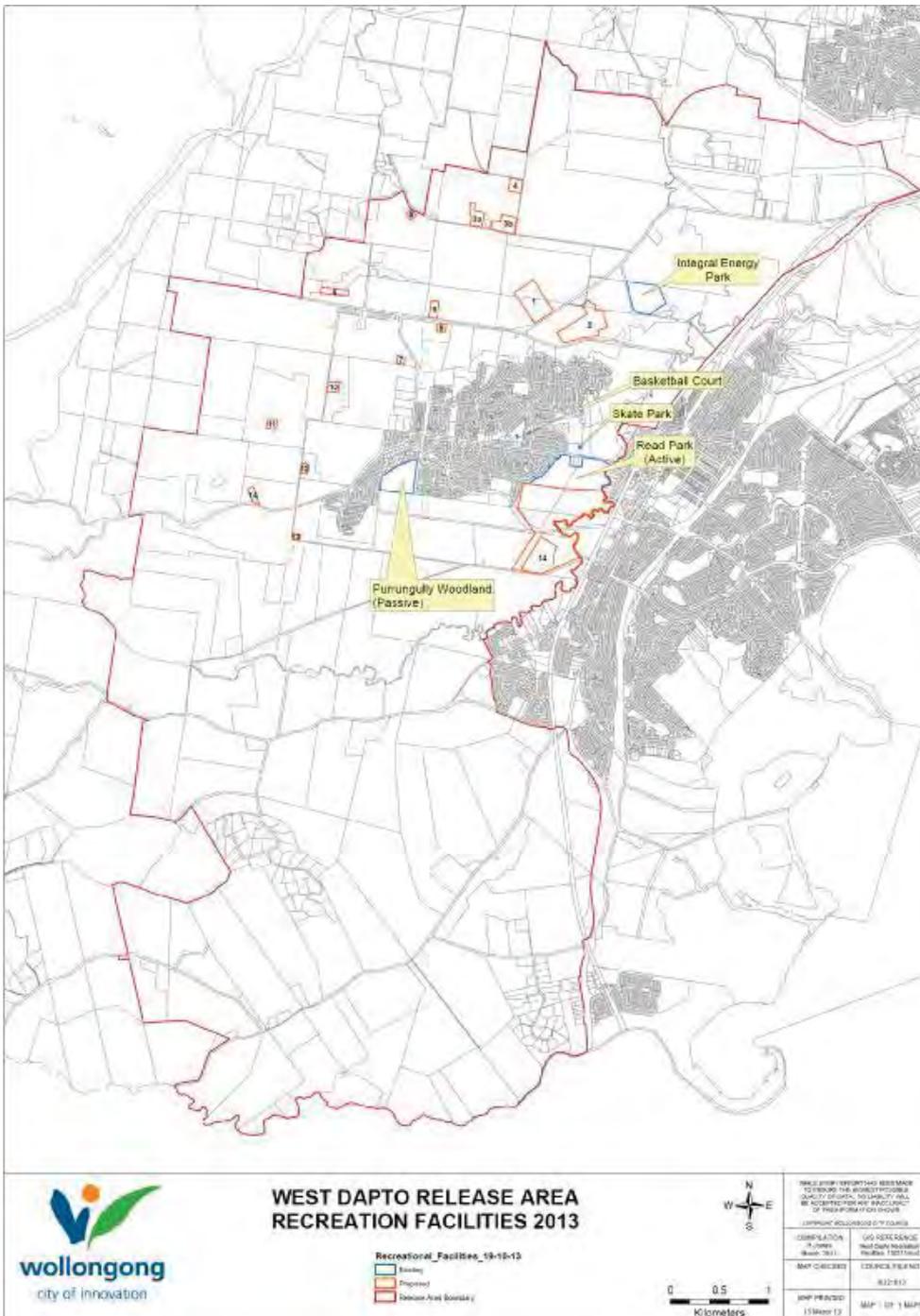
Controls:

1. Development Applications must include facilities and open space areas that are unique, either in design or characteristic, and which fit into the overall hierarchy of the West Dapto release area.
2. Playing fields should be located to take advantage of reasonably level land that may intersect with riverine corridors (maybe partially flood liable or filled) environment land (e.g. tree stands), senior schools or village nodes.
3. District Parks of 1-2 ha are to be provided within reasonable walking distance of all residents.

4. District Parks are to provide for active and passive recreational opportunities with areas for informal sports, walking, picnic / barbeque area, retained / established vegetation and where size permits leash free dog exercise areas.
5. Local parks are to be generally located within 200m of all residential uses (i.e. parks located with a 200m radius) and be generally 0.5ha or larger in area. Local parks should preferably incorporate stands of trees or environmental features to create a strong landscape character. They should also provide children's play areas, pavilions and kick around areas.

Figure 6.5.1 Recreation Facilities 2013

NB: Refer to West Dapto Section West Dapto Section 94 Plan – “Figure 4.2.1 Existing and proposed open space facilities” for details of each proposed facility



6.3.7 Acid Sulfate Soils

Certain land in West Dapto is subject to Acid Sulfate Soils (refer to the maps in the Wollongong LEP (West Dapto) 2010). If not correctly managed, the soils can adversely impact on the environment and development.

Objectives:

- (a) To ensure that development is designed, constructed and maintained to minimise and contain the risk posed by acid sulfate soils.
- (b) To protect downstream receiving waters and Lake Illawarra.

Controls:

1. Land which is subject to Acid Sulfate Soils shall be accompanied by an Acid Sulfate Soils Management Plan which demonstrates that the subject land is suitable for the proposed purpose, or will be suitable following remediation.

6.3.8 Services

Objectives:

- (a) To ensure adequate services are provided to facilitate new development.
- (b) To minimise the visual impact of services on neighbourhoods and land requirements for the provision of essential services.

Controls:

1. All services, including telecommunications, cable television, and the National Broadband Network (where appropriate) are to be provided underground.
2. Common trenching of services is encouraged, and consideration must be given to the location of underground services and landscape planting.

6.3.9 Subdivision Layout

Residential Density Distribution

The urban structure is predicated on providing for varying housing densities. In particular, medium density housing is proposed around the regional, district and village centres. Medium residential densities are essential to make the provision of efficient public transport viable and to provide support for viable and vibrant centres.

Housing areas will enable the provision of a range of housing products, including 3-4 storey apartments, 2-3 storey townhouses and single storey villas and courtyard homes. A range of housing types are to be provided to ensure that the housing needs of all household types are met. A diverse demographic profile will help ensure a sustainable and vibrant community in the long term.

In the early stages of the release the areas of lower residential density (R2 Low Density Residential zone), should provide an average of 13 dwellings per hectare and then in later stages, 15 dwellings. In the more sensitive areas, the structure plan proposes around 5 to 10 dwellings per hectare to enable protection of environmental values and minimize visual impact.

The areas of medium residential density (R3 Medium Density Residential zone) should provide an average of 20 to 25 dwellings per hectare.

Walking and Cycling Networks

The urban structure has been designed around the notion of walkable villages, with a series of town centres, village centres, and local nodes providing bus stops, local shops and amenities, community

facilities and schools, denser housing types and mixed use job opportunities. By locating facilities close to people and by co-locating them the aim is to reduce vehicle kilometres travelled (VKT) and to increase the proportion of local trips made on foot or by bicycle. This is a traditional approach to 'townmaking' which resulted in a series of places of character, as opposed to the placelessness of urban sprawl.

The riparian corridors are to be designed to promote walking and cycling through extensive pathway systems, and will clearly link to key destinations such as schools to promote walkability. The walkways and cycleways should be located outside of the 'core' riparian areas.

To promote cycling, key routes have been identified for on-road and on-footpath cycle provision. These link key places and destinations, and will connect with the east-west running cycle routes running along the riparian corridors (Figure 4.6). This will create a web of cycling opportunities to encourage a sustainable and healthy approach to local travel.

Objectives:

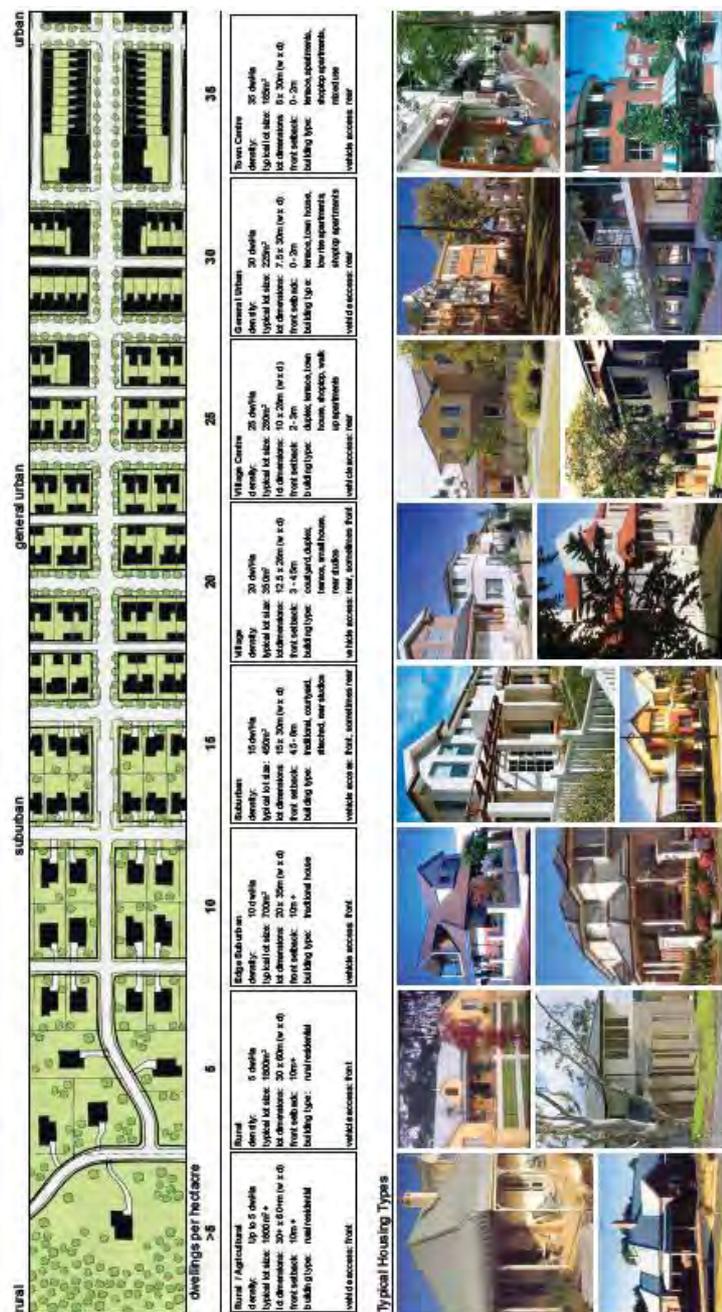
- (a) To achieve a superior design of development.
- (b) To maximise solar access and microclimatic benefits to residential lots.
- (c) To have regard to topographical features, site characteristics and constraints, and special features within a sector.
- (d) To meet a range of housing needs and provide housing diversity and choice.
- (e) To facilitate surveillance of public open spaces.
- (f) To encourage non-motorised modes of transport and accessibility within the development.
- (g) To develop and maintain an ecologically sustainable environment, reduce use of fossil fuels and encourage use of renewable energy.

Controls:

1. Lot size and layout must respond to the physical characteristics of the land, such as slope and existing significant vegetation, and site constraints including bushfire risk.
2. A variety of lot sizes and dimensions must be provided to achieve the density requirements for residential development (Refer to Figure 6.6).
3. The subdivision layout is to incorporate adequate pedestrian, cycle and vehicle links to the road network, public transport nodes, pedestrian/cyclist network, and public open space areas. The street and subdivision layout should minimise fuel use by reducing travel distances and maximising public transport effectiveness. Connectivity within neighbourhoods is essential to ensure the majority of dwellings are within 400 metres walking distance to bus stops.
4. Lot design is to facilitate housing fronting onto creek line corridors and other areas of public open space, to incorporate these spaces into the living environment, facilitate surveillance, and prevent isolation and degradation of these spaces.
5. The subdivision layout provides for a neighbourhood in which a range of basic retail services are within easy walking distance of a large proportion of residents.
6. The majority of lots should achieve a 5 star rating with the remainder achieving a minimum 4 star rating, as defined by an analysis determined from the Sustainable Energy Development Authority's (SEDA) "Solar Access For Lots" document.
7. Lots must have the appropriate area and dimensions for the siting of dwellings, canopy trees and other vegetation, private outdoor open space, rainwater tank, and vehicular access and on-site parking.

- Lots must be of sufficient size and orientation with the main living room(s) able to receive northern sunlight in winter.

Figure 6.6 Housing choice transect



6.3.10 The Road System

Road Network

West Dapto is to have a strong structure or 'skeleton' to create easy movement routes and to help with way finding. This is called a 'legible' street pattern and provides a clear street hierarchy. The hierarchy of different streets is clearly demonstrated by their design, width as well as a number of other attributes. The future road hierarchy for West Dapto is shown on the master plan (Figure 4.5).

The existing routes of West Dapto Road, Shone Avenue, Bong Bong Road, Cleveland Road, Avondale Road, Huntley Road, Marshall Mount Road and Yallah Road have all been incorporated into the new pattern, both as reminders of the past and as key routes in the future.

The necessary road network will be implemented in stages and will incorporate a package of networks which will provide a timely and affordable response and ensure that there is adequate flood free access to Horsley and the greater release area.

Public Transport

The structure of the West Dapto release area gives primacy to accessibility and in particular accessibility by public transport.

To this end the existing railway station at Dapto will be linked to the developing suburbs by local and feeder bus routes using Bong Bong Road, Fowlers Road, Darkes Road and a new access link running north south to the west of Mullet Creek.

The Kembla Grange Station will continue to serve the employment area and Kembla Grange race track and may also contain a bus interchange and commuter parking facilities.

In order to create a sustainable development outcome for West Dapto an effective bus transport system is one of the keys to reducing the use of private vehicles for all trips. The main road structure has been designed with this in mind, whereby a primary bus loop has been created for express services, linking key centres within the new pattern. Secondary routes link all other centres to this, meaning that the majority of residents will be within a five minute (400m) walk of a local bus stop.

Objectives:

- (a) Sustainable transport and travel to, from, and within West Dapto together with less use of private motor vehicles, fewer motor vehicle kilometres travelled, and improved air quality.
- (b) Safety for all road users, particularly pedestrians, cyclists, children and older people.
- (c) Safe, convenient and direct access by non-motorised means from residences to public transport, employment areas, adjoining sectors, open space, community facilities and other services.
- (d) To encourage travel by pedestrians, cyclists and public transport rather than travel by private motor vehicle.
- (e) To become less car dependent and reduce the private motor vehicle kilometres travelled (vkt).
- (f) To provide a range of traffic and transport routes throughout the area.

Controls:

1. Development Applications must include a traffic analysis and road master plan, prepared by a suitably qualified professional, and demonstrate that the objectives and controls in regard to the roads will be achieved.
2. Streets are to be designed in accordance with the Street Hierarchy identified in the West Dapto Master Plan as amended and shall have regard to function. The road hierarchy is as follows:

- a) Arterial Road – These streets are to be the main structural routes connecting the West Dapto development area together. They also serve to link to the surrounding areas and are the primary public transport routes. Street based uses fronting the road with generous footpaths (on both sides where appropriate) and street trees typify these streets especially in town and village centres.
- b) Collector – Along key connecting streets between local centres and containing bus routes will be the main avenues. These will be attractive tree lined routes for buses, private vehicles and pedestrians to share. They will contain a footpath on one side or both sides where appropriate.
- c) Local Streets – Neighbourhood streets with good landscape/verges and on-street parking to limit speeding. They will contain a footpath on one side or both sides where appropriate.
- d) Edge Streets – Along bushland and open space edged, low key streets which front open space are intended. These help in managing water and fire and give good outlook to houses on the edge. They will contain a footpath on one side or both sides where appropriate.
- e) Rear Lanes – Where denser housing occurs, for instance around local centres, rear access allows good street frontages for attached or smaller dwellings. Lanes and car courts can have garages with studies above for security and housing choice. They will contain a footpath on one side where appropriate.

See Figures 6.9 Road Types Plan and Figure 6.10 Road Sections below, for more detail.

- 3. Land to create road reserve of sufficient width to enable the construction of the typical road cross section is required to be dedicated to Council.
- 4. The street pattern must provide direct, safe, and convenient pedestrian and cyclist access from housing and employment areas to public transport stops.
- 5. Each new neighbourhood is to provide safe and convenient walking and cycling connections to adjoining neighbourhoods, and to adjacent areas of open space, services and other facilities.
- 5. Connectivity within neighbourhoods is required to ensure the majority of dwellings are within 400 metres walking distance to bus stops.
- 6. Construction over or within waterways should have regard to the Fish Passage Guidelines developed by NSW Fisheries.

Figure 6.7 Proposed Road Network

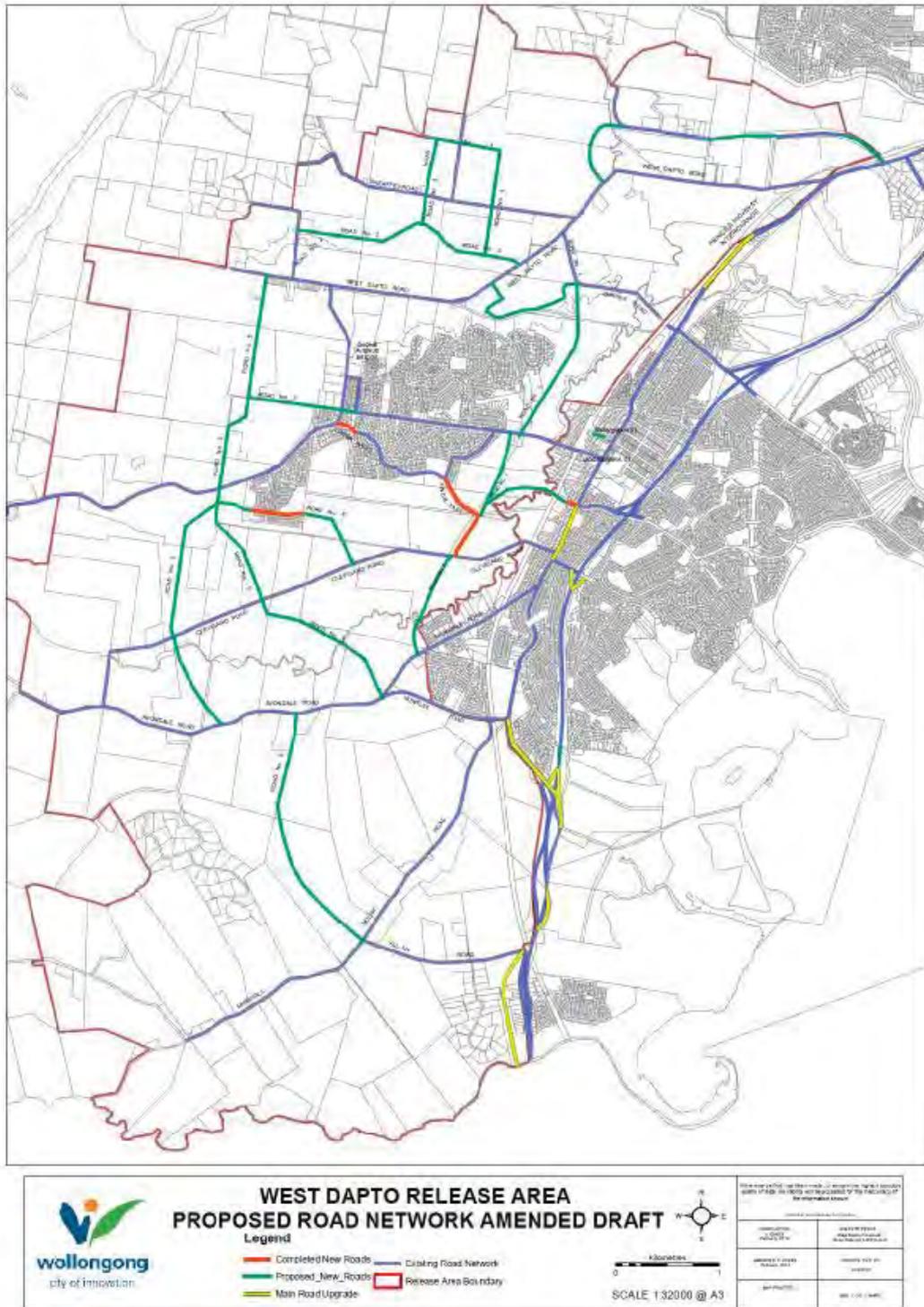


Figure 6.8 Cyclway network

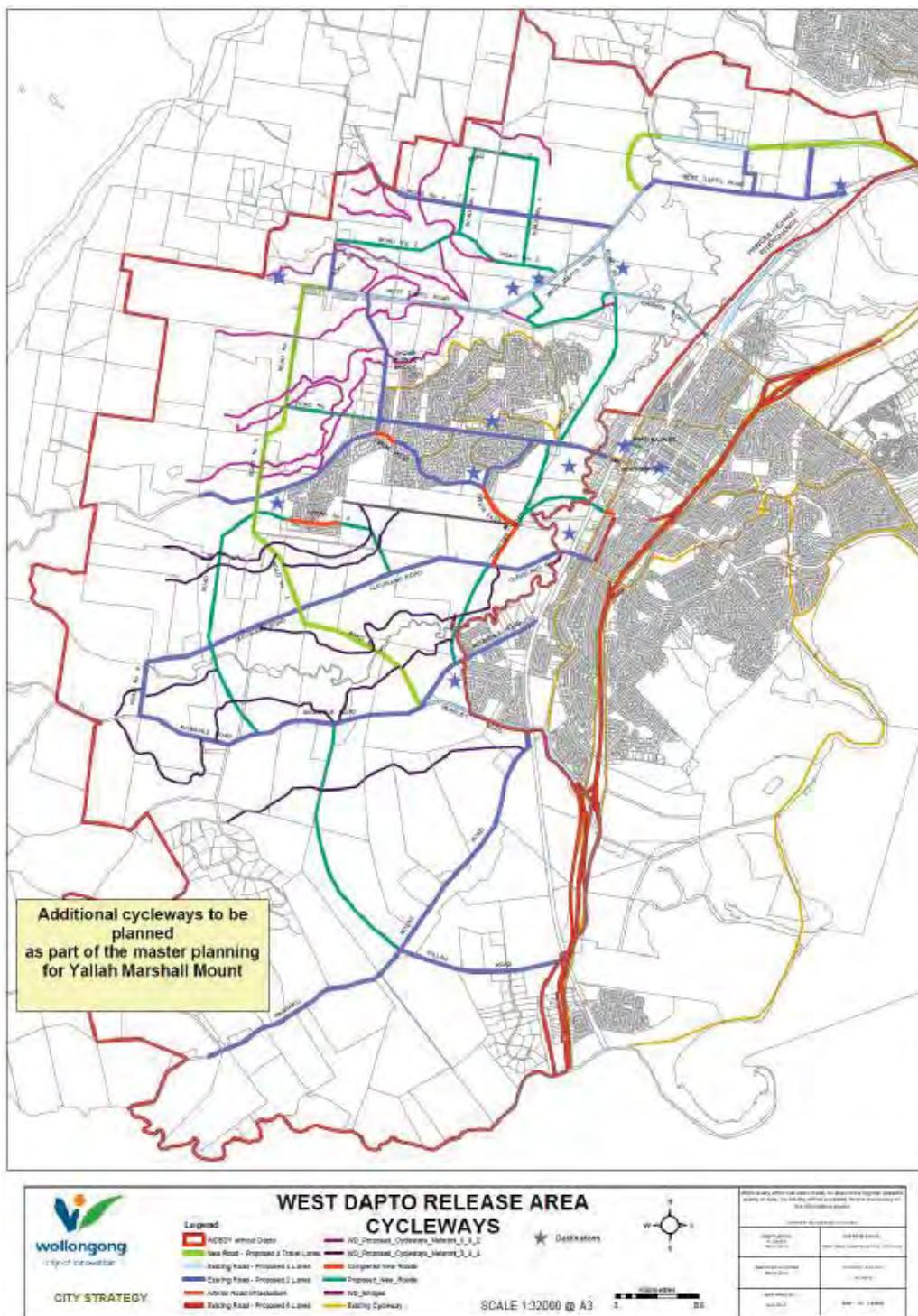
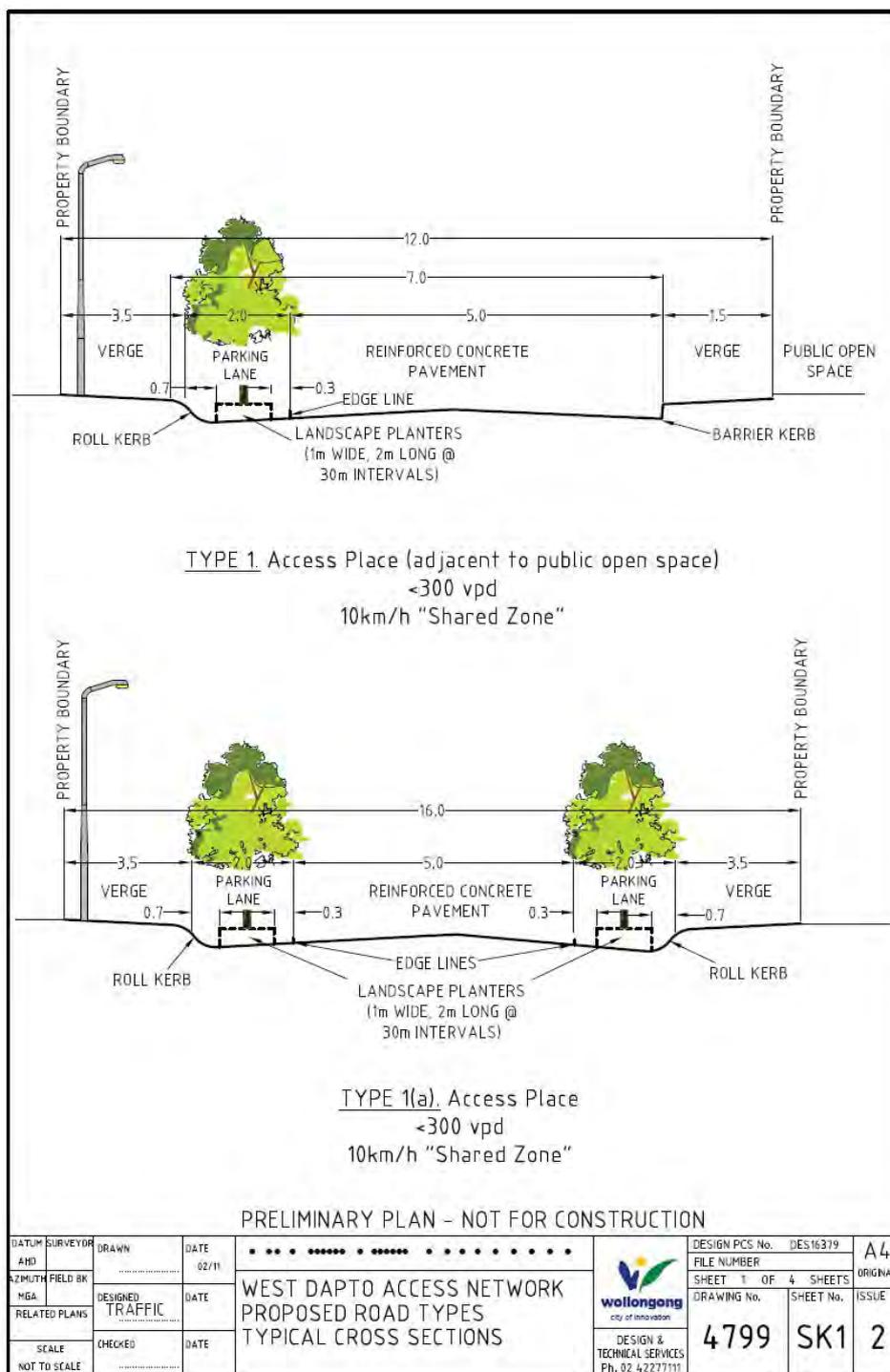
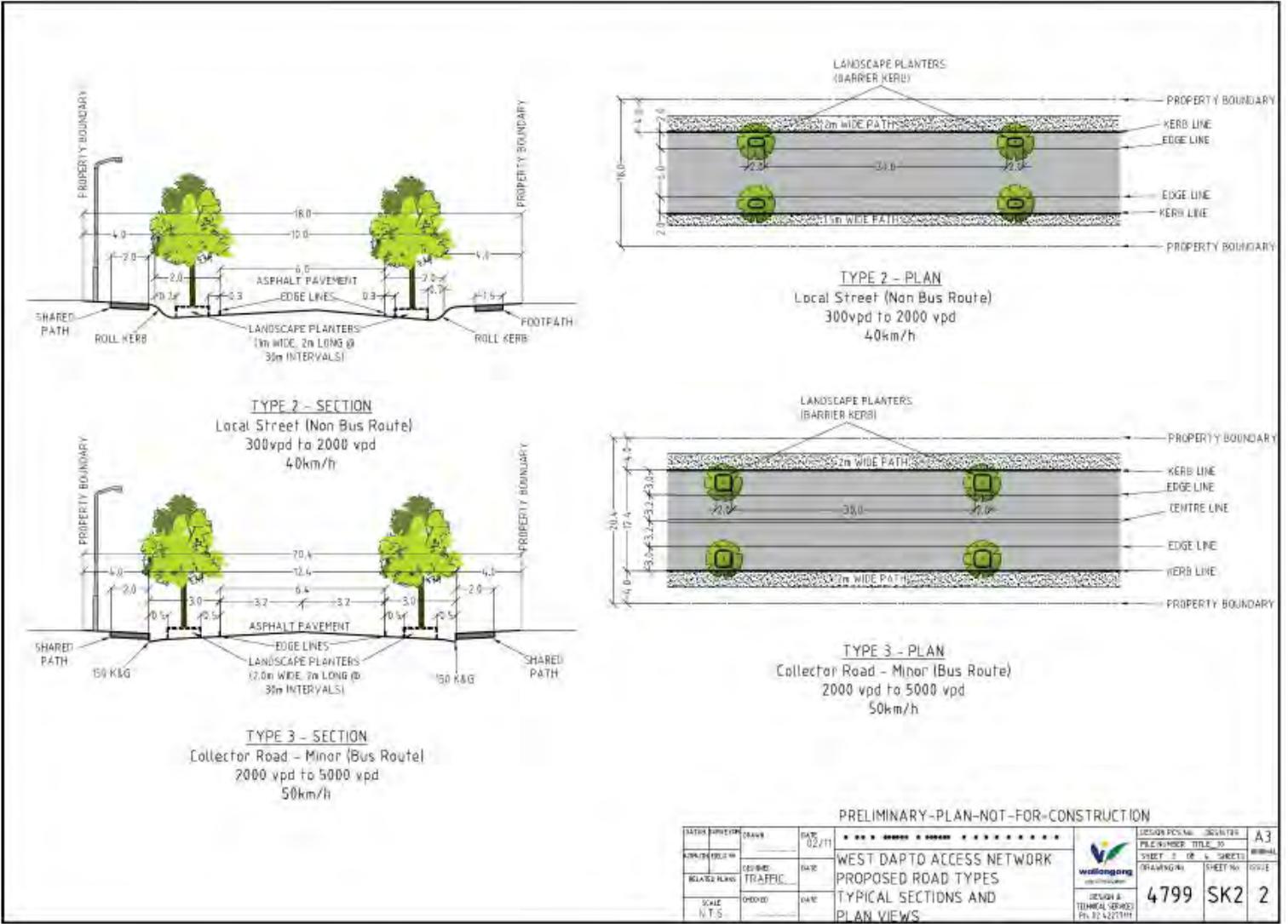


Figure 6.10 Road Cross Sections

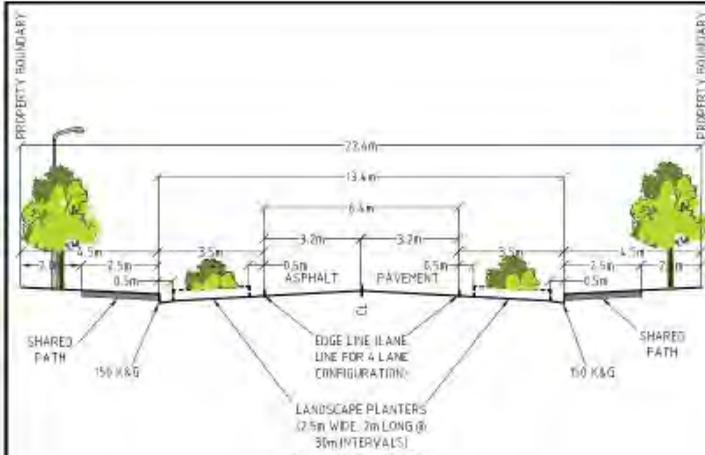




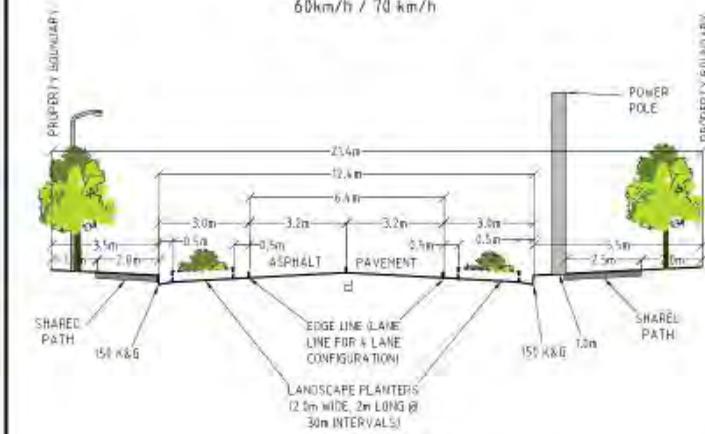
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APPROVED FOR	DESIGNED	DATE		WEST DAPTO ACCESS NETWORK	FILE NUMBER	TITLE 10	REVISION
RELATED PLANS	TRAFFIC	DATE		PROPOSED ROAD TYPES	SHEET 3 OF 6 SHEETS		
SCALE	N.T.S.	DATE		TYPICAL SECTIONS AND PLAN VIEWS	STAYING No.	SHEET No.	DATE
					4799	SK2	2

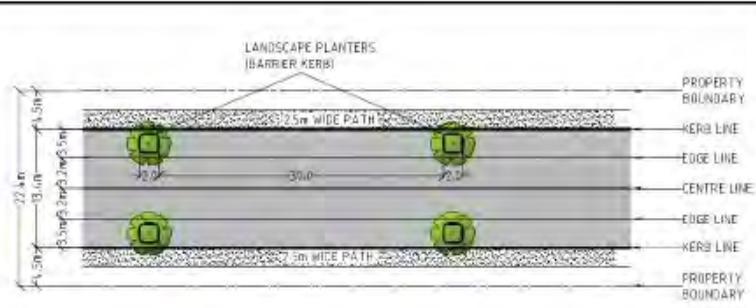
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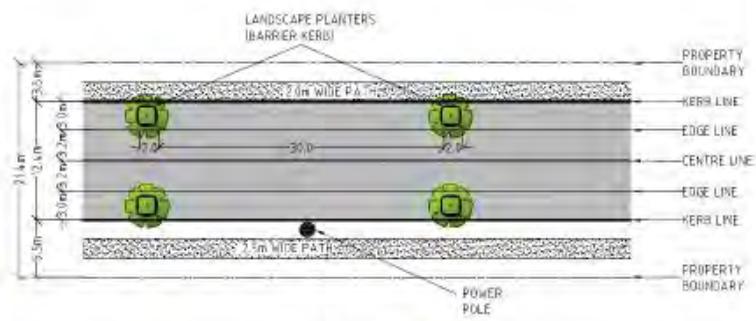
Type 3(a) - Section
 Collector Road - Minor/Major (Bus Route)
 500 vpd to 1500 vpd.
 60km/h / 70 km/h



Type 3(b) - Section
 Collector Road - Minor/Major (Bus Route) - Wongawilli
 500 vpd to 1500 vpd.
 60km/h / 70 km/h



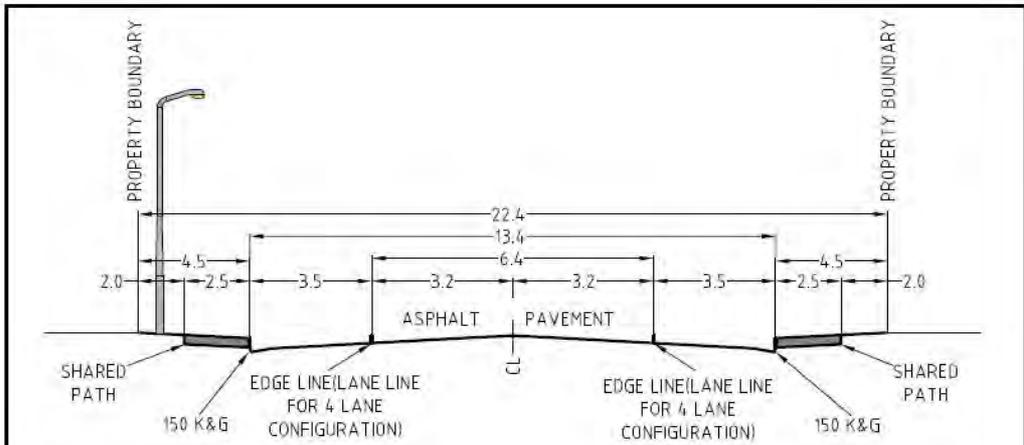
Type 3(a) - Plan
 Collector Road - Minor/Major (Bus Route)
 500 vpd to 1500 vpd.
 60km/h / 70 km/h



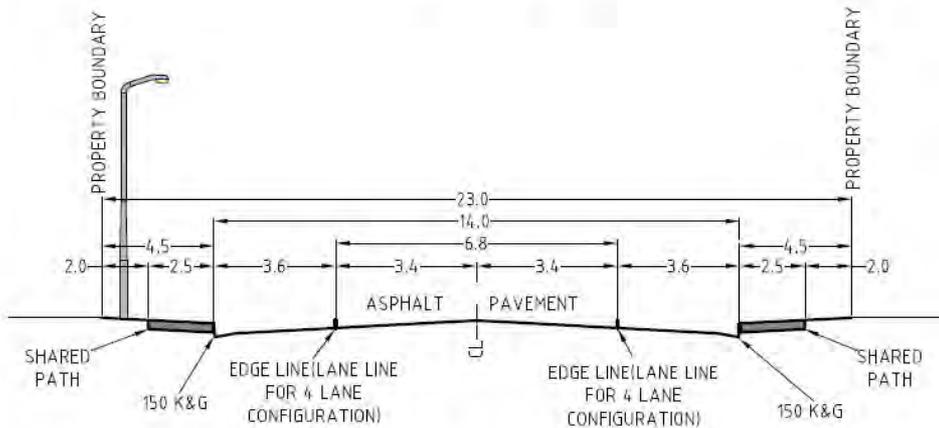
Type 3(b) - Plan
 Collector Road - Minor/Major (Bus Route) - Wongawilli
 500 vpd to 1500 vpd.
 60km/h / 70 km/h

PRELIMINARY-PLAN-NOT-FOR-CONSTRUCTION

DATE REVISIONS	ISSUED	DATE	10/2/11	***** WEST DAPTO ACCESS NETWORK PROPOSED ROAD TYPES TYPICAL SECTIONS AND PLAN VIEWS	DESIGN NO.	4799	DESIGN TITLE	SK3	A3
LENGTH / FIELD NO.	ISSUED	DATE			SHEET NO. OF SHEETS	3 OF 4			
RELATED PLANS	ISSUED	DATE			TRAWLING NO.				
SCALE	ISSUED	DATE	N.T.S.		SHEET NO.	2			



TYPE 4. Collector Road - Major (Bus Route)
 5000 vpd to 15000 vpd
 60km/h / 70km/h



TYPE 4(a). Collector Road - Northcliffe Drive Extension

PRELIMINARY PLAN - NOT FOR CONSTRUCTION

DATUM	SURVEYOR	DRAWN	DATE	WEST DAPTO ACCESS NETWORK PROPOSED ROAD TYPES TYPICAL CROSS SECTIONS	DESIGN & TECHNICAL SERVICES Ph. 02 42277111	DESIGN PCS No.	DES16379	A4
AHD	FIELD BK	DATE	FILE NUMBER			SHEET 4 OF 4 SHEETS	ORIGINAL	
MGA	DESIGNED	DATE	DRAWING No.			SHEET No.	ISSUE	
RELATED PLANS	TRAFFIC	DATE	4799			SK4	1	
SCALE	CHECKED	DATE	NOT TO SCALE					

Figure 6.11 Proposed Flood Access Network

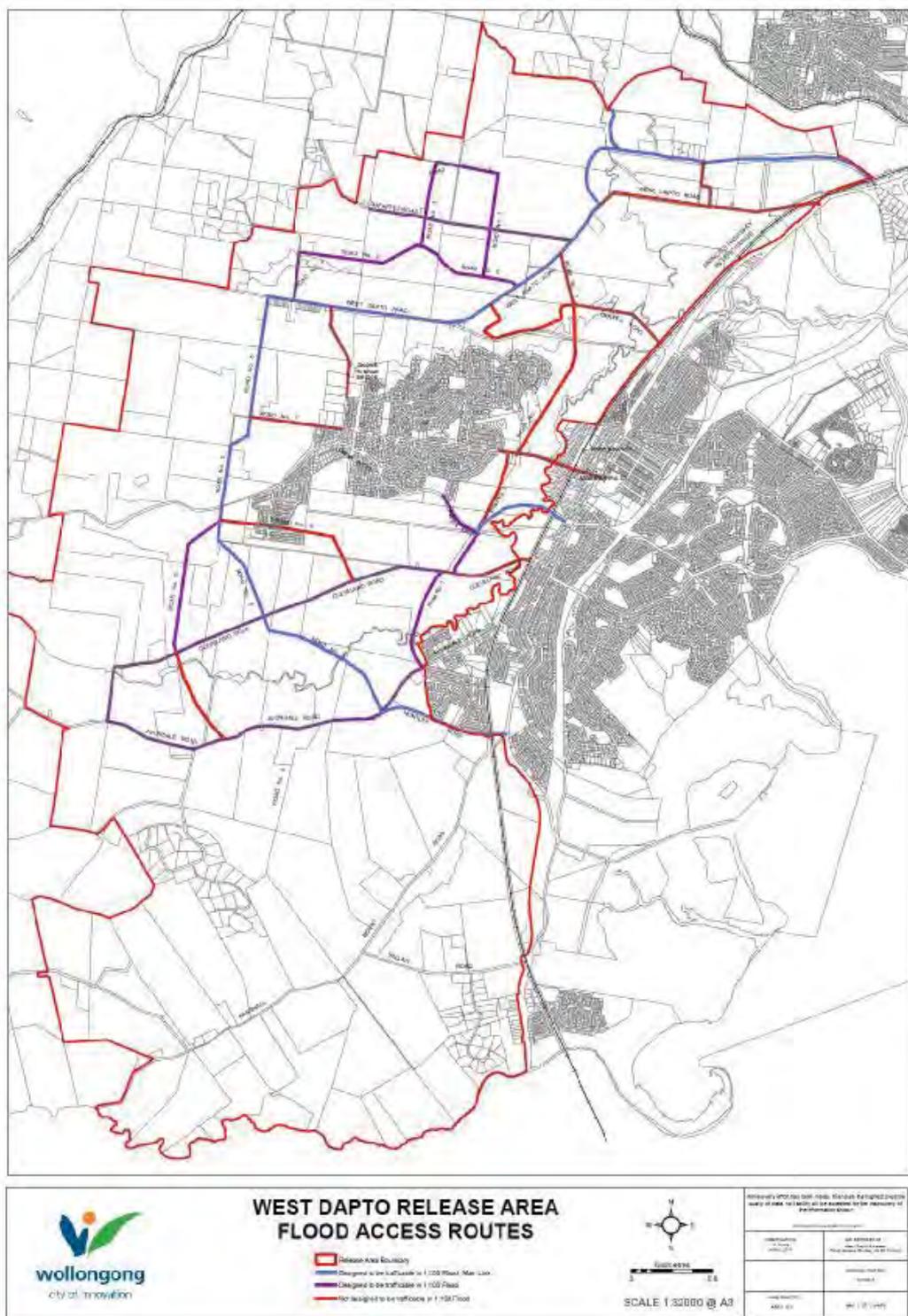
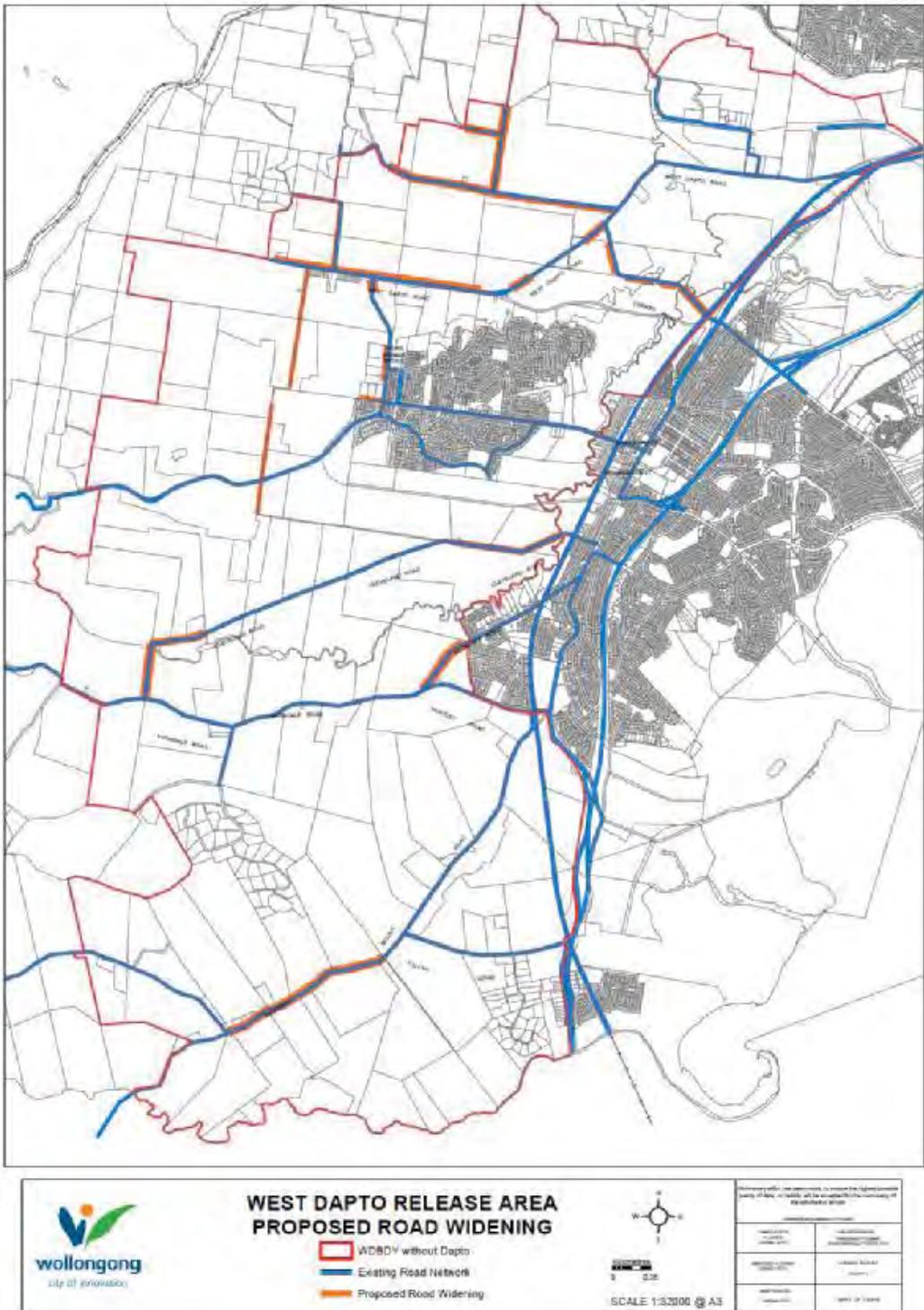


Figure 6.12 Proposed Road Widening



6.3.11 Areas under Easement

Objectives:

- (a) To use land under electrical easement for positive urban purposes.

Controls:

1. A Development Application shall include the proposed use of all land under easement.
2. Water management can be carried out in electrical easements
3. Landscape planting (low rise) can be established in electrical easements while allowing for necessary service access.
4. More significant planting can happen on the edge of electrical easements to create a visual buffer to electrical infrastructure
5. Recreational uses and open space can be established within easements.
6. Easements can be used for roads, pedestrian and cycle routes subject to approval by the easement authority.
7. Consultation with TransGrid is required to ensure that buffers, road levels and access are adequate.

6.3.12 Schools and Community Facilities

Community Facilities

Community facilities such as childcare, halls youth/aged centres and recreation facilities will be co-located with schools in or near centres. These will be provided in efficient floor plan buildings which may be mixed use and be two or three storeys high, with ground level community use. The aim is to create these as 'foreground' buildings which are symbols of community aspirations. Flexible floor plans will enable these facilities to evolve over time and hence respond to the needs of the community as it grows.

Local facilities will be developed for individual neighbourhoods as development progresses.

Educational Facilities

The Department of Education and Training has indicated that West Dapto will require eight primary schools and two secondary schools. Primary Schools require three developable hectares, special needs schools require 2 developable hectares and secondary schools require six developable hectares.

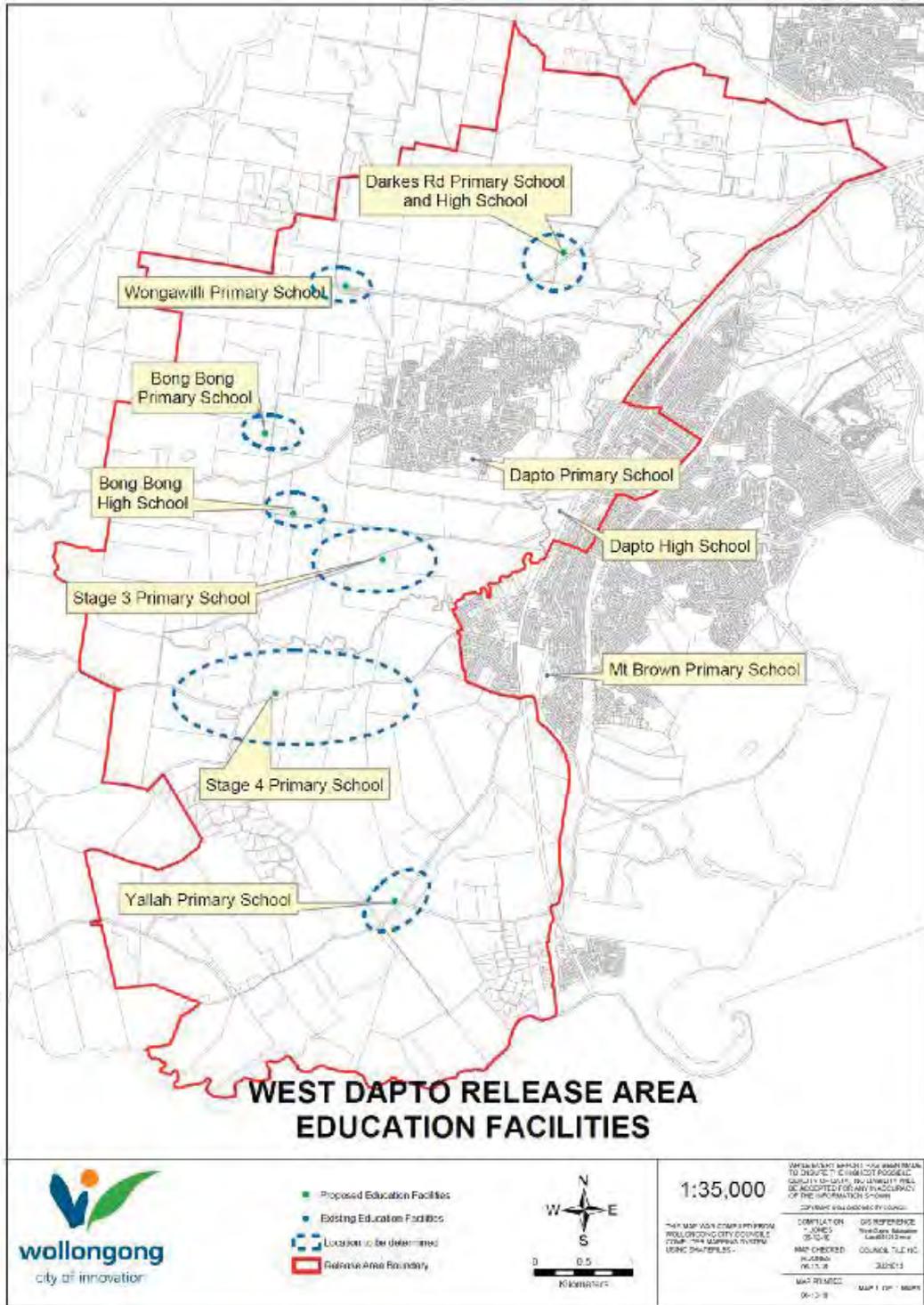
The distribution pattern for the schools ideally would include a secondary school in proximity to Darkes Road Town Centre supported by three primary schools one being the current Dapto Public School plus two new schools in the vicinities of Darkes Road and Wongawilli.

Subject to demand a new secondary school in proximity to Bong Bong Town Centre supported by three primary schools potentially Jersey Farm Robins Creeks, Bong Bong/Cleveland and Avondale/Moorland.

A third secondary school potentially located in Calderwood Urban Release Area (if approved) would service two primary schools in Calderwood and another in the Marshall Mount area.

A special needs school should be either co-located with or separate to a mainstream school.

Figure 6.13 Proposed Schools



Objectives:

- (a) To locate important community facilities to reinforce the role of key places
- (b) To create built form 'foreground' buildings to contrast with residential backdrop.

Controls:

- 1. Primary school and community facility buildings are to be located in or adjacent to local centres
- 2. Built form to be urban in character with upper floors where possible and street aligned buildings with minimal setbacks
- 3. Minimise land take and site area of community / school uses
- 4. Dual use of school open space, school halls and other community facilities is encouraged where wider community benefit can be gained.

6.3.13 Employment Area

The creation of employment opportunities within and near to West Dapto is a key strategy in enabling people to work close to where they live and thereby reduce the overall traffic generated by the development.

The main employment areas are West Kembla Grange and a small expansion of the Yallah industrial area. In addition employment will be provided in the centres and within community and other services generated by the development.

The West Kembla Grange area will continue as a major industrial precinct. The availability of land within this area and its suitability for development is a key opportunity for West Dapto. West Kembla Grange is likely to benefit from infrastructure upgrading in the early stages of the urban development as it is located in close proximity to areas in the north which are likely to be released first.

An enterprise corridor has also been planned to the north and south of Dapto Regional Centre and between the railway and the F6 in the south adjacent to the Yallah Campus of the Illawarra Institute of TAFE, which will provide additional local employment opportunities.

- 1 All development within land zoned for employment purposes shall be in accordance with the principles contained within the Wollongong LGA Employment Lands Strategy (Hill PDA, 2006).
- 2 Sections 4.2, 4.3 and 4.4 of the Strategy contain specific controls in relation to land for general employment uses, land for heavy industrial uses and land for light industrial uses.
- 3 These principles include preserving large parcels and clusters of light and heavy industrial land and ensuring that business parks are not accommodated in light industrial zones.
- 4 Refer to Chapter B5 Industrial Development for controls relating to development on industrial lands.

6.4 Wongawilli Mine spur railline

It is anticipated that the Wongawilli Mine will continue to operate for the next 30 years, or longer. Coal is transported from the mine to Port Kembla via the rail network. Future urban development should be designed to recognise the continued use of the rail spur line and include measure to mitigate noise and other potential impacts. Division 15 of SEPP Infrastructure 2007, applies to development near the spur line.

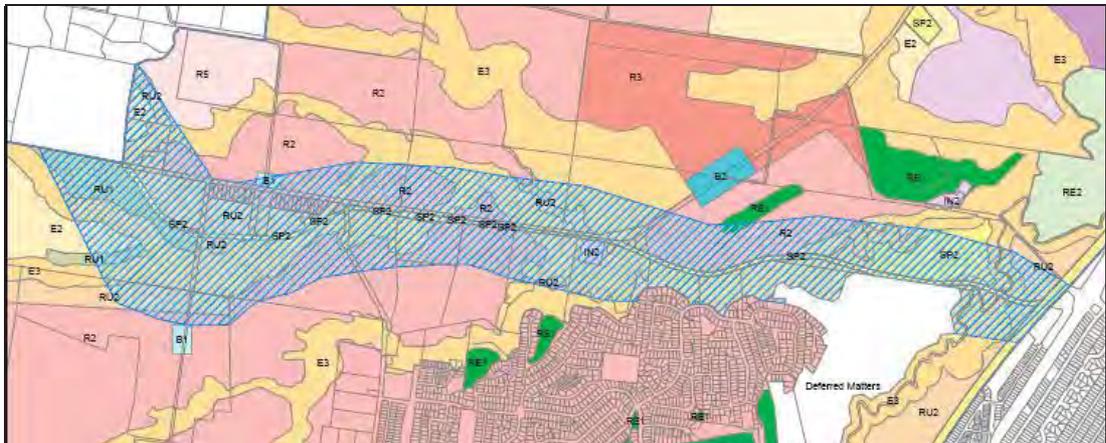
Objectives:

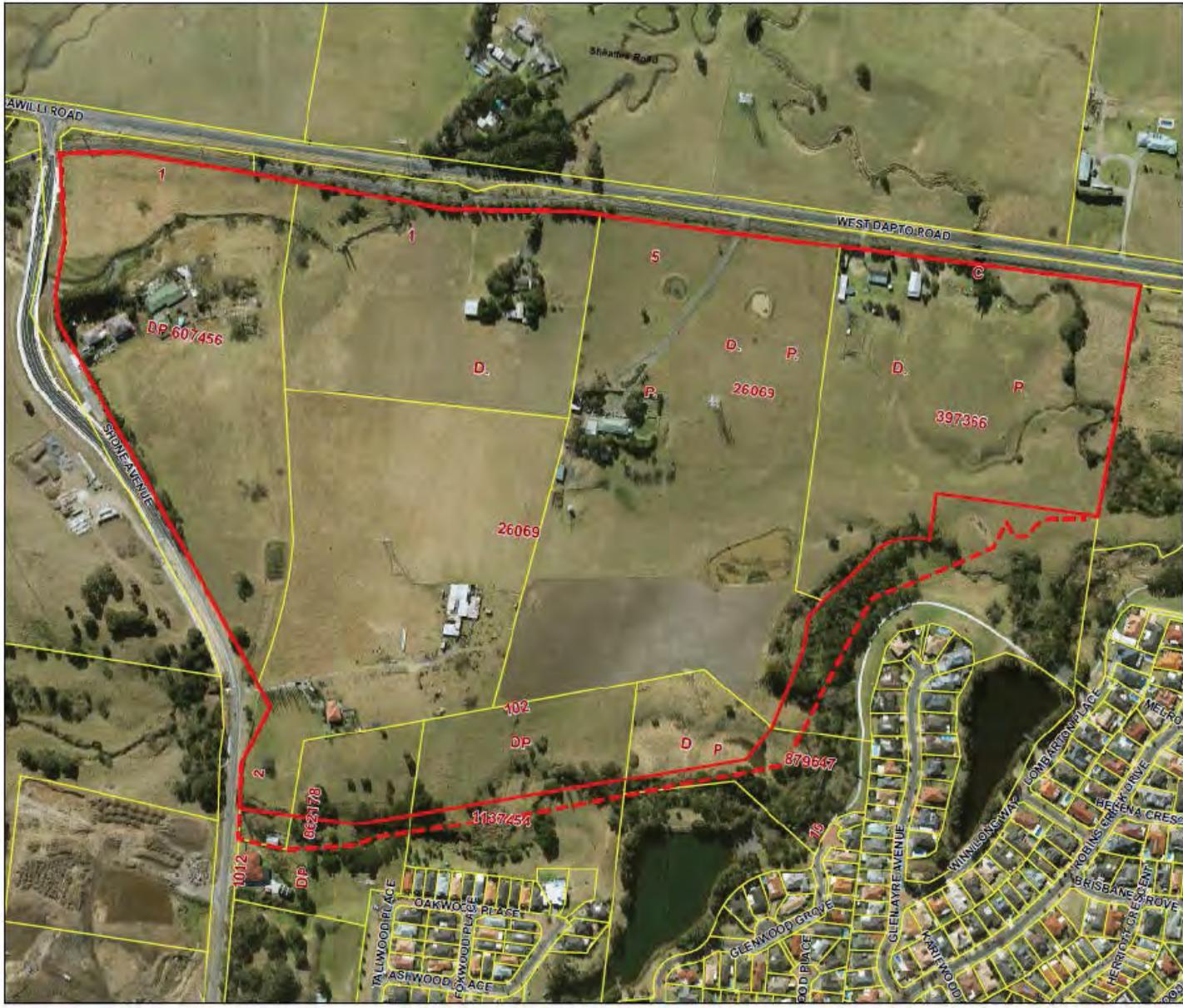
- (a) To facilitate the transport of coal from Wongawilli Mine to Port Kembla by rail transport.
- (b) To minimise rail noise, vibration and other impacts on dwellings near the rail spur line.

Controls:

- 1. Development Applications for subdivision and dwelling houses within the rail buffer area (Refer to Figure 6.13), are to include sound attenuation measures that achieve a maximum of 35dBA within the dwelling.
- 2. Development Applications for subdivision and dwelling houses within the rail buffer area, are to include consider vibration impacts and include mitigation measures.
- 3. The development applications must satisfy the requirements of SEPP Infrastructure Division 15.

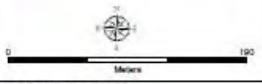
Figure 6.14 Wongawilli rail noise area





Shone Avenue - West Dapto Road
Neighbourhood Plan
Site Location

- Legend**
-  KFW Boundary
 -  WCC Neighbourhood Boundary



Date of Aerial Photography: 2016
Drawn By: J Lewis
Date: 21.01.16
File ref: ShoneAve_NeighbourhoodPlan_210116.mxd



WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Planning Proposal Land Zoning Map

Zoning

- ShoneAve_NhoodPlan_Bdy_210115
- B1 Neighbourhood Centre
- E4 National Parks & Nature Reserves
- E3 Environmental Conservation
- E2 Environmental Management
- IN2 Light Industrial
- R2 Low Density Residential
- RE1 Public Recreation
- RU1 Primary Production
- RU2 Rural Landscape
- RU4 Primary Production Small Lots
- SP2 Infrastructure
- Recommended Change to Zoning
- Retain Current Zoning

Cadastral

Cadastral 27.01.14 © Wollongong City Council

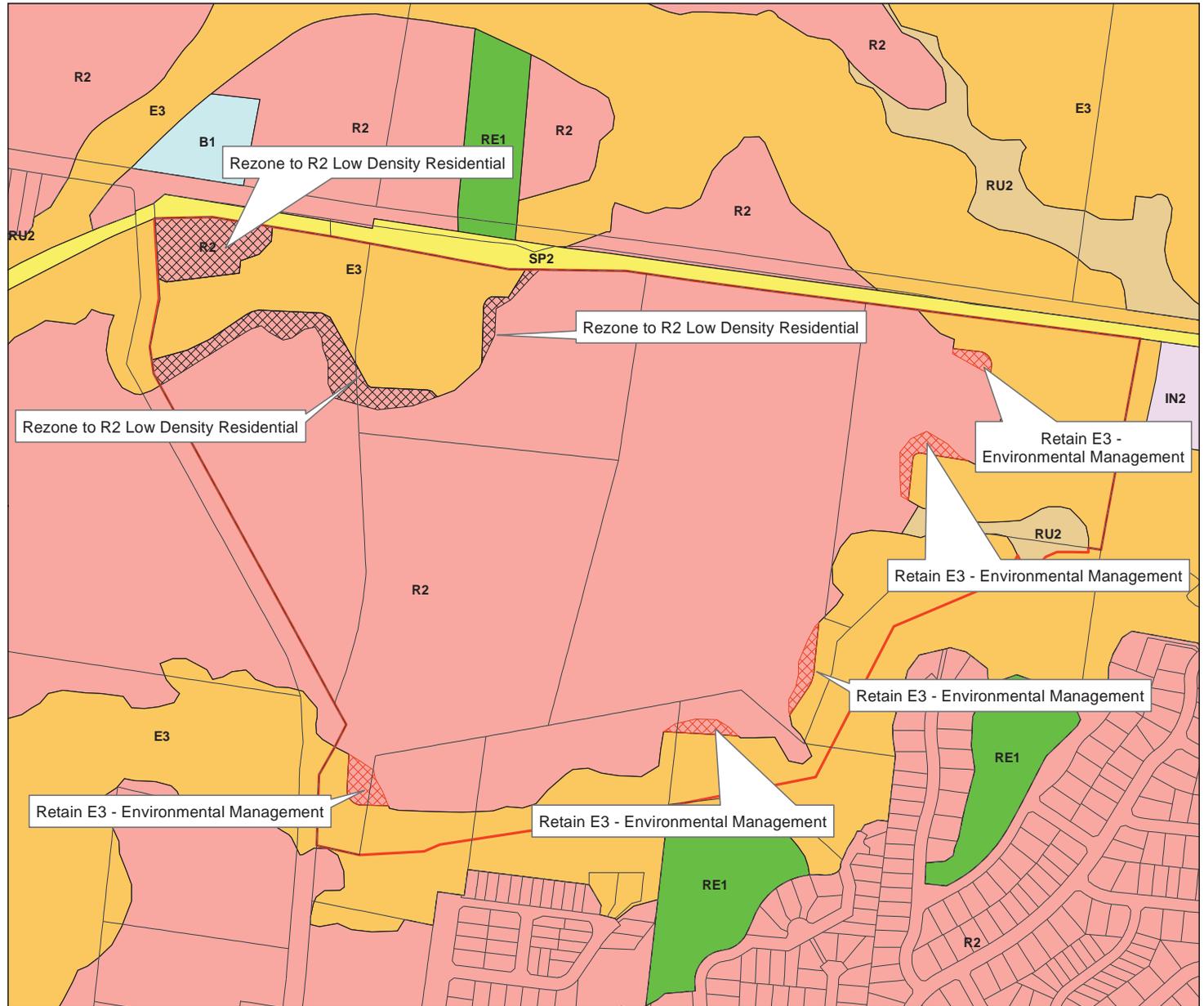


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Kilometers

Projection: GDA 1994
MGA Zone 56

Scale 1:4,000 @ A3

Map Identification number:
WestDaptoRoad_PP_Zoning_3.mxd





WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Planning Proposal
Floor Space Ratio map

Maximum Floor Space Ratio (n:1)

- A 0.3
- D 0.5
- I 0.75
- P 1.2
- S 1.5
- T 2.0
- U 2.5
- V 3
- Recommended Change to FSR
- Change No Longer Required

Cadastral

Cadastral 27.01.14 © Wollongong City Council



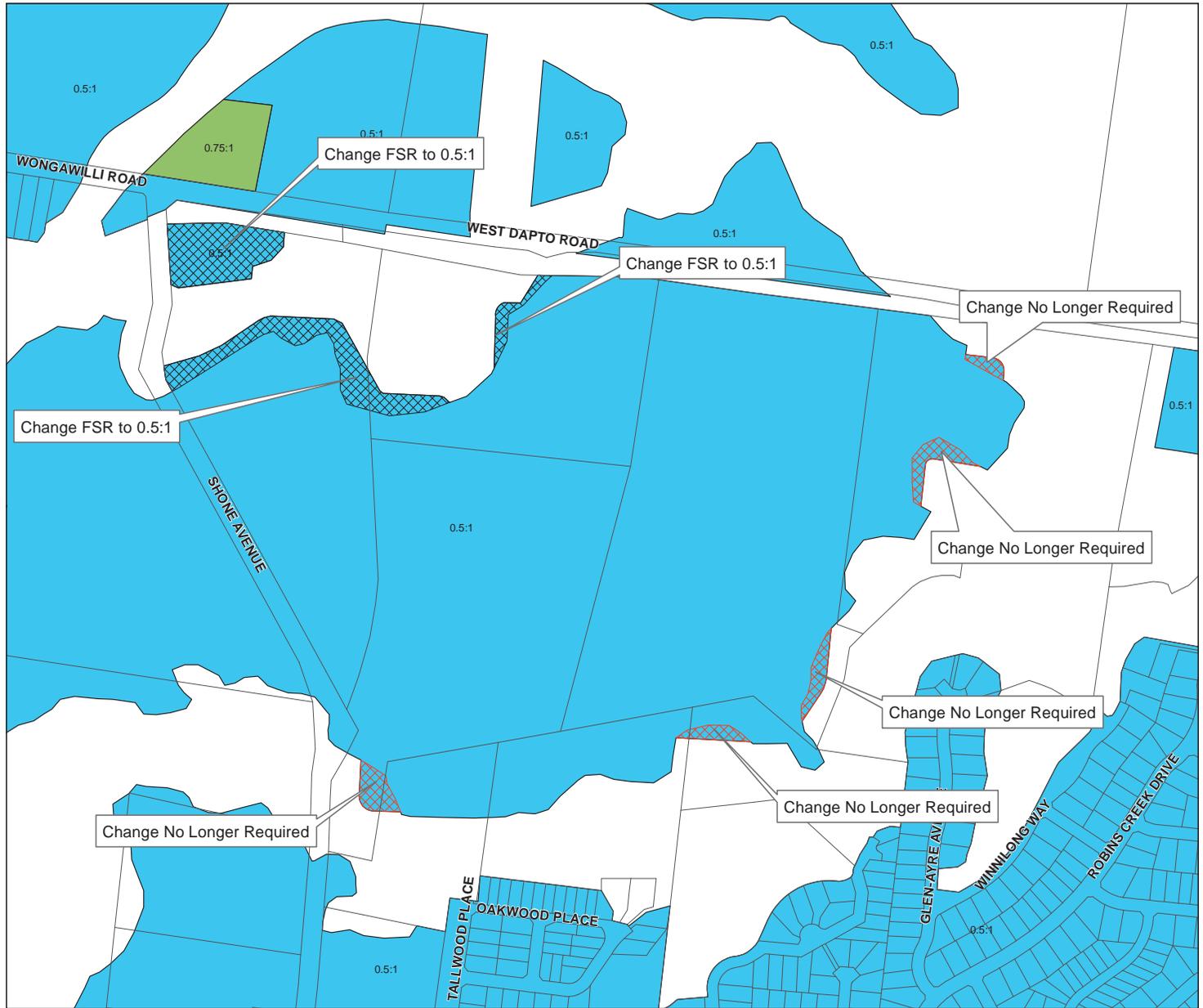
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WestDaptoRoad_PP_FSR 3.mxd





WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

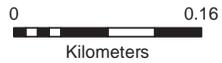
Planning Proposal Lot Size Map

Minimum Lot Size (sq m)

F	449
T	999
U1	1499
U2	1999
V	2999
W	3999
X	0.99ha
Y	1.99ha
Z1	3.99ha
Z2	4.99ha
AA	9.99ha
AB	39.99ha
	Recommended Change to MLS
	Retain Current MLS

Cadastral

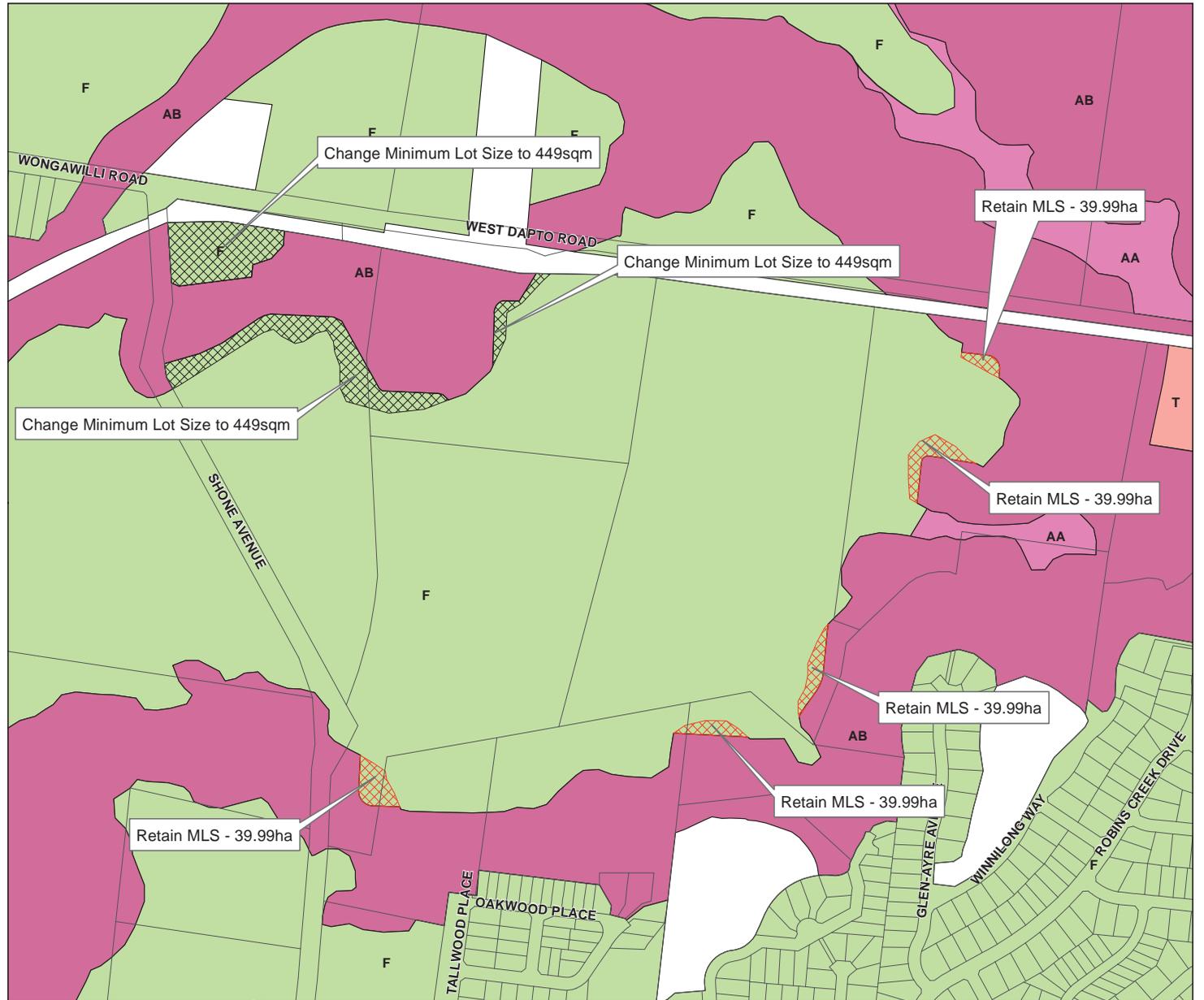
Cadastral 27.01.14 © Wollongong City Council



Projection: GDA 1994
MGA Zone 56

Scale 1:4,000 @ A3

Map Identification number:
WestDaptoRoad_PP_MinLotSize.mxd 2



Finalised Planning Proposal

LOCAL GOVERNMENT AREA: Wollongong City Council

NAME OF DRAFT LEP: Shone Avenue and West Dapto Road, Horsley

ADDRESS OF LAND: Lot 1 DP 607456 and Lot 1 DP 26069, Horsley.

MAP: Location Map



BACKGROUND:

As part of the development of the West Dapto Release Area, a Neighbourhood Plan has been prepared for land fronting the corner of Shone Avenue and West Dapto Road, Horsley. Council on 23 February 2015 resolved to exhibit the draft Neighbourhood Plan. Council also resolved to prepare a draft Planning Proposal to make minor amendments to the Wollongong Local Environmental Plan 2009, to realign part of the R2 Low Density Residential and E3 Environmental Management zone boundary to reflect updated flood information and facilitate the efficient subdivision of land. Corresponding amendments to the floor space ratio and minimum lot size maps are also required. The Neighbourhood Plan was adopted as an amendment to Wollongong Development Control Plan 2009 Chapter D16 West Dapto Release Area at the 24 August 2015 Council meeting and was notified on 9 September 2015.

Part 1: OBJECTIVES OR INTENDED OUTCOMES OF THE PLANNING PROPOSAL:

What is the purpose of the Planning Proposal?

The draft Planning Proposal would facilitate the implementation of a Neighbourhood Plan for Shone Avenue and West Dapto Road, Horsley, realigning part of the R2 Low Density Residential and E3 Environmental Management zone boundary to reflect updated flood information and facilitate the efficient subdivision of land upon receipt of the subdivision application.

Part 2: EXPLANATION OF THE PROVISIONS OF THE PLANNING PROPOSAL:

How are the objectives of the Planning Proposal to be achieved? How will the LEP be changed?

Minor boundary adjustments between E3 Environmental Management and R2 Low Density Residential zones to reflect updated flood information. Corresponding amendments to the minimum lot size and floor space ratio maps.

- Amendment of the Wollongong LEP 2009 Zoning Map in accordance with the proposed zoning map shown as Figure 1, which indicates R2 Low Density Residential zoning for part of the site currently zoned E3 Environmental Management;
- Amendment of the Wollongong LEP 2009 Minimum Lot Size Map in accordance with the proposed minimum lot size map shown as Figure 2, which indicates 450m² for areas proposed to be zoned R2 Low Density Residential; and
- Amendment of the Wollongong LEP 2009 Floor Space Ratio Map in accordance with the proposed floor space ratio map shown as Figure 3, which indicates a maximum permissible floor space ratio of 0.5:1 for areas proposed to be zoned R2 Low Density Residential.

Part 3: JUSTIFICATION FOR THE PLANNING PROPOSAL:

Section A – Need for the planning proposal

<p>1. Is the planning proposal a result of any strategic study or report?</p>	<p>West Dapto is an urban release area in planning for over 10 years. This planning proposal is consistent with the Council endorsed vision and masterplan that encompasses the subject site and surrounds, which identifies the land for residential development. It is also noted that the West Dapto Urban Release Area is identified as a key area of growth in the Illawarra Regional Strategy.</p> <p>The planning proposal is considered necessary to facilitate a Neighbourhood Plan within the West Dapto Urban Release Area.</p> <p>The Planning Proposal is the result of a Council resolution dated 23 February 2015. The report to Council included the recommendations from the following supporting documents:</p> <ul style="list-style-type: none"> • Ecological Constraints Analysis (EcoLogical 2014); • Bushfire Constraints Assessment (Australian Bushfire Protection Planners P/L 2014);
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	<ul style="list-style-type: none"> • Flood Study (KFW Infrastructure 2014) – an update to Council’s Mullet Creek Flood Study 2009; • Preliminary Aboriginal Heritage Assessment Report (AHMS 2014); and • Noise Impact Assessment in relation to the proximity to the rail line (Reverb Acoustics 2014).
2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?	The Planning Proposal is the only means of achieving the intended outcome.

Section B – Relationship to strategic planning framework

4. Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?	<p>Illawarra Regional Strategy – West Dapto is an urban release area in planning for over 10 years and identified in the Illawarra Regional Strategy as a key growth area for Wollongong and the Illawarra. The Planning Proposal is consistent with the vision and masterplan that encompasses the subject site and identifies the land for residential development.</p> <p>Rezoning additional land in accordance with the land constraints and optimising the efficiency of development in the West Dapto Urban Release Area is consistent with the Illawarra Regional Strategy.</p> <p>The Planning Proposal has considered constraints and sensitivities of the site in line with the sustainability criteria, such as biodiversity and flooding, and is endeavouring to ensure that where possible vegetation is preserved. Proposed development is outside the 1 in 100 year event.</p> <p>The Planning Proposal is consistent with the draft Illawarra Regional Growth and Infrastructure Plan, which identifies as a priority the maintaining of a strong and sustained increase in housing construction in greenfield areas to overcome low levels of production over the last decade. New release areas in the region are expected to account for 57% of the 45,000 homes required to 2031 – equating to approximately 1,300 new lots per year. A key action of this Growth Plan is the implementation of neighbourhood planning principles in Local Plans, Development Control Plans and other Council based mechanisms.</p>
5. Is the planning proposal consistent with the local council’s	Wollongong 2022 Community Strategic Plan – West Dapto is one of the five key aspirations for

<p>Community Strategic Plan or other local strategic plan?</p>	<p>Wollongong Council in its Delivery Program – this is reflected in the goals and objectives of the Community Strategic Plan.</p> <p><i>Aspiration: Council will work in collaboration with key agencies to provide the infrastructure needed to support growth within the West Dapto Urban Release Area. This will include improving access infrastructure and local services which are needed to support the additional 17,000 future housing lots within the release area.</i></p>
<p>6. Is the planning proposal consistent with applicable State Environmental Planning Policies?</p>	<p>Refer to Table A – Checklist of State Environmental Planning Policies.</p>
<p>7. Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?</p>	<p>Refer to Table B – Checklist of Ministerial Directions.</p>

Section C – Environmental, social and economic impact

<p>8. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?</p>	<p>A desktop ecological constraints analysis (EcoLogical 2014) identifies low biodiversity constraints in the Neighbourhood Plan area, including the likely absence of Threatened Ecological Communities. The reports states that, based on previous surveys in the locality by EcoLogical (2013), no threatened flora are considered likely to occur on the subject site.</p> <p>The report notes that the subject site supports the foraging habitat of the threatened micro chiropteran bat species, including the farm dams and drainage lines. Some stands of planted native trees and scattered isolated native trees (paddock trees) may also support roosting and nesting habitats for fauna species from the locality.</p> <p>A more detailed flora and fauna survey and assessment addressing threatened biodiversity listed under either the <i>Threatened Species Conservation Act 1995</i> or <i>Environment Protection and Biodiversity Conservation Act 1999</i> will be required for a future development application for subdivision, in accordance with standard Development Application requirements.</p>
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9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Flooding, Landslip, Bushfire, Flora and Fauna, Contamination, Water Quality etc.

If it is necessary to undertake technical studies or investigations to address an identified matter, these should be undertaken following the initial gateway determination. Scope of additional studies should be identified in initial draft PP for endorsement by Gateway.

Part of the precinct is identified as flood prone due to Robins Creek, which is part of the Mullet Creek catchment. The applicant has submitted a more recent and detailed flood study of the precinct (KFW 2014) as an update to Council's Mullet Creek Flood Study (2009), Flood Risk Management Plan and Mullet Creek Flood Extension Study (2011). The updated flood study demonstrated that the peak velocity and depth flows associated with the 1% Annual Exceedance Probability (AEP) annual exceedance probability storm event are generally contained within the back of the riparian creek system. Proposed residential lots and detention basins will not be located in the 1 in 100 year extent areas.

Council resolved that further work is required as part of the Gateway determination to demonstrate how any proposed cut and fill of flood affected land could be managed within the Neighbourhood Plan area. Information was provided in the form of a flood depth change plot, which indicates that the proposed filling does not increase the extent of flooding in the vicinity of the playing field and proposed residential lots (1% AEP event). The Neighbourhood Plan has been modified such that all residential lots and roads are not affected by the 1% AEP flood. This revision has included the removal of some proposed lots and realignment of roads, and as a result, the extent of the rezoning required through this Planning Proposal has been reduced. More detailed flood investigations (extending to neighbouring properties) may be required at the development application stage.

The following documents were submitted in support of the Planning Proposal request:

- Ecological Constraints Analysis (EcoLogical 2014);
- Bushfire Constraints Assessment (Australian Bushfire Protection Planners P/L 2014);
- Flood Study (KFW Infrastructure 2014) – an update to Council's Mullet Creek Flood Study 2009;
- Preliminary Aboriginal Heritage Assessment Report (AHMS 2014); and
- Noise Impact Assessment in relation to the proximity to the rail line (Reverb Acoustics 2014).

No further studies were requested as a result of the Gateway process.

<p>10, How has the planning proposal adequately addressed any social and economic effects?</p> <p><i>Include heritage impacts (Aboriginal and European) traffic impacts, urban design considerations and any impact on community infrastructure such as schools, hospitals, or potential economic impacts - retails centres, impacts on CBD, employment lands etc.</i></p>	<p>The planning proposal is considered a housekeeping matter because the land is already zoned as part of the West Dapto Urban release Area. It is considered that the impacts of the proposal are minimal on a social and economic basis other than it would permit efficient development of land.</p> <p>A preliminary Aboriginal Heritage Assessment report (AHMS 2014) has not identified any known Aboriginal sites within the proposed development area, however has identified a number of areas that are considered to have “high” archaeological potential which require further investigation. The report recommends that archaeological testing be undertaken in accordance with the code of practice for archaeological sites, prior to the commencement of any development works on the site. Further, it is likely that additional consultation to allow for a cultural significance assessment will be required as part of this process. Additional Aboriginal Archaeological research in line with the recommendations from Council’s Heritage Officer has commenced and will be assessed at DA stage.</p>
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Section D – State and Commonwealth interests

<p>11. Is there adequate public infrastructure for the planning proposal?</p>	<p>The precinct is not yet sufficiently serviced by water, sewerage, electricity and communication services. Endeavour Energy has been working with Council and active developers to ensure electricity supply will be available to new dwellings as they are constructed. Sydney Water has developed a Growth Servicing Plan to provide water and wastewater (sewer) services in stages over the next 40 years. The precinct should be serviced by 2015-16 and the work begins this year to service Stages 1 and 2.</p>
<p>12. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?</p>	<p>Preliminary consultation occurred in relation to the draft Neighbourhood Plan with the Office of Water; Office of Environment & Heritage, TransGrid, NSW Rural Fire Service, and Sydney Water.</p> <p>The Gateway determination stipulated consultation with the following authorities:</p> <ul style="list-style-type: none"> • Office of Environment & Heritage • NSW Rural Fire Service • Roads & Maritime Services • Sydney Water <p>The Office of Water was also consulted.</p>

No objections were raised by the NSW Rural Fire Service, Sydney Water and Roads & Maritime Services. The Office of Water submission recommended that the proposed rezoning be amended (reduced in extent) to reflect the revised Neighbourhood Plan. The Office of Environment & Heritage noted that small boundary changes would have minimal ecological impact but indicated support for further flora and fauna assessment in accordance with standard development application requirements. The submission also noted the need for attention to flood plain management issues and further heritage investigations at the DA stage.

PART 4: MAPS, WHERE RELEVANT, TO IDENTIFY THE INTENT OF THE PLANNING PROPOSAL AND THE AREA TO WHICH IT APPLIES

Proposed Planning Controls – changes are proposed to the Zoning Map, Minimum Lot Size Map and Floor Space Ratio Map.

Figure 1 Zoning Map

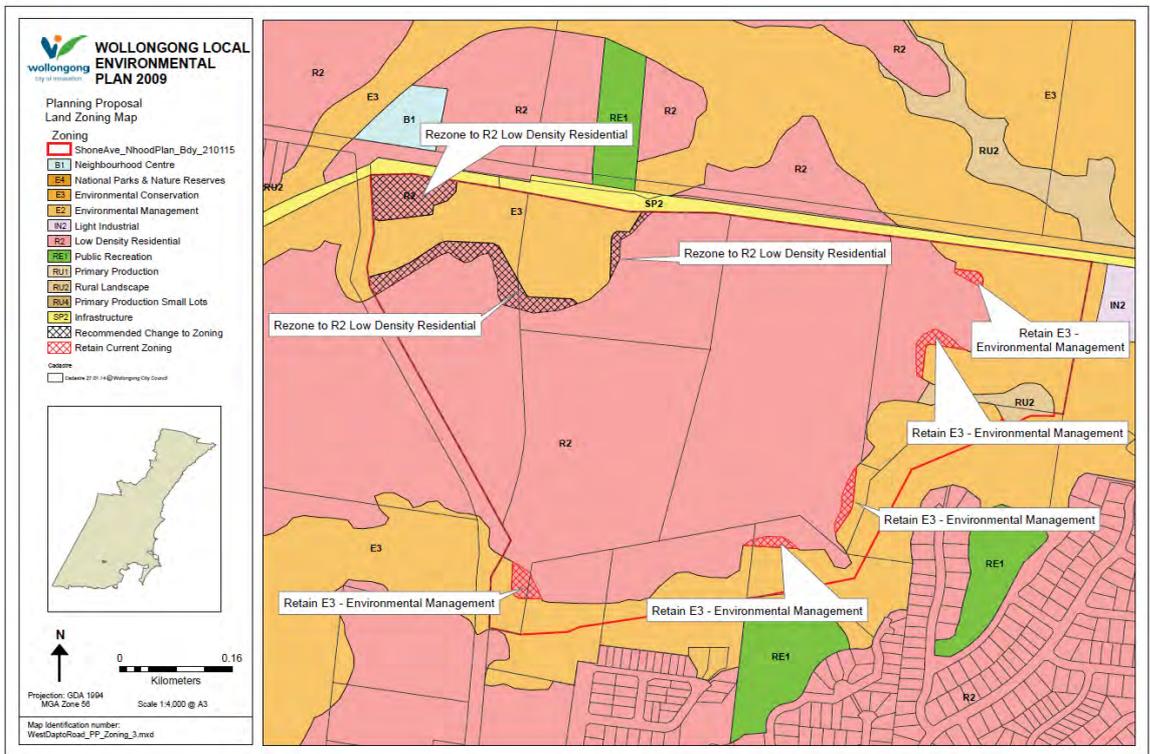


Figure 2 Minimum Lot Size Map

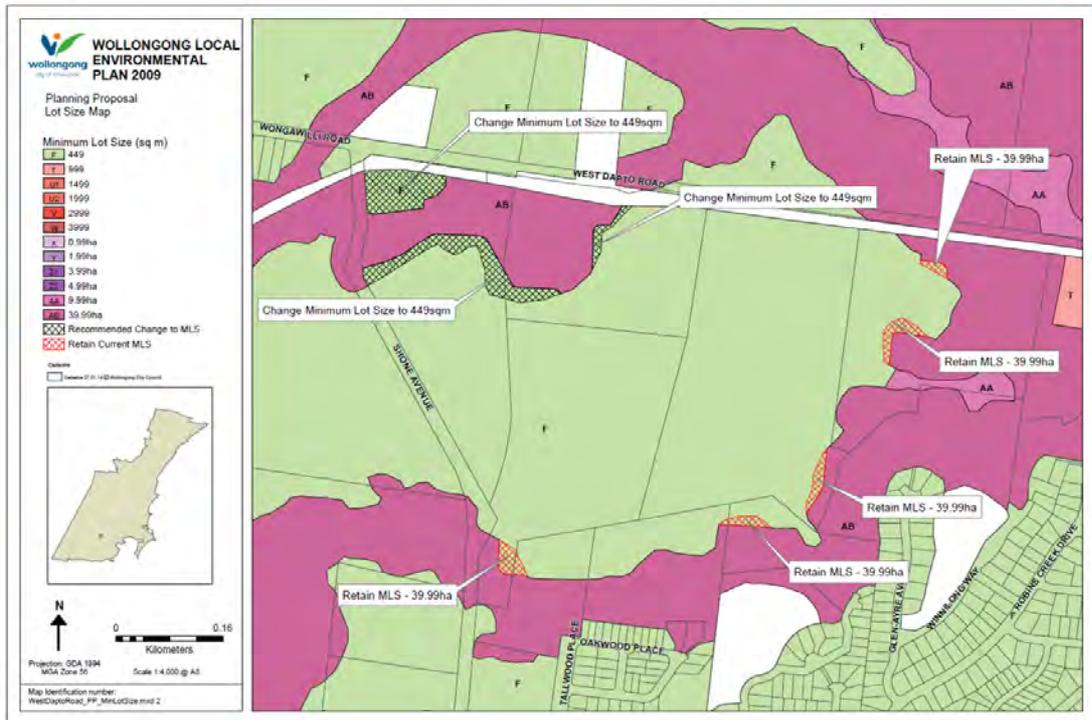
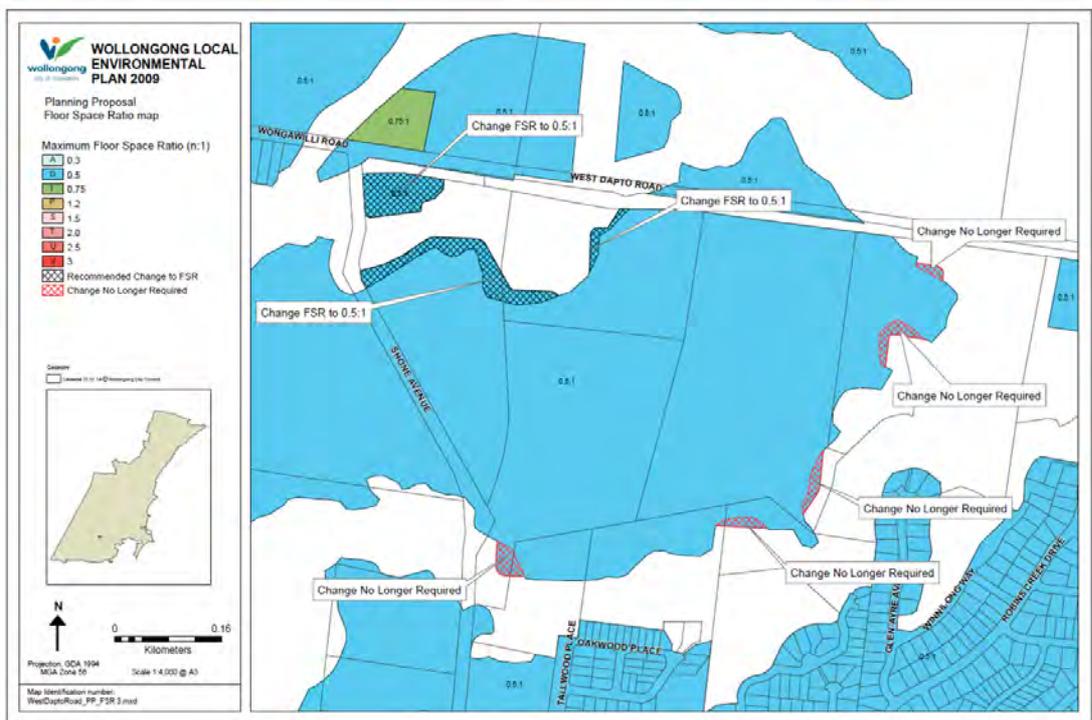


Figure 3 Floor Space Ratio Map



Part 5: DETAILS OF COMMUNITY CONSULTATION UNDERTAKEN ON THE PLANNING PROPOSAL:

The Gateway Determination dated 15 July 2015 confirmed community consultation requirements. The Planning Proposal was exhibited between 29 July and 28 August 2015 and included:

- Hard copies at Council's Administration building and relevant Libraries;
- Electronic copy on Council's website;
- Notification letters to surrounding and nearby property owners, and Neighbourhood Forum; and
- Notification letters to relevant State agencies and other authorities nominated by the NSW Department of Planning and Environment including:
 - Office of Environment & Heritage
 - Office of Water
 - RMS
 - RFS
 - Sydney Water

Part 6: PROJECT TIMELINE

#	Action	Estimated Timeframe	Responsibility
1	Date of Gateway Determination	15 July 2015	Department of Planning and Environment
2	Anticipated completion of required technical studies	N/A	Consultants
3	Government agency consultation	29 July to 28 August 2015	Agencies
4	Public exhibition period	29 July to 28 August 2015	Council
5	Date of Public Hearing <i>(if applicable)</i>	N/A	Council
6	Consideration of submissions	August 2015	Council
7	Assessment of proposal post-exhibition	September 2015	Council
8	Report to Council	October 2015	Council
9	Final maps and Planning Proposal prepared	November 2015	Council
10	Submission to Department for finalisation of LEP	November 2015	Council
11	<i>Anticipated date RPA will make the LEP</i>	December 2015	Council (if under delegation)
12	Anticipated date Council will forward final Planning Proposal to DOP&I for notification	December 2015	Council
13	Anticipated date LEP will be notified	January 2016	<i>Parliamentary Counsel and DoPE</i>

Table A - Checklist of State Environmental Planning Policies

State Environmental Planning Policy		Compliance	Comment
State policies			
SEPP No. 1	Development Standard		
SEPP No. 4	Development Without Consent and miscellaneous Exempt and Complying Development		Clause 6 and parts 3 and 4 of SEPP were repealed by Wollongong LEP 2009
SEPP No. 6	Number of Storeys in a Building	Consistent	Planning Proposal does not propose controls for number of storeys
SEPP No. 14	Coastal Wetlands	N/A	
SEPP No. 15	Rural Land Sharing Communities	Does not apply to Wollongong	
SEPP No. 19	Bushland in Urban Areas	Does not apply to Wollongong	
SEPP No. 21	Caravan Parks	N/A	
SEPP No. 22	Shops and Commercial Premises	N/A	
SEPP No. 26	Littoral Rainforests		No littoral rainforests identified by the policy in the Wollongong LGA
SEPP No. 29	Western Sydney Recreational Area	Does not apply to Wollongong	
SEPP No. 30	Intensive Agriculture	N/A	
SEPP No. 32	Urban Consolidation (Redevelopment of Urban Land)	N/A	
SEPP No. 33	Hazardous and Offensive Development	N/A	
SEPP No. 36	Manufactured Home Estates	N/A	
SEPP No. 39	Spit Island Bird Habitat	Does not apply to Wollongong	
SEPP No. 41	Casino/Entertainment Complex	Does not apply to Wollongong	
SEPP No. 44	Koala Habitat Protection	N/A	
SEPP No. 47	Moore Park Showground	Does not apply to Wollongong	
SEPP No. 50	Canal Estate Development	N/A	
SEPP No. 52	Farm Dams, Drought Relief and Other Works	Does not apply to Wollongong	

State Environmental Planning Policy		Compliance	Comment
SEPP No. 55	Remediation of Land	Consistent	Contamination issues have been considered as part of the original rezoning of West Dapto and will be further considered as part of development applications.
SEPP No. 56	Sydney Harbour Foreshores and Tributaries	Does not apply to Wollongong	
SEPP No. 59	Central Western Sydney Economic and Employment Area	Does not apply to Wollongong	
SEPP No. 60	Exempt and Complying Development	Consistent	N/A
SEPP No. 62	Sustainable Aquaculture	N/A	
SEPP No. 64	Advertising and Signage	Consistent	N/A
SEPP No. 65	Design quality of residential flat development	Consistent	N/A
SEPP No. 70	Affordable Housing (revised schemes)	Does not apply to Wollongong	
SEPP No. 71	Coastal Protection	N/A	
SEPP	Housing for Seniors or People with a Disability 2004	Consistent	
SEPP	Building Sustainability Index: BASIX 2004	Consistent	
SEPP	Major Projects 2005	N/A	
SEPP	Development on Kurnell Peninsular 2005	Does not apply to Wollongong	
SEPP	Sydney Region Growth Centres 2006	Does not apply to Wollongong	
SEPP	Mining, Petroleum Production and Extractive Industries 2007	Consistent	N/A
SEPP	Infrastructure 2007	Consistent	N/A
SEPP	Temporary Structures 2007	Consistent	N/A
SEPP	Kosciuszko National Park – Alpine Resorts 2007	Does not apply to Wollongong	
SEPP	Rural Lands 2008	Does not apply to Wollongong	
SEPP	Affordable Rental Housing 2009	Consistent	
SEPP	Western Sydney Employment Lands 2009	Does not apply to Wollongong	
SEPP	Exempt and Complying Development Codes 2008	Consistent	
SEPP	Western Sydney Parklands 2009	Does not apply to Wollongong	

State Environmental Planning Policy		Compliance	Comment
Deemed SEPPS(former Regional Plans)			
Illawarra REP 1	Illawarra	Repealed within Wollongong	
Illawarra REP 2	Jamberoo	Does not apply to Wollongong	
Greater Metropolitan REP No.2	Georges River catchment	Does not apply to Wollongong	

Table B - Checklist of Section 117 Ministerial Directions

Ministerial Direction	Comment
1. Employment and Resources	
1.1 Business and Industrial Zones	N/A
1.2 Rural Zones	N/A
1.3 Mining, Petroleum Production and Extractive Industries	The land is identified for future urban release in the Illawarra Regional Strategy and is zoned as such. This amendment only affects the zone boundaries and does not fundamentally alter the land uses that are currently permitted.
1.4 Oyster Aquaculture	N/A
1.5 Rural Lands	N/A
2. Environment and Heritage	
2.1 Environment Protection Zone	Consistent Minor adjustments to the E3 zone boundaries are proposed under this amendment. The minor boundary adjustment involves land that is E3 being rezoned to R2. The changes have been justified through a Neighbourhood Plan and supporting documentation (including an updated flood study) which has been independently assessed and which Council has endorsed for public exhibition. Council has adopted the Neighbourhood Plan as an amendment to Wollongong Development Control Plan 2009.
2.2 Coastal Protection	N/A

2.3 Heritage Conservation	<p>N/A</p> <p>No known sites are being impacted upon as a result of the planning proposal. A preliminary Aboriginal Heritage Assessment report (AHMS 2014) has not identified any known Aboriginal sites within the proposed development area, however has identified a number of areas that are considered to have “high” archaeological potential which require further investigation. The report recommends that archaeological testing be undertaken in accordance with the code of practice for archaeological sites, prior to the commencement of any development works on the site. Further, it is likely that additional consultation to allow for a cultural significance assessment will be required as part of this process. Additional Aboriginal Archaeological research in line with the recommendations from Council’s Heritage Officer has commenced and will be assessed at DA stage.</p>
2.4 Recreation Vehicle Areas	N/A
3. Housing, Infrastructure and Urban Development	
3.1 Residential Zones	<p>Consistent</p> <p>The minor boundary adjustment involves land zoned E3 being rezoned to R2, to better reflect the land constraints and facilitate an improved outcome in the Neighbourhood Plan.</p> <p>These adjustments reflect the proposed road layout identified in the Neighbourhood Plan and the flooding constraints. The proposal is considered consistent with this direction and objectives as the land will, as specified in the direction, be adequately serviced, provide flexibility in the type of housing that can be delivered and enable a better design through the minimisation of impacts on the environment.</p>
3.2 Caravan Parks and Manufactured Home Estates	N/A
3.3 Home Occupations	Consistent

3.4 Integrating Land Use and Transport	Consistent The site is identified as part of the West Dapto Urban Release Area. The area has been subject to extensive design work, aimed at promoting access to housing, jobs and services by walking (networks of paths), cycling (cycleway paths) and public transport (designed in road networks). The Neighbourhood Plan that this planning proposal facilitates contains provisions for all three transport methods.
3.5 Development Near Licensed Aerodromes	N/A
3.6 Shooting Ranges	N/A
4. Hazard and Risk	
4.1 Acid Sulfate Soils	N/A
4.2 Mine Subsidence and Unstable Land	N/A

4.3 Flood Prone Land

Part of the precinct is identified as flood prone due to Robins Creek, which is part of the Mullet Creek catchment. Flood prone land is zoned E3 Environmental Management. The applicant has submitted a more recent and detailed flood study of the precinct (KFW 2014) as an update to Council's Mullet Creek Flood Study (2009), Flood Risk Management Plan and Mullet Creek Flood Extension Study (2011). The updated flood study demonstrated that the peak velocity and depth flows associated with the 1% Annual Exceedance Probability (AEP) annual exceedance probability storm event are generally contained within the back of the riparian creek system. Proposed residential lots and detention basins will not be located in the 1 in 100 year extent areas and it is therefore considered that the proposal is consistent with the direction and objectives.

Council resolved that further work is required as part of the Gateway determination to demonstrate how any proposed cut and fill of flood affected land could be managed within the Neighbourhood Plan area. Information was provided in the form of a flood depth change plot, which indicates that the proposed filling does not increase the extent of flooding in the vicinity of the playing field and proposed residential lots (1% AEP event). The Neighbourhood Plan has been modified such that all residential lots and roads are not affected by the 1% AEP flood. This revision has included the removal of some proposed lots and realignment of roads, and as a result, the extent of the rezoning required through this Planning Proposal has been reduced. More detailed flood investigations (extending to neighbouring properties) may be required at the development application stage.

4.4 Planning for Bushfire Protection	The land is identified as being bush fire prone due to the proximity to the Robins Creek riparian corridor system. Appropriate asset protection zones have been established in the Neighbourhood Plan for residential development located adjacent Robins Creek riparian corridor; for dwellings located adjacent the third order stream which flows across the north western corner of the Neighbourhood Precinct; and for dwellings located adjacent the “forest” vegetation in the fourth order section of the Robins Creek (eastern stream). The design and construction of roads shall comply with the specifications of <i>Planning for Bushfire Protection 2006</i> . The RFS have been consulted in relation to the drafting of the Neighbourhood Plan and will be included in all further consultation.
5. Regional Planning	
5.1 Implementation of Regional Strategies	Consistent – the proposal provides additional housing supply, housing choice and protection of environmental attributes. Consistent with the vision and land use strategy for West Dapto as a key urban growth area, contained in the Illawarra Regional Strategy. The proposal facilitates a Neighbourhood Plan which is a pre-requisite to the lodgement of a development application for West Dapto.
5.2 Sydney Drinking Water Catchments	N/A
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	Not applicable to Wollongong
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	Not applicable to Wollongong
5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)	Not applicable to Wollongong
5.8 Second Sydney Airport: Badgerys Creek	Not applicable to Wollongong

6. Local Plan Making	
6.1 Approval and Referral Requirements	N/A
6.2 Reserving Land for Public Purposes	N/A
6.3 Site Specific Provisions	N/A
7. Metropolitan Planning	
7.1 Implementation of the Metropolitan Plan for Sydney 2036	Not applicable

Stanwell Park Proposed Alcohol Prohibition Community Safety, Wollongong City Council July 2015

STANWELL PARK

Following consultation the proposed alcohol prohibited area has shifted from Beach Road (area marked in black) to the area opposite Kennett Home on The Drive (area marked in red).



= Proposed area in 2014 prior to consultation



= proposed area now following consultation

2015 - Proposed Area for Alcohol Prohibition (following consultation)



Proposed Alcohol Prohibited Park sunset to sunrise, opposite Kennett Home, 103 The Drive, Stanwell Park

2014 - Initial Proposed Areas for Alcohol Prohibition (prior to consultation)



Proposed AFZ for Baird Car Park and Stanwell Park Surf Club Car Park



Proposed Alcohol Prohibited Area from 'Sunset to Sunrise' for the part of Baird Park encircled above



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While every effort has been made to ensure the highest possible quality of data, no liability will be accepted for any inaccuracy of the information shown.
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SUMMARY OF COMMENTS - PROPOSAL TO ESTABLISH ALCOHOL FREE ZONES IN PARTS OF STANWELL PARK 2015

Letter sent to Stanwell Park residents early April to seek feedback on the proposal to establish AFZ and AFA in parts of Stanwell Park. Newsletter advertisement placed 8 April informing of 30 days to provide comments. The closing date was 7 May 2015 before comments were reviewed.

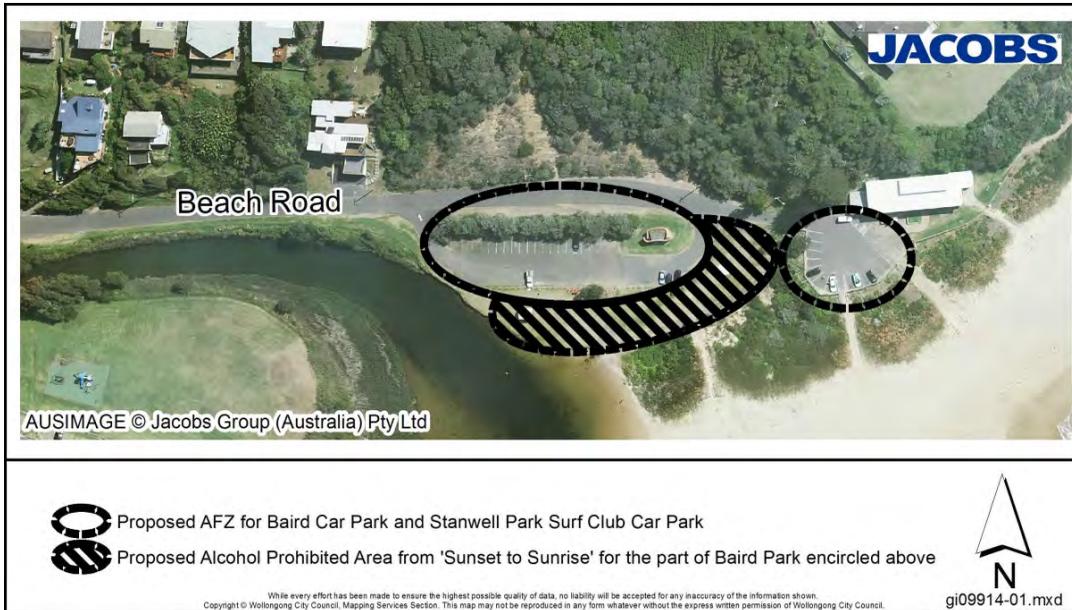
No.	Objection	Support	Other Areas Mentioned	Summary of Comments
1	√ Object		Mentioned area opposite Kennett Home	<ul style="list-style-type: none"> • Feel it will detract visitors • The only place that the local kids often hang and drink is in The Drive on the north end point car park near the nursing home where they do burnouts or drink outside the local shops. • No one really goes to Baird Park so I wonder why this area was selected. • Many people have New Year's Eve parties near or on the beach so hopefully this can still happen.
2		√ Support (& other area: cafe)	In front of Café	<ul style="list-style-type: none"> • The plan doesn't include the area outside the 16ft Cafe in the evenings. This is a frequent haunt of young people, almost exclusively male. There is frequent consumption of alcohol and as it is in the middle of our village, it can be unpleasant having to walk past them. Please can this area also be included.
3		√ Support (& other area: cafe)	In front of Café	<ul style="list-style-type: none"> • I would appreciate the inclusion of an AFZ in the area outside the 16ft Cafe in the evenings. This is a frequent haunt of young people, almost exclusively male. There is frequent consumption of alcohol and some bad behaviour, which is quite intimidating. Many of the local women choose NOT to walk past that area after 7.00pm for fear of verbal abuse. • Please include 16ft/General Store area in your AFZ plan. • I believe that an AFZ in this area would move these guys to a suitable venue, as the General Store is next door to 16Ft Cafe, where kids and women frequent. Note that the source of the alcohol is the Bottle Shop, next door to General Store. In my opinion, AFZ should be mandatory in the area surrounding bottle shops.

4		<p>√ Support (& other area: opposite Kennett Home)</p>	<p>Area opposite Kennett Home</p>	<ul style="list-style-type: none"> • It would be appreciated if you could investigate and consider the area encompassing the Northern Headland which overlooks the beach on the Drive opposite the Kennett Aged People's Home. Over the years this area has become the gathering place particularly for young men. On a good day cars are parked 3 deep and all over the place, backing out and blocking up the street. It has become a potential accident area due to the traffic. It has become a gathering place, a party place and a drinking place. One party was still going (loudly) early the next morning. • Also to make it an Alcohol Free Zone is ultimately sensible as this area is situated on top of the cliff and although I don't recall any falling accidents lately, I know there have been people fall down the cliff in earlier times.
5	<p>√ Object</p>			<ul style="list-style-type: none"> • I do not believe that the proposed establishment of the alcohol free zone in Stanwell Park is in the best interest of the community. As a local member of the Stanwell Park community for over 21 years, I have seen many residents and visitors enjoying an occasional glass of wine and cheese in these areas. The proposed change would destroy this and negatively impact the beautiful lifestyle we all enjoy here. • There is current legislation to deal with any issues relating to alcohol in this area. These zones have no place in our small community.
6	<p>√ Object</p>			<ul style="list-style-type: none"> • As a resident of the local area I see no reason to enforce this zone on the community. There is the odd time that some of the local youth come to enjoy themselves in an area quite isolated from the nearby residents. If it is a problem, it can easily be dealt with by current legislation. • The Police have extensive powers to control these types of situations with random breath testing, underage drinking and various public nuisance laws. They are quiet capable of maintaining control of the area. If the Police or Council feel they are incapable of maintaining law and order within Stanwell Park I suggest they contact the State Parliament to request more resources be allocated to this area. • These zones may work well in the main CBD districts but are a burden we do not require in this suburb.
7		<p>√ Partly (& other area: near corner</p>	<p>Near General Store Area opposite Kennett Home</p>	<ul style="list-style-type: none"> • I applaud the initiative as outlined but it is not the primary area of concern. • The three areas that are most concern are: 1.outside the corners store 2. The northern end area on the point (opposite Kennett Home) and 3.Bald Hill. • Each of these area are locations where people congregate very regularly, consume alcohol illegally with the inherent people problems that follow.

		store, opposite Kennett Home, Bald Hill)	Bald Hill (ridiculous drivers)	<ul style="list-style-type: none"> Bald Hill is of particularly concern as this is coupled with ridiculous drivers causing mayhem for the locals. Nothing appears to have been done to curtail this and perhaps consideration for these obvious areas being included would go some way to curbing antisocial behaviour. The area you have proposed to designate has no residents adjoining and will have little bearing on the issue.
8	√ Object			<p>I wish strongly to push not to have the AFZ in Stanwell Park for the following reasons:</p> <ul style="list-style-type: none"> As a very regular user of that area at all times of day and night there is no visible problem alcohol drinking – and rarely any at all. The extra signage required to notify the public is a blight on the picturesque area. The extra enforcement is a waste of police time – focus is more required on the behavioural issues rather than someone with alcohol. Many people come to Stanwell Park and may wish to consume alcohol when picnicing in that area. <p>Please review the thinking behind this option as it seems an unnecessary addition of rules to the local community and environment when there is no current safety issues with the area.</p>
9		√ Partly (only if opposite Kennett Home is considered)	Area opposite Kennett Home	<ul style="list-style-type: none"> Only supports if the area opposite Kennett Home also becomes an AFZ. Concerns were raised about ongoing issues in this area and that if the proposed area becomes an AFZ displacement may occur and the space opposite Kennett home may become worse. Highlighted previous issues in this area particularly week leading up to Christmas. Noted lack of response from Police to address when a party was being set up in this area.
10		√ Support (& other area: Corner Store/Café, opposite Kennett Home)	<p>Area in front of General Store and Café</p> <p>Area opposite Kennett Home</p>	<p>Please accept our support of the current proposal. Recommend two (2) additional areas of concern:</p> <ul style="list-style-type: none"> In front to the General Store and 16 Feet café - A number of times each week the same group of young local men meet and consume alcohol in this area. They then urinate in front of the café in the bushes which often has an offensive smell. This is somewhat of a health risk as well as being anti-social behaviour. It also makes the area a “no go” are for residents who go out of their way to not have to pass them. The open space on the ocean side of The Drive across the road from Kennett Homes (103 The Drive) - This area has become a meeting place for groups to consume alcohol and over the last few years has hosted large gatherings of people. These gatherings have

				<p>sometimes lasted 1-2 days (Christmas & New Year) and have been very noisy for local residents. It must be quite intimidating for the elderly residents of Kennett Homes to have upwards of 100 people partying out of control a few metres away from them. They often play cricket games which last for hours and are very much alcohol fuelled. One Kennett Home resident complained that she had had a chair taken from her little outside area and never returned. The area becomes a “no go” for local residents over the period of the party. At one point the gatherings were every Friday night during summer. While these gatherings have decreased in recent months, enforcing an alcohol free zone would assist in ensuring that the area can be enjoyed by all.</p>
11	√ Object			<ul style="list-style-type: none"> • Long-time resident (since 1977) lives in Beach Road (since 1992). • Have never had a pub or club here and now there is finally a safe environment for locals to socialise and be able to walk home, you now want to force them to stay inside the un-air-conditioned club on a hot summer's day. This will encourage people to go elsewhere again and possibly drink and drive. • We have not had any trouble with people causing a scene, fighting or causing any damage in our street after they have been having a drink at the surf club, and I feel that as a long term resident, once again we are being targeted.
	OBJECTIONS TOTAL	SUPPORT TOTAL		
	5	<p>4 x yes (but include other areas also)</p> <p>2 x partly (must include other areas)</p>		<p><i>Note: No one offered support just for the proposed areas.</i></p>

Proposed areas forwarded to Stanwell Park Residents for comment in April 2015.



BACKGROUND

This policy has been developed in order to control the risk of fraud and corruption. This is a governance issue which must be given due attention by Council management. Fraud and corruption is costly in five ways:

- 1 Financial loss;
- 2 Waste of resources, including management time;
- 3 Loss of corporate reputation;
- 4 Loss of community confidence; and
- 5 impact on employee morale and subsequent effects on productivity.

The minimisation of fraud and corruption is therefore essential to ensure that Council achieves its overall business goals and objectives in a cost effective and ethical manner, whilst meeting community expectations to protect public money and property.

OBJECTIVE

The main objective of this policy is to set out Wollongong City Council's policy in relation to the prevention, detection and investigation of fraud and corruption in the Council work environment. This policy complies with NSW Government legislation and guidelines for public interest disclosures and applies to:

- Councillors;
- All Council staff;
- Individuals who are engaged as contractors working for Council; and
- Other people who perform public official functions on behalf of the Council, such as volunteers.

Failure to comply with the provisions set out in the policy will constitute a breach of Council's Code of Conduct and may be considered misconduct and result in disciplinary action including termination of employment or legal actions.

POLICY STATEMENT

Council is committed to protecting its revenue, expenditure and assets from any attempt either by the public, contractors, or its own employees to gain financial or other benefits by deceit. The policy principles underpinning the Council's approach to fraud and corruption control are as follows:

- 1 Wollongong City Council will not tolerate corrupt or fraudulent conduct by employees or by any Councillor, stakeholder, client, consultant or volunteer.
- 2 Wollongong City Council is committed to:
 - Minimising the opportunities for corrupt or fraudulent conduct by employees, Councillors, members of the public, contractors and clients.
 - Detecting, investigating and disciplining/prosecuting corrupt or fraudulent conduct.
 - Reporting corrupt or fraudulent conduct to ICAC and the NSW Police where appropriate.
- 3 Managers are accountable for fraud and corruption control in their areas of responsibility.
- 4 Managers will adopt a risk management approach to fraud and corruption control, including pro-active assessment of corruption or fraud risk, active implementation of mitigating controls and regular reporting to senior management.

Definition of Corruption

Corrupt conduct by a public official commonly involves the dishonest or preferential use of power or position, a breach of public trust or the misuse of information or material acquired in the course of official functions.

STATEMENT OF PROCEDURES

Responsibilities

- The General Manager has ultimate responsibility for managing fraud and corruption risks in the Council.
- The executive and senior management is responsible for ensuring that the Council's Fraud and Corruption Control Plan is fully and effectively implemented.
- Line management is responsible for:
 - understanding and implementing the Code of Conduct and relevant Council policies
 - undertaking risk assessment of corruption or fraud risk, active implementation of mitigating controls and regular reporting to senior management.
- Staff are responsible for reporting corrupt and fraudulent conduct through the Council's internal reporting framework or directly to ICAC.
- The General Manager is obliged, under section 11 of the ICAC Act to report any matter that he or she reasonably suspects involves or may involve corrupt or fraudulent conduct to the ICAC.
- Staff are responsible for behaving according to the Code of Conduct and relevant Council policies.

Fraud and Corruption Control Plan

To assist managers to meet their fraud and corruption control responsibilities, specific strategies will be set out in the Council's Fraud and Corruption Control Plan, which will be developed and implemented by the Council's Professional Conduct Coordinator (PCC).

Reporting

Staff have an obligation to report suspected fraud or corrupt conduct. Guidelines for reporting fraud and corruption are set out in Council's Internal Reporting Policy. All actual or suspected instances of fraud or corruption should be reported to Council's Professional Conduct Coordinator (PCC) as soon as possible, through the Council's internal reporting mechanisms.

Investigation

All cases of alleged fraud and/or corruption will be investigated and where appropriate, reported to ICAC and referred to the NSW Police for prosecution. Guidelines for the investigation of alleged fraud and corruption are set out in Council's Fraud and Corruption Investigation Policy.

The objectives of any investigation will be to:

- identify fraud and corruption vulnerabilities in Council business processes and instigate remedial action;
- determine and if appropriate instigate any applicable insurance coverage aspects;
- identify offenders and refer them for prosecution; and
- where practical, instigate recovery action through insurances or through the criminal courts on behalf of Council.

Alternatively, the PID Act lists a number of investigating authorities in NSW that staff can report wrongdoing to and the categories of wrongdoing each authority can deal with. In relation to Council, these authorities are:

- The Independent Commission Against Corruption (ICAC) – for corrupt conduct;
- The NSW Ombudsman – for maladministration;
- The Information Commissioner – for disclosures about a government information contravention; and
- The Office of Local Government – for disclosures on any of the above categories.

COUNCIL FRAUD AND CORRUPTION RESPONSIBILITY STRUCTURE			
GENERAL MANAGER	<ul style="list-style-type: none"> • Culture • Policy and Strategy • Business Risk • Corporate Governance • Compliance (legislative, regulatory, community) • Stakeholder value • Image 		
	DIRECTORS and MANAGERS	<ul style="list-style-type: none"> • Lead by example • Develop and implement fraud and corruption prevention strategies for Department • Identify and mitigate actual and potential corruption risks in the workplace • Monitor and review the effectiveness of mechanisms implemented to minimise and detect corruption • Demonstrate ethical conduct in all business dealings • Promote awareness of fraud and corruption prevention and ethical conduct in the workplace 	
		SUPERVISORS and LEADERS	<ul style="list-style-type: none"> • Promote awareness of ethical conduct and mechanisms to prevent corruption • Provide input to policies, procedures and instructions that relate to areas of risk • Drive the Fraud and Corruption Prevention Strategy • Provide ethical advice and support to staff • Monitor integrity of Fraud and Corruption Prevention Strategy
	EMPLOYEES		<ul style="list-style-type: none"> • Ethical behaviour • Report suspected incidents of fraud and corruption • Compliance with fraud and corruption prevention controls including the Fraud and Corruption Prevention Policy

SUMMARY SHEET	
Responsible Division	Office of the General Manager
Date adopted by Council	[To be inserted by Corporate Governance]
Date of previous adoptions	11 June 2013, 24 November 2009 Management Policy 24 November 1995
Date of next review	[List date - Not more than 3 years from adoption]
Prepared by	Professional Conduct Coordinator
Authorised by	General Manager

DRAFT

C O N T E N T S

SPECIFICATION D1 GEOMETRIC ROAD DESIGN
SPECIFICATION D2 PAVEMENT DESIGN
SPECIFICATION D3 STRUCTURES & BRIDGE DESIGN
SPECIFICATION D4 SUBSURFACE DRAINAGE DESIGN
SPECIFICATION D5 STORMWATER DRAINAGE DESIGN
SPECIFICATION D6 SITE REGRADING
SPECIFICATION D7 SOIL AND WATER MANAGEMENT
SPECIFICATION D9 CYCLEWAY AND PATHWAY DESIGN
SPECIFICATION D13 LANDSCAPING
SPECIFICATION C101 DEVELOPMENT CONSTRUCTION – GENERAL
SPECIFICATION C201 CONTROL OF TRAFFIC
SPECIFICATION C212 CLEARING AND GRUBBING
SPECIFICATION C213 EARTHWORKS
SPECIFICATION C220 STORMWATER DRAINAGE – GENERAL
SPECIFICATION C221 PIPE DRAINAGE
SPECIFICATION C222 PRECAST BOX CULVERTS
SPECIFICATION C223 DRAINAGE STRUCTURES
SPECIFICATION C224 OPEN DRAINS, INCLUDING KERB AND GUTTER
SPECIFICATION C230 SUBSURFACE DRAINAGE – GENERAL
SPECIFICATION C231 SUBSOIL AND FOUNDATION DRAINS
SPECIFICATION C233 DRAINAGE MATS
SPECIFICATION C242 FLEXIBLE PAVEMENTS
SPECIFICATION C244 SPRAYED BITUMINOUS SURFACING
SPECIFICATION 245 ASPHALTIC CONCRETE
SPECIFICATION 254 SEGMENTAL PAVING
SPECIFICATION C261 PAVEMENT MARKINGS
SPECIFICATION C263 GUIDE POSTS
SPECIFICATION C271 MINOR CONCRETE WORKS
SPECIFICATION CQC QUALITY CONTROL REQUIREMENTS

DEVELOPMENT DESIGN SPECIFICATION

D1

GEOMETRIC ROAD DESIGN (Urban and Rural)

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Para (d) deletion of standards</i>	1.03	O	MB	21/01/08
1	<i>Item 9 - Footpath width included</i>	1.17	M	MB	21/01/08

DEVELOPMENT DESIGN SPECIFICATION D1 - DESIGN (Urban and Rural)

GENERAL

D1.01 SCOPE

1. This section sets out design specifications to be used in the subdivision of land.
2. All relevant design principles must be integrated in the development of the road network. A careful balance is required between maximising amenity, safety considerations and those related to legibility and convenience.

D1.02 AIMS

1. The provision of a road system within a subdivision is to be designed so as to achieve the following aims:

- Provide convenient and safe access to all allotments for pedestrians, vehicles and cyclists.
- Provide safe, logical and hierarchical transport linkages with existing street system.
- Provide appropriate access for buses, emergency and service vehicles.
- Provide for a quality product that minimises maintenance costs.
- Provide a convenient way for public utilities.
- Provide an opportunity for street landscaping.
- Provide convenient parking for visitors.
- Have appropriate regard for the climate, geology and topography of the area.
- To ensure the design of any proposed residential subdivision takes into account inherent site constraints and natural landform features.
- To ensure that the design of any proposed residential subdivision takes into account any significant trees or other vegetation upon the subject site, including any endangered ecological community or threatened species.
- To ensure residential lots are well designed to take into account aspect, orientation, slope issues and optimal solar access.
- To provide residential lots which maximises solar access and energy efficiency opportunities for future dwellings and private open space areas.

D1.03 REFERENCE AND SOURCE DOCUMENTS

~~The following reference document list is not exhaustive and it is the responsibility of the designer to maintain awareness of amendments and changes to Australian Standards and other relevant documents.~~

~~(a) Council Specifications~~

~~All Specifications for Design and Construction, relevant Development Control Plans (DCP), including but not limited to DCP 49 and 6, and Local Area Traffic Management~~

Plans (LATM):

(b) Australian Standards

AS 2890.1 Parking facilities: Off street car parking.

(c) State Authorities

Roads and Traffic Authority NSW Road Design Guide.
Department of Housing Road Manual, 1987.

(d) Other

AUSTROADS Guide to the Geometric Design of Rural Roads.
Guide Policy for the Geometric Design of Major Urban Roads.
Guide to Traffic Engineering Practice:
PART 5, Intersections at Grade
PART 6, Roundabouts
PART 10, Local Area Traffic Management
PART 13, Pedestrians
PART 14, Bicycles

D1.04 CONSULTATION

1. Designers are encouraged to consult with the Council and other relevant authorities prior to or during the preparation of design. Designers shall in addition to requirements of this Specification ascertain specific requirements of these authorities as they relate to the designs in hand.
2. Where there is inconsistency between the RTA Road Design Guide and AUSTROADS, the RTA Road Design Guide shall have primacy. The Designer should consult with Council for determination.

D1.05 PLANNING CONCEPTS

1. In new areas (as distinct from established areas with a pre-existing road pattern) each class of route should reflect its role in the road hierarchy by its visual appearance and related physical design standards. Routes should differ in alignment and design standard according to the volume of traffic they are intended to carry, the desirable traffic speed, and other factors.
2. The road pattern and width must be in conformity with that shown on any relevant area Development Control Plan. In areas not covered by these plans, the pattern and width(s) will be determined by Council on their merits.
3. The road network for residential developments shall have clear legibility.
4. The road network should reinforce legibility by providing sufficient differentiation between the road functions.
5. Wherever possible distinct landmark features such as watercourses, mature vegetation or ridge lines should be emphasised within the structural layout so as to enhance the legibility.
6. Whilst legibility can be enhanced by introduced physical features such as pavement and lighting details, the road network should by its inherent design and functional distinction provide the necessary legibility.

Road Hierarchy

Legibility

7. The maximum number of turning movements at intersections or junctions that a visitor should be required to undertake to reach a particular address within the development should be minimised.

D1.06 PLAN REQUIREMENTS

(a) Reduction Ratios

1. All plans for urban design are to be reduced to 1:500. Where detail is required, plans shall be presented at 1:200.

Longitudinal Sections	1:500 H
	1:100 V
Cross Sections	1:100 Natural

(b) Plan Sheets

1. Separate sheets shall be provided for

- a. Cover sheets
- b. Plan views
- c. Longitudinal sections
- d. Cross sections
- e. Structural details
- f. Standard drawings

(c) Plan Presentation

1. Plans are to be presented on A1 sheets unless otherwise authorised. They are to be clear and legible and prepared in consistent lettering and style e.g. ISO 3098B. Council has the authority to refuse plans that do not meet these drafting requirements. All plans shall be clearly referenced with notations and tables as appropriate. The designer shall always be mindful that apart from being a permanent record and legal document, plans shall be easily read and understood by the Contractor, and others involved in the construction of the works. Terminology shall be kept in 'plain english' where possible.

Permanent Record

(d) Certification

1. Plans shall bear the signature of the design consultant and shall where required by the Council be certified as complying with the appropriate design specifications (D1 to D12).

Design Consultant

URBAN DESIGN CRITERIA

D1.07 ROAD HIERARCHY

1. A hierarchical road network is essential to maximise road safety, residential amenity and legibility. Each class of road in the network serves a distinct set of functions and is designed accordingly. The design shall convey to motorists the predominant function of the road. For a typical hierarchy refer to Council's DCP's.

D1.08 ROAD NETWORK

1. The design features of each type of road convey to the motorist its primary functions and encourage appropriate driver behaviour.

2. Traffic volumes and speeds on any road shall be compatible with the residential

functions of that road.

3. The maximum length of lower order roads shall ensure their status as a residential place is retained, where the traffic, in terms of speed and volume will enable the integration of pedestrian, cycle and vehicular movements. This length will also ensure that residential convenience is not unduly impaired as a result of speed restraints.

4. The length of higher order roads within a development shall be minimised.

5. The time required for motorists to travel on all streets within the development shall be minimised.

6. Where lower order roads form part of a pedestrian or cycle network, access links should provide suitable connectivity with adjoining roads or open space systems so as to ensure such pedestrian and cycle network are functionally efficient.

7. The road network should ensure that no road links with another road which is more than two levels higher or lower in the hierarchy.

Road Links

D1.09 DESIGN SPEED

1. Design speed is generally used as the basic parameter in the specification of design standards, determining the minimum design value for other elements. Vehicular speeds are also limited by road intersections as well as changes in horizontal and vertical alignment.

2. Adoption of a low design speed discourages speeding, however, where vertical or horizontal curves of low design speed are located in otherwise high speed sections, the result is a potentially dangerous section of road. It should be recognised that in low standard roads, operating speeds will tend to be in excess of arbitrary speed standards. Attention shall be given to ensuring that potentially hazardous features are visible to the driver and adopting traffic engineering measures which will help a driver avoid errors of judgement.

Low Speeds

3. Design speeds shall be in accordance with Council's DCP. Where a development is not covered by the provisions of a DCP, the design speed shall be set by Council.

D1.10 LONGITUDINAL GRADIENT

1. Other than at sags and crests, the minimum permissible gradient is 0.5%. Variable crossfall may be necessary to produce the required grade in the gutter. Maximum recommended grades are shown in Table D1.1.

Table D1.1

Road Carriageway Type	Maximum Desirable Grade	Absolute Maximum Grade
Residential	47% 15%	Greater than 47%-15% up to and equal to 20% for distances not exceeding 100 m <u>and do not require movements of Heavy Vehicle</u>
Industrial / Commercial	12%	Greater than 12 % up to and

		equal to 15% for distances not exceeding 100 m
--	--	--

2. Design of the road alignment and the grades used are interrelated. A steep grade on a side street is undesirable if vehicles on the side road have to stand waiting for traffic in the priority road.
3. The maximum grade in any direction within a cul-de-sac turning circle or T-Head shall not exceed 8%.

D1.11 HORIZONTAL CURVES AND TURNING MOVEMENTS

1. The Horizontal Alignment of a road is normally a series of tangents and curves which may be connected by transition curves. For design speeds up to 60 km/h the use of transition curves is not considered necessary. In practice, curve radii on urban roads range from right angled bends to large radius curves.
2. The radius of horizontal curves in urban areas shall meet the following objectives:
 - a. turning movements of a large rigid vehicle to enter and leave each street travelling in a forward direction.
 - b. sight distance criteria in accordance with AUSTRROADS requirements taking account of building set backs and landscape features.
 - c. desired speed environment to cater for pedestrian, cyclists be the largest attainable.

Transition Curves

D1.12 VERTICAL CURVES

1. Vertical curves will be simple parabolas and shall be used on all changes of grade exceeding 1 %. The desirable minimum design speed is 40 km/h. The length of the crest vertical curve for stopping sight distance shall conform with AUSTRROADS requirements.
2. For adequate riding comfort, lengths of sag vertical curves shall conform with the RTA Road Design Guide. As residential roads are usually lit at night, the criterion for designing sag vertical curves is a vertical acceleration of 0.05 g for desirable riding comfort, and 0.10 g for minimum riding comfort. The minimum length for vertical curves are shown in Table D1.2.

Riding Comfort

Table D1.2

	Local access (m)	Collector (m)	Distributor (m)
Minimum vertical curve	25	35	50
Absolute minimum vertical curve (to be applied at road junctions only)	8	12	20

3. Sight distance requirements at all intersections shall be provided in accordance with AUSTRROADS 'Intersections at Grade'.

Side Road

4. Drainage poses a practical limit to the length of sag curve. A minimum grade of 0.5 per cent should be maintained in the kerb and gutter. **Sag Curves**

5. The three dimensional coordination of the horizontal and vertical alignment of a road should be aimed at improved traffic safety and aesthetics. Economic considerations often require a compromise with aesthetic considerations. The following principles should be applied:

- The design speed of the road in both horizontal and vertical planes should be of the same order.
- Combined horizontal and vertical stopping sight distance and minimum sight distance should be considered three dimensionally.
- Sharp horizontal curves should not be introduced at or near the crest of a vertical curve. A horizontal curve should leave the vertical curve and be longer than the vertical curve.
- A short vertical curve on a long horizontal curve or a short tangent in the gradeline between sag curves may adversely affect the road's symmetry and appearance.

D1.14 CARRIAGEWAY WIDTH

1. The cross section of the road reserve must cater for all functions that the road is expected to fulfil, including the safe and efficient movement of all users, provision for parked vehicles, acting as a buffer from traffic nuisance for residents, the provision of public utilities and streetscaping. Carriageway width, footway width and road reserve width shall comply with the relevant Council DCP. **Functions**

2. Where a development is not covered by the provisions of a DCP, carriageway width, footway width and road reserve width shall be determined by Council.

D1.15 CROSSFALLS

1. Desirably, roads should be crowned in the centre. Typical pavement crossfalls on straight roads are:

<i>Pavement Type</i>	<i>Crossfall</i>
Bituminous seal coat	3 %
AC pavement	3 %
Cement concrete pavement	2 %

(Source: NAASRA (Now AUSTRROADS), Guide policy for geometric design of major urban roads.)

2. There are many factors affecting levels in urban areas which force departures from these crossfalls. Differences in level between road alignments can be taken up by offsetting crown lines or adopting one way cross falls. Sustained crossfalls should not exceed 4 per cent, although up to 6 per cent may be used where unavoidable. **Offset Crown Changes**

3. The rate of change of crossfall should not exceed: **Rate of Rotation**

- a. 6 per cent per 30 m for through traffic;
- b. 8 per cent per 30 m for free flowing turning movements; or
- c. 12 per cent per 30 m for turning movements for which all vehicles are

required to stop.

4. The crossfall on a through road shall take precedence over the grade in side streets. Standard practice is to maintain the crossfall on the priority road and adjust the side road levels to suit. The crossfall in side streets should be warped quickly either to a crown or a uniform crossfall depending on the configuration of the side street.

Priority Road

D1.16 FOOTWAY AREAS

1. A suitable design for the footpath will depend on utility services, the width of pathways, access to adjoining properties, likely pedestrian usage and preservation of trees. Crossfalls in footpath areas shall generally be 4%. Where this is not practical footpath crossfalls shall not be less than 2% nor exceed 6%. The footpath shall be graded to fall toward the kerb other than at locations specifically designed to cater for overland flow of stormwater.

Utility Services

D1.17 INTERSECTIONS

1. The design of intersections or junctions shall allow all movements to occur safely without undue delay. Projected traffic volumes should be used in designing all intersections or junctions on local distributor roads.

Traffic Volumes

2. Intersection design for the junction of subdivision roads with existing main rural, main urban and state highways should generally be designed in accordance with the publication [AUSTROADS Guide to Road Design Part 4, Intersections and Crossings](#) and [Guide to Traffic Engineering Practice, PART 5, Intersections at Grade](#).

Main Roads

3. Intersections with main roads, tourist roads or state highways are to be designed and constructed in accordance with the requirements of the Roads and Traffic Authority and Council.

**Tourist Roads
State Highways**

4. Where major intersections are required to serve a development complete reconstruction of the existing road pavements will be necessary where the speed environment and irregularity of the existing road pavement may endanger the safety of traffic in the locality.

5. Intersections should be generally located in such a way that:

Criteria

- a. The streets intersect preferably at right-angles and not less than 70°.
- b. The landform allows clear sight distance on each of the approach legs of the intersection.
- c. The minor street intersects the convex side of the major street.
- d. The vertical grade lines at the intersection do not impose undue driving difficulties.
- e. The vertical grade lines at the intersection will allow for any direct surface drainage.
- f. Two side streets intersecting a major street in a staggered pattern should have a minimum centre-line spacing of 40 m.

6. Stopping and sight distances are to be provided for horizontal and vertical curves at all intersections in accordance with AUSTROADS requirements.

7. In cul-de-sac streets adequate provision should be made at the end of the road for vehicle types which frequently use the streets to turn around. The likelihood of parked

vehicles obstructing turns must be catered for.

8. The drainage function of the carriageway and/or road reserve must be satisfied by the road reserve cross-section profile.

9. Footpath (footway/nature strip/verge) area width shall be in accordance with Council's DCP or a minimum of 3.5 metres wide unless otherwise approved by Council.

Verge Widths

10. All vehicle turning movements are accommodated utilising AUSTRoads Design Vehicles and Turning Templates.

Turning Movements

a. For turning movements involving local distributor roads, the "design semi-trailer" with turning path radius 15.0 m.

b. For turning movements involving local streets or collector streets, but not distributor roads, the "design bus/truck" with turning path radius 12.5 m.

c. For turning movements on access streets but not involving distributor roads, collector streets or local streets, the garbage collection vehicle used by the local authority.

d. For turning movements at the head of cul-de-sac streets sufficient area is provided for the "design bus/truck" to make a three-point turn.. Where driveway enhancers are to be used for turning movements, the required area is constructed and design to withstand the relevant loads.

<u>AUSTRoads</u>	<u>Australian Standard</u>	<u>Design Length (m)</u>	
	B85 Vehicle	4.91	
	B99 Vehicle	5.2	
	Small Rigid Vehicle	6.4	
<u>Service Vehicle</u>	<u>Medium Rigid Vehicle</u>	8.8	
<u>Single Unit truck/bus</u>	<u>Heavy Rigid Vehicle</u>	12.5	
			
<u>Single Articulated</u>	<u>Articulated Vehicle</u>	19	

D1.18 ROUNDABOUTS

1. Roundabouts are to be approved by the Council.

2. Roundabouts shall be designed in accordance with the requirements of the publication AUSTRoads [Guide to Road Design Part 4B : Roundabouts](#) ~~[Guide to Traffic Engineering Practice – PART 6 Roundabouts](#)~~ and current [RTA RMS Guidelines](#).

Roundabout design should generally comply with the following:

- a. entry width to provide adequate capacity.
- b. adequate circulation width, compatible with the entry widths and design vehicles e.g. buses, trucks, cars.
- c. central islands of diameter sufficient only to give drivers guidance on the manoeuvres expected.
- d. deflection of the traffic to the left on entry to promote gyratory movement.
- e. adequate deflection of crossing movements to ensure low traffic speeds.
- f. a simple, clear and conspicuous layout.
- g. design to ensure that the speed of all vehicles approaching the intersection will be less than 50 km/h.

**Approach
Speed**

D1.19 TRAFFIC CALMING

1. Calming devices such as thresholds, slowpoints, speed humps, chicanes and splitter islands should be designed in accordance with the requirements of the publication [AUSTROADS Guide to Traffic Engineering Practice – PART 10, Local Area Traffic Management](#) [Guide to Traffic Management part 8: Local Area Traffic Management](#)

and are to be approved by Council. Designs should generally comply with the Council LATM plans and the following:

(a) Streetscape

- i. reduce the linearity of the street by segmentation
- ii. avoid continuous long straight lines (e.g. kerb lines)
- iii. enhance existing landscape character
- iv. maximise continuity between existing and new landscape areas.

(b) Location of Devices/Changes

- i. devices other than at intersections should be located to be generally consistent with streetscape requirements
- ii. existing street lighting, drainage pits, driveways, and services may decide the exact location of devices
- iii. slowing devices are located at spacings of 100-150m.

(c) Design Vehicles

- i. emergency vehicles must be able to reach all residences and properties.
- ii. where bus routes are involved, buses should be able to pass without mounting kerbs.
- iii. in newly developing areas where street systems are being developed in line with LATM principles, building construction traffic must

**Design
Vehicles**

be catered for.

(d) Control of Vehicle Speeds

i. maximum vehicle speeds can only be reduced by deviation of the travelled path. Pavement narrowings have only minor effects on average speeds, and usually little or no effect on maximum speeds

**Vehicle
Speeds**

ii. speed reduction can be achieved using devices which shift vehicle paths laterally (slow points, roundabouts, corners) or vertically (humps, platform intersections, platform pedestrian/school/bicycle crossings)

iii. speed reduction can be helped by creating a visual environment conducive to lower speeds. This can be achieved by 'segmenting' streets into relatively short lengths (less than 300m), using appropriate devices, streetscapes, or street alignment to create short sight lines

(e) Visibility Requirements (sight distance)

i. adequate critical sight distances should be provided such that evasive action may be taken by either party in a potential conflict situation. Sight distances should relate to likely operating speeds

Visibility

ii. sight distance to be considered include those of and for pedestrians and cyclists, as well as for drivers

iii. night time visibility of street features must be adequate. Speed control devices particularly should be located near existing street lighting if practicable, and all street features/furniture should be delineated for night time operation.

(f) Critical Dimensions

Many devices will be designed for their normal use by motor cars, but with provision (such as mountable kerbs) for larger vehicles. Some typical dimensions include:

i. pavement narrowings

- single lane 3.50 m between kerbs
3.75 m between obstructions
- two lane 5.50 m minimum between kerbs

ii. bicycle lanes (including adjacent to pavement narrowings)

Bicycle Lanes

- 1.35m minimum

iii. plateau or platform areas

- 75 mm to 150 mm height maximum, with 1 in 15 ramp slope

iv. width of clear sight path through slowing devices

- 1.0 m maximum

(i.e. the width of the portion of carriageway which does not have its line of sight through the device blocked by streetscape materials, usually vegetation)

v. dimensions of mountable areas required for the passage of large

vehicles to be determined by appropriate turning templates.

D1.20 PARKING

1. The parking requirements are outlined in Council's DCP.

D1.21 BUS ROUTES

1. Bus routes will normally be identified by Council. It is important that the road hierarchy adequately caters for buses. The main criteria in determining the location of bus routes is that *no more than 5% of residents should have to walk in excess of 400 metres to catch a bus*. Normally roads above the local street in the hierarchy are designed as bus routes.

Buses

RURAL DESIGN CRITERIA

D1.22 GENERAL

1. In addition to the foregoing sections this section specifically applies to all those sites identified as being suited to rural subdivisions inclusive of rural home-sites and hobby farms types of developments.

2. Design speed is to be generally used as the basic parameter of design standards and the determination of the minimum design value for other elements in rural subdivisions is to be based on the concept of a "speed environment" as outlined in [AUSTROADS Guide to Road Design Part 3: Geometric Design](#) ~~Guide to the Geometric Design of Rural Roads~~.

Design Speed

3. Reserved.

4. Where the table drain is likely to scour, a RTA Type SH dish drain, or similar structure is to be constructed along the invert. For grades of less than 0.5%, the inverts of the drain are to be lined to prevent siltation.

Table Drain

D1.23 SIGHT DISTANCES

1. Sight distances shall be in accordance with AUSTROADS requirements
2. Deleted

Sight Distance

D1.24 HORIZONTAL AND VERTICAL ALIGNMENT

1. Horizontal and vertical curves are to be designed generally to the requirements of AUSTROADS [Guide to Road Design Part 3: Geometric Design](#) - ~~Guide to Geometric Design of Rural Roads~~. These requirements are essential to satisfy the safety and performance of proper road design. Roads having both horizontal and vertical curvature should be designed to conform with the terrain to achieve desirable aesthetic quality and being in harmony with the landform.

D1.25 INTERSECTIONS

1. Intersections shall be designed in accordance with the publication AUSTROADS [Guide to Road Design Part 4, Intersections and Crossings](#) ~~Guide to Traffic Engineering Practice - Part 5, Intersections at Grade~~. The type of intersection required will depend on existing and planned connecting roads.

2. Adequate sight distance in accordance with AUSTRROADS requirements shall be provided at intersections and junctions.

3. An absolute minimum spacing of 40 m shall be adopted for staggered junctions. The intersection angle between two roads shall not be less than 70 degrees.

***Staggered
Junctions***

D1.27 CARRIAGEWAYS

1. Carriageway width shall be in accordance with Council's DCP. Where a development is not covered by the provisions of a DCP, carriageway width shall be determined by Council.

Table 2: Characteristics of roads in residential road networks

Street Type	Traffic Volume (vpd) ⁽¹⁾	Target Speed Environment (km/h)	Minimum Carriageway Width ⁽²⁾ (m)	Parking Provision	Kerb Type	Concrete Footpath	Shared Path	Verge Width (m)	Street Pavement Type	Road Reservation Width (m)
Access Place ⁽⁴⁾ (Adjacent to Public open Space)	< 100	25	3.5 One Way	1 verge bays per 2 lots ⁽⁵⁾	Barrier kerb (open space) Roll kerb (lots)	No ⁽⁶⁾	No ⁽⁷⁾	1.5 adj to open space 3.5 m adj to lots	Reinforced Concrete	8.5
Access Place ⁽⁴⁾	< 100	25	3.7 One Way	1 verge bays per 2 lots ⁽⁵⁾	Barrier kerb	No ⁽⁶⁾	No ⁽⁷⁾	3.5	Reinforced Concrete	10.7
Access Street ⁽⁴⁾	< 300	25	6.5 Two Way	Carriageway ⁽⁸⁾	Barrier kerb	No ⁽⁶⁾	No ⁽⁷⁾	3.5 ⁽⁹⁾	Asphalt	13.5
Local Street (minor)	300 - 1,000	40	7.5 ⁽¹⁰⁾	Carriageway	Barrier kerb	Yes 1.5 m one side	No ⁽⁷⁾	3.5 ⁽⁹⁾	Asphalt	14.5

Part B – Land Use Based Planning Controls

Chapter B2: Residential Subdivision

Street Type	Traffic Volume (vpd) ⁽¹⁾	Target Speed Environment (km/h)	Minimum Carriageway Width ⁽²⁾ (m)	Parking Provision	Kerb Type	Concrete Footpath	Shared Path	Verge Width (m)	Street Pavement Type	Road Reservation Width (m)
Local Street (major) ⁽¹¹⁾	1,000 - 3,000	40	9.5	Carriageway	Barrier kerb	Yes 1.5 m one side	No ⁽⁷⁾	3.5 ⁽⁹⁾	Asphalt	18.5
Collector ⁽¹¹⁾	3,000 - 6,000	50 ⁽¹²⁾	Min. 11.5	Carriageway	Barrier kerb	Yes 1.5 m one side	2.5 m shared path one side	Min. 3.5	Asphalt	Min. 18.5
Major Collector / Sub Arterial ⁽¹¹⁾ ⁽¹³⁾	> 6,000	60 ⁽¹²⁾	Min. 13.5 ⁽¹⁴⁾	Carriageway	Barrier kerb	Yes 1.5m one side	2.5 m shared path one side	Min. 3.5 ⁽¹⁵⁾	Asphalt	Min. 20.5

D1.29 SCOUR PROTECTION

1. Scour protection of roadside drainage and table drains is required. The level of

protection will depend on the nature of the soils, road gradients and volume of stormwater runoff.

2. Protection works may involve concrete lined channels, turfing, rock pitching, grass seeding, individually or any combination of these. Geotechnical investigations should be carried out to determine the level and extent of any protection works prior to proceeding to final design stage.

DEVELOPMENT DESIGN SPECIFICATION

D2

PAVEMENT DESIGN

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Pavement thicknesses and construction staging</i>	2.16	M	MB	21/01/08
1	<i>Deletion of sprayed bituminous seal</i>	2.08	O	MB	21/01/08

PAVEMENT DESIGN

GENERAL

D2.01 SCOPE

1. The work to be executed under this Specification consists of the design of the road pavement to meet the required design life, based on the subgrade strength, traffic loading and environmental factors, and including the selection of appropriate materials for select subgrade, sub-base, base and wearing surface.

Design Criteria

2. The Specification contains procedures for the design of the following forms of surfaced road pavement construction:

*Surfaced
Pavement
Types*

- (a) flexible pavements consisting of unbound granular materials;
- (b) flexible pavements that contain one or more bound layers, including pavements containing asphalt layers other than thin asphalt wearing surfaces;
- (c) rigid pavements (ie. cement concrete pavements);
- (d) concrete segmental block pavements.

D2.02 OBJECTIVES

1. The objective in the design of the road pavement is to select appropriate pavement and surfacing materials, types, layer thicknesses and configurations to ensure that the pavement performs adequately and requires minimal maintenance under the anticipated traffic loading for the design life adopted.

*Pavement
Performance*

~~D2.03 REFERENCE AND SOURCE DOCUMENTS~~

~~(a) Council Specifications~~

D1	Geometric Road Design
D4	Subsurface Drainage Design
C242	Flexible Pavements
C244	Sprayed Bituminous Surfacing
C245	Asphaltic Concrete
C247	Mass Concrete Subbase
C248	Plain or Reinforced Concrete Base
C254	Segmental Paving
C255	Bituminous Microsurfacing

~~(b) State Authorities~~

~~Roads and Traffic Authority, NSW Sprayed Sealing Guide, 1992.~~

(c) Other

AUSTROADS	Pavement Design, A Guide to the Structural Design of Road Pavements, 1992.
AUSTROADS	Guide to Control of Moisture in Roads.
APRG No 21	A Guide to the Design of New Pavements for Light Traffic (A supplement to AUSTRROADS Pavement Design, Jan 1998.
CACA - T33	Cement and Concrete Association, T33 - Concrete Street and Parking Area Pavement Design, 1984.
CACA - T35	Cement and Concrete Association, T35 - Interlocking Concrete Road Pavements, A Guide to Design and Construction, 1986.
CACA - TN52	Cement and Concrete Association, TN52 - Single Lane Concrete Bus Bays, 1984.

PAVEMENT DESIGN CRITERIA

D2.04 DESIGN VARIABLES

1. Regardless of the type of road pavement proposed, the design of the pavement shall involve consideration of the following five input variables:

Design Variables

- (a) Design Traffic
- (b) Subgrade Evaluation
- (c) Environment
- (d) Pavement and Surfacing Materials
- (e) Construction and Maintenance Considerations

D2.05 DESIGN TRAFFIC

1. The design traffic shall be calculated based on the following minimum design lives of pavement:-

Minimum Pavement Design Life

- (a) Flexible, Unbound Granular - 50 years
- (b) Flexible, Containing one or more bound layers - 50 years
- (c) Rigid (Concrete) - 50 years
- (d) Segmental Block - 50 years

2. Design traffic shall be calculated in equivalent standard axles (ESAs) for the applicable design life of the pavement, taking into account present and predicted commercial traffic volumes, axle loadings and configurations, commercial traffic growth and street capacity.

Design Traffic

3. For new subdivisions, the design traffic shall take account of both the

construction traffic associated with the subdivision development and the in-service traffic. For interlocking concrete segmental pavements, the simplification of replacing ESA's with the number of commercial vehicles exceeding 3 tonne gross contained in CACA - Interlocking Concrete Road Pavements is acceptable up to a design traffic of 10^6 . Beyond this ESAs should be calculated.

4. The pavement design shall include all traffic data and/or assumptions made in the calculation of the design traffic.

Traffic Data

5. ~~In general, reference should be made to APRG – No21 for the calculation of design traffic volumes up to 10^6 ESAs and AUSTRROADS Pavement Design for design traffic volumes approaching or exceeding 10^6 ESAs.~~

Design Traffic Volumes

6. In the absence of other traffic data, the following traffic values (in ESAs) may be taken as a guide to the design traffic, but shall be subject to variation depending on the circumstances for the particular development.

Design ESAs

<u>Street Type:</u>	<u>Design ESA's - 50 year design life</u>	
Urban Residential	- Cul-de-sac	2×10^4
	- Minor	6×10^4
	- Local Access	3×10^5
	- Collector	1×10^6
	- Distributor	2×10^6
Rural Residential	- Cul-de-sac	2×10^4
	- Other	3×10^5
	- Private Road	3×10^4
Commercial and Industrial	5×10^6	

D2.06 SUBGRADE EVALUATION

1. Except where a mechanistic design approach is employed using AUSTRROADS Pavement ~~Technology-Design~~, the measure of subgrade support shall be the California Bearing Ratio (CBR). Where a mechanistic design approach using linear elastic theory is employed for flexible pavements, the measure of subgrade support shall be in terms of the elastic parameters (modulus, Poisson's ratio).

California Bearing Ratio

2. The following factors must be considered in determining the design strength/stiffness of the subgrade:

Design Considerations

- (a) Sequence of earthworks construction
- (b) The compaction moisture content and field density specified for construction
- (c) Moisture changes during service life
- (d) Subgrade variability
- (e) The presence or otherwise of weak layers below the design subgrade level.

3. The subgrade Design CBR adopted for the pavement design must consider the effect of moisture changes in the pavement and subgrade during the service life, and hence consideration must be given to the provision of subsurface drainage in the estimation of equilibrium in-situ CBRs, and hence in the design of the pavement structure. If subsurface drainage is not provided, then the Design CBR adopted must allow for a greater variability in subgrade moisture content during the service life of the

Design CBR

pavement, and hence a Design Moisture Content above the Optimum Moisture Content.

4. The calculation of the Design CBR shall be based on a minimum of three 4 day soaked CBR laboratory samples for each subgrade area, compacted to the relative density specified for construction, and corrected to allow for the effects of subsurface drainage (or lack of), climatic zone, and soil type if appropriate (as per the guidelines in APRG No 21) to give an estimated equilibrium in-situ CBR. The Design CBR for each subgrade area is computed by using the appropriate formulae as follows:

Calculation of Design CBR

Design CBR = Least of estimated equilibrium CBRs, for less than five results

Design CBR = 10th percentile of all estimated equilibrium CBRs, for five or more results

= $C - 1.3S$

Where C is the mean of all estimated equilibrium CBRs, and S is the standard deviation of all values.

5. The pavement design shall include a summary of all laboratory and field test results and assumptions and/or calculations made in the assessment of Design CBR.

Summary of Results

D2.07 ENVIRONMENT

1. The environmental factors which significantly affect pavement performance are moisture and temperature. Both of these factors must be considered at the design stage of the pavement. Reference should be made to AUSTROADS Pavement [Design Technology](#), APRG NO 21, ~~and to NAASRA (Now AUSTROADS) – Guide to Control of Moisture in Roads.~~

Reference

2. The following factors relating to moisture environment must be considered in determining the design subgrade strength/stiffness and in the choice of pavement and surfacing materials:

- (a) Rainfall/evaporation pattern
- (b) Permeability of wearing surface
- (c) Depth of water table
- (d) Relative permeability of pavement layers
- (e) Whether shoulders are sealed or not
- (f) Pavement type (boxed or full width)

3. The effect of changes in moisture content on the strength/stiffness of the subgrade shall be taken into account by evaluating the design subgrade strength parameters (ie. CBR or modulus) at the highest moisture content likely to occur during the design life, ie the Design Moisture Content. The provision of subsurface drainage may, under certain circumstances, allow a lower Design Moisture Content, and hence generally higher Design CBR.

Evaluate Design CBR

4. The pavement design shall include all considerations for environmental factors, and any assumptions made that would reduce or increase design subgrade strength, or affect the choice of pavement and surfacing materials.

D2.08 PAVEMENT AND SURFACING MATERIALS

1. Pavement materials can be classified into essentially four categories according to

Pavement

their fundamental behaviour under the effects of applied loadings:

Classification

- (a) Unbound granular materials, including modified granular materials
- (b) Bound (cemented) granular materials
- (c) Asphaltic Concrete
- (d) Cement Concrete

2. Surfacing materials can also be classified into essentially three categories or types:-

Surfacing Classification

- (a) Asphaltic concrete (residential, rural, industrial and commercial),
- (b) Cement Concrete (in public roads only where approved by Council in the Development Consent),
- (c) Concrete Segmental Pavers (in public roads only where approved by Council in the Development Consent)

3. Unbound granular materials, including modified granular materials, shall satisfy the requirements of the Construction Specification for FLEXIBLE PAVEMENTS.

4. Bound (cemented) granular materials shall satisfy the requirements of the Construction Specification for FLEXIBLE PAVEMENTS.

5. Asphaltic concrete shall satisfy the requirements of the Construction Specification for ASPHALTIC CONCRETE.

6. Cement concrete shall satisfy the requirements of the Construction Specifications for MASS CONCRETE SUBBASE, PLAIN OR REINFORCED CONCRETE BASE, or FIBRE REINFORCED CONCRETE, as appropriate.

7. Sprayed bituminous seals shall satisfy the requirements of the Construction Specification for SPRAYED BITUMINOUS SURFACING.

8. Concrete segmental pavers shall satisfy the requirements of the Construction Specification for SEGMENTAL PAVING.

D2.09 CONSTRUCTION AND MAINTENANCE CONSIDERATIONS

1. The type of pavement, choice of base and subbase materials, and the type of surfacing adopted should involve consideration of various construction and maintenance factors as follows:

- (a) Extent and type of drainage
- (b) Use of boxed or full width construction
- (c) Available equipment of the Contractor
- (d) Use of stabilisation
- (e) Aesthetic, environmental and safety requirements
- (f) Social considerations

- (g) Construction under traffic
- (h) Use of staged construction
- (i) Ongoing and long-term maintenance costs

These factors are further discussed in AUSTRROADS Pavement Design.

PAVEMENT THICKNESS DESIGN

D2.10 PAVEMENT STRUCTURE - GENERAL

1. Notwithstanding subgrade testing and subsequent pavement thickness design, the thickness of subbase and base layers shall not be less than the following:-

**Minimum
Pavement
Thickness**

- (a) Flexible pavement: Subbase 100mm,
Base 100mm,
- (b) Rigid pavement: Subbase 100mm,
Base 150mm

2. The subbase layer shall extend a minimum of 150mm behind the rear face of any kerbing and/or guttering.

**Subbase
Extent**

3. The base and surfacing shall extend to the face of any kerbing and/or guttering. Where the top surface of the subbase layer is below the level of the underside of the kerbing and/or guttering, the base layer shall also extend a minimum of 150mm behind the rear face of the kerbing and/or guttering.

Base Extent

4. For unkerbed roads, the subbase and base layers shall extend at least to the outer edge of the nominated width of shoulder.

D2.11 UNBOUND GRANULAR FLEXIBLE PAVEMENTS (BITUMINOUS SURFACED)

1. Unbound granular flexible pavements with thin bituminous surfacings, including those with cement or lime modified granular materials, with design traffic up to 10^6 ESAs shall be designed in accordance with APRG NO 21, using Figure 13.8.2 (A) (95% confidence limit curves).

2. For design traffic above 10^6 ESAs, the design shall be in accordance with AUSTRROADS Pavement [Technology Design](#).

D2.12 FLEXIBLE PAVEMENTS CONTAINING BOUND LAYERS (BITUMINOUS SURFACED)

1. Flexible pavements containing one or more bound layers, including cement stabilised layers or asphaltic concrete layers other than thin asphalt surfacings, shall be designed in accordance with AUSTRROADS Pavement Design.

2. As an alternative to AUSTRROADS Pavement Design for design traffic up to 10^6 ESAs, bound layers may be assumed to be equivalent to unbound layers of the same thickness, and the pavement designed in accordance with APRG NO 21, using Figure 13.8.2 (A) (95% confidence limit curves).

D2.13 RIGID PAVEMENTS

1. Rigid (concrete) pavements, with design traffic up to 10^6 ESAs shall be designed in accordance ~~with either CACA-T33 or~~ AUSTROADS [Technology Pavement Design](#).
2. Rigid (concrete) pavements for design traffic above 10^6 ESAs, the design shall be in accordance with AUSTROADS [Pavement Technology Pavement Design](#).
3. Single lane concrete bus bays adjacent to a flexible pavement shall be designed in accordance with [AUSTROADS Pavement Technology CACA-TN52](#).

**Rigid
(Concrete)****D2.14 CONCRETE SEGMENTAL BLOCK PAVEMENTS**

1. Concrete segmental block pavements with design traffic up to 10^6 estimated commercial vehicles exceeding 3T gross shall be designed in accordance with [AUSTROADS Pavement Technology CACA-T35](#).
2. For design traffic above 10^6 estimated commercial vehicles exceeding 3T gross the design shall be in accordance with AUSTROADS Pavement [Technology Design](#), with the calculation of design traffic in terms of ESAs.

**Concrete
Segmental
Block****SURFACING DESIGN****D2.16 CHOICE OF SURFACE TYPE**

1. Except where the pavement is designed for concrete or segmental block surfacing, the wearing surface shall be a bituminous wearing surface as follows:-
 - (a) Urban Residential Streets :
One layer of 40mm ARRB gap graded AC 14
 - (b) Rural and Rural Residential Roads :
One layer of 40mm ARRB gap graded AC14
 - (c) Commercial and Industrial streets:
One layer of 50 mm ARRB gap graded AC 14
 - (d) Sub-arterial, Arterial roads and Roundabouts:
One layer of 50 mm ARRB gap graded AC 14

**Bitumen
Wearing
Surface**

1. Concrete segmental pavers shall be 80mm thick, shape Type A, and designed to be paved in a herringbone pattern.
2. The edges of all paving shall be designed to be constrained by kerbing and/or guttering

**Size and
Shape****Edge
Constraint**

DOCUMENTATION

D2.21 DESIGN CRITERIA AND CALCULATIONS

1. All considerations, assumptions, subgrade test results, and calculations shall be submitted with the pavement design. ***Submission Details***
2. The Drawings shall clearly indicate the structure, material types and layer thicknesses of the proposed pavement and surfacing. ***Drawings***

DEVELOPMENT DESIGN SPECIFICATION

D3

STRUCTURES BRIDGE DESIGN

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

DEVELOPMENT DESIGN SPECIFICATION D3 STRUCTURES/BRIDGE DESIGN

GENERAL

D3.01 SCOPE

1. This section sets out design considerations to be adopted in the design of structural engineering elements for land subdivisions. Such activities will include:

- Road traffic bridges
- Pedestrian bridges
- Structures other than bridges, but associated with roads (eg retaining walls)
- Small earth dams, detention basins
- Structures used for public safety (traffic barriers, pedestrian barriers, street lighting)
- Major sign support structures
- Temporary works
- Noise barriers and fencing adjacent to public land.

Such structures may be of concrete, timber or steel constructions, but with emphasis placed on low maintenance and longevity.

D3.02 OBJECTIVE

1. The aim of design shall be the achievement of acceptable probabilities that the structure being designed will not become unfit for use during its design life, having regard to economic, physical, aesthetic and other relevant constraints.

Design Life

D3.03 BASIS OF DESIGN

1. The design shall be based on scientific theories, experimental data and experience, interpreted statistically as far as possible. The safety and service performance of a structure depends also on the quality control exercised in fabrication, supervision on site, the control of unavoidable imperfections and the qualifications, experience and skill of all personnel involved. Adequate attention shall therefore be given to these factors. In addition, adequate management control and supervision by experienced engineers shall be required at all stages of design and construction to prevent the occurrence of gross errors.

*Safety Quality
Qualifications*

2. Specifications shall be notated on the design plans with sufficient detail to ensure that the above described strategies are able to be effectively implemented at the construction stage.

D3.04 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

- D1 — Geometric Road Design
- D2 — Stormwater Drainage Design

(b) Australian Standards

- AS1170 - Minimum design loads on structures (SAA Loading Code)
- AS1684 - National Timber Framing Code
- AS3600 - Concrete structures
- AS3700 - Masonry in buildings (SAA Masonry Code)
- AS4100 - Steel structures
- Other relevant codes and guidelines with the above.

(c) Other

- AUSTROADS - Bridge Design Code
- I. E. Aust. - Australian Rainfall and Runoff
- KD Nelson - Design and Construction of Small Earth Dams

D3.05 ROAD TRAFFIC BRIDGES

1. ~~Structural design of bridges is a complex matter. Structural design of bridges is a specialised field, generally falling outside the scope of most civil engineering consultancies~~

NPFR3

2. Council will not accept bridge designs from persons who are not qualified as Chartered Professional Engineer and registered on NPFR.

3. The ~~AUSTROADS Bridge Design Code~~ Australian Standard AS 5100 Bridge design is the appropriate general reference for bridge proposals.

4. Council normally requires bridges to have low maintenance finishes; therefore timber and steel are not usually acceptable construction materials, unless suitable precautions are adopted. Heavy debris and bed loads may be characteristic of some streams so that large spans with slender piers are encouraged. If overtopping is permitted, handrails and guardrails shall be designed to withstand the hydraulic and impact forces. Flood depth indicators shall be provided in such cases.

Debris**Overtopping**

5. ~~The design life for bridges shall be 100 years. The ultimate limit state shall withstand, without collapse, a flood of up to and including a 1:2000 year ARI~~ Maintenance is a key issue affecting the design life of the structure. The design plans shall specify the design life of the structure together with the relevant maintenance programs to be adopted upon which the design life is based. Parameters used in the design shall also be shown on the design plans.

Design Life Maintenance

6. Unless otherwise indicated in the Notification of Determination of Development Application, small bridges within allotments shall be designed with appropriate afflux to convey the 5 year ARI flood event and be able to withstand the inundation loadings for up to the 100 year ARI flood event.

Small Bridges**Design Storm Event**

7. Where structures are designed to be inundated, the effect of the backwater gradient on upstream property shall be investigated and clearly shown on the design plans.

8. Bridges located in roadways which are to be dedicated as public roads shall be designed to convey the flood event identified in the Notification of Determination of Development Application. Where no inundation is permitted, appropriate afflux shall be adopted together with a 500mm freeboard to the underside of the bridge deck.

Freeboard

9. Designers shall consult with service authorities regarding current of likely provision for public utilities in bridges. Written advice from the service authorities shall be submitted with the Construction Certificate application.

Public Utilities

D3.06 PEDESTRIAN BRIDGES

1. Provision for pedestrians on bridges is required in rural residential and urban areas. The minimum provision is a 1.5m footpath with kerb at the road traffic edge and handrail [for pedestrians and 2.5m width for shared pedestrian and cycleway. Pedestrian paths & cycleways shall be designed in accordance with Austroads – 'Guide to Traffic Engineering Practice Part 13 & 14, and the RMS NSW Bicycle Guidelines.](#)
2. Council may require the provision of separate pedestrian carriageways in other situations should the anticipated traffic warrant it. Urban bridge approaches shall be lit. Designers should consult with the service authorities regarding the current and future utility services which the bridge may be required to carry. These shall be concealed. Disabled access shall be considered and provided for in the design.
3. Council will not accept bridge designs from persons who are not qualified as a Chartered Professional Engineer and registered on NPER.

Pedestrians***Carriage of Utilities*****D3.07 STRUCTURES OTHER THAN BRIDGES, ASSOCIATED WITH ROADS**

1. Public utility structures, retaining walls, and the like shall be designed by a Chartered Professional Engineer, competent in the design of such structures. The designer shall refer to ~~the AUSTROADS code and~~ any other Australian standards to execute the design. [Retaining Walls, reinforced soil structures & Reinforced rock structures are to be designed in accordance with AS 4678 Earth Retaining Structures, Austroads and other relevant Australian Standards.](#)
2. [Retaining walls and reinforced soil walls have a design life of 100 years.](#)

D3.08 SMALL EARTH DAMS/DETENTION BASINS

1. Small earth dams may be designed following the guidelines in "Design and Construction of Small Earth Dams" by K D Nelson together with relevant geotechnical recommendations. The structural design of weir outlets to resist failure shall be considered in design.
2. Childproof fencing shall be nominated where unacceptable risk exists due to the location of the dam/basin in relation to the urban nature of the area. This requirement shall be determined by Council.
3. The consultant shall carry out the design with recognition of the potential risk on existing and planned infrastructure downstream, assuming the probability of dam/basin failure.
4. The consultant shall be a Chartered Professional Engineer having accreditation in the design of such structures.
5. The consultant shall be required to certify the design and ultimately certify the work-as-executed plans for compliance with the design. All relevant details shall be shown on the design plans.

Fencing***Qualification*****D3.09 STRUCTURES USED FOR PUBLIC SAFETY**

1. Since the requirement of traffic barriers and pedestrian safety rails on bridges are different, the design engineer shall consider whether separate traffic and pedestrian barriers can be detailed to satisfy the major functional requirements.

Barriers

2. The ~~AUSTROADS Bridge Design Code AS 5100 Bridge Design~~ is the recommended reference in this regard.

3. It is essential that all barriers have been fully tested and accredited for the intended use under quality assurance provisions.

4. Urban and rural residential bridge crossings shall be provided with adequate street lighting that conforms with the relevant Australian Standards. Such requirements will be noted accordingly on the design plans.

Lighting

D3.10 TEMPORARY WORKS

1. Structures which are proposed for the temporary support of roads, services and the like shall be designed by a qualified Chartered Professional Engineer experienced and accredited in the design of such structures. A construction programme, indicating the sequence of events leading to the implementation and removal of the temporary structures shall be specified on the design plans.

***Programme of
Temporary
Provisions***

D3.11 NOISE BARRIERS AND FENCING

1. The footings and structural members for noise barriers and fencing adjacent to public land shall be designed to withstand all forces generated by Wind Classification N3.
2. The design of noise barriers and fencing adjacent to public land shall be certified by a Chartered Professional Engineer. The design and certification must be submitted with the Construction Certificate application.

D3.11 DESIGN LIFE

Table 2. Design Life Requirements

Asset	Item	Design Life
Bridges	Piles	100 years
	Pile caps	100 years
	Headstocks	100 years
	Piers	100 years
	Abutments	100 years
	Deck	100 years
	Approach slabs	100 years
Drainage Structures	Drainage structures - accessible	50 years
	Drainage structures – inaccessible	100 years
	Box culvert (crown units and link slabs)	100 years
	Box culvert base slab	100 years
	Pipe	100 years
Fencing	Fencing and Gates	20
Roadscape	Signs - Posts	10
	- Sign Faces	10
	- Surface coating systems	20
	- Fixings and Brackets	40
Road Furniture	Guideposts:- wood, plastic, metal corner cube / other reflectors	8
	Safety Fencing:-corner cube / other reflectors	8
	Guard Rail-steel / timber posts, single / double sided	40
	Wire Barrier	40
	Guardrail Breakaway Terminals (BCT's)	40
	Other Guardrail Terminals	20
	Pedestrian Bollards – Bollards, Refuges	20
	Pedestrian Grab Rails	20

Retaining walls and reinforced soil walls have a design life of 100 years.

DEVELOPMENT DESIGN SPECIFICATION

D4

SUBSURFACE DRAINAGE DESIGN

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DEVELOPMENT DESIGN SPECIFICATION D4 SUBSURFACE DRAINAGE DESIGN

GENERAL

D4.01 SCOPE

1. The work to be executed under this Specification consists of the design of the subsurface drainage system for the road pavement and/or subgrade.
2. This specification contains procedures for the design of subsurface drainage, including:
 - (a) Subsoil and Foundation Drains
 - (b) Sub-Pavement Drains
 - (c) Drainage Mats, including Type A and Type B Mats.

~~3. Reference guidelines for the application and design of subsurface drainage include ARRB Special Report 35, APRG No 21 and the AUSTROADS publication – Guide to the Control of Moisture in Roads. The full titles of these guidelines are given below.~~

D4.02 OBJECTIVES

1. The objective in the design of the subsurface drainage system is to control moisture content fluctuations in the pavement and/or subgrade to within the limits assumed in the pavement design.

***Control
Moisture
Content***

D4.03 TERMINOLOGY

1. Subsoil drains are intended for the drainage of ground water or seepage from the subgrade and/or the subbase in cuttings.
2. ~~Foundation drains are intended for the drainage of seepage, springs and wet areas within and adjacent to the foundations of the road formation. Foundation drains are designed to drain excessive ground water areas within the foundation of an embankment or the base of cutting, or to intercept water from entering these areas.~~
3. Sub-pavement drains are intended for the drainage of the base and subbase pavement layers in flexible pavements. They may also function to drain seepage or groundwater from the subgrade.
4. Type A drainage mats are intended to ensure continuity of a sheet flow of water under fills, to collect seepage from a wet seepage area, or for protection of vegetation or habitat downstream of the road reserve where a fill would otherwise cut the flow of water.
5. Type B drainage mats are constructed to intercept water which would otherwise enter pavements by capillary action or by other means on fills and to intercept and control seepage water and springs in the floors of cuttings.

Subsoil Drains

***Foundation
Drains***

***Sub-pavement
Drains***

***Type A
Drainage Mats***

***Type B
Drainage Mats***

D4.04 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specification

- ~~— C230 — Subsurface Drainage - General~~
- ~~— C231 — Subsoil and Foundation Drains~~
- ~~— C232 — Pavement Drains~~
- ~~— C233 — Drainage Mats~~

(b) Australian Standards

- ~~— AS2439.1 — Perforated drainage pipe and associated fittings~~

(c) RTA Specifications

- ~~— MR Form 1160 — Supply and Delivery of Seamless Tubular Filter Fabric.~~
- ~~— 3555 — Slotted Fibre Reinforced Concrete Pipe for Subsurface Drainage~~

(d) Other

- ~~— AUSTRROADS — Guide to the Control of Moisture in Roads, 1983~~
- ~~— ARRB-SR35 — Australian Road Research Board, Special Report No. 35- Subsurface Drainage of Road Structures, Gerke R.J., 1987.~~
- ~~— APRG No 21 — AUSTRROADS Pavement Research Group, Report No. 21 - A Guide to the Design of New Pavements for Light Traffic. A Supplement to AUSTRROADS Pavement Design. AUSTRROADS 1998.~~

SUBSOIL AND SUB-PAVEMENT DRAINS

D4.05 APPLICATION

- | | |
|--|----------------------------|
| 1. Subsoil drains are designed to drain groundwater or seepage from the subgrade and/or subbase in cuttings. | Subsoil Drains |
| 2. Sub-pavement drains are designed to drain water from base and subbase pavement layers in flexible pavements, and to drain seepage or groundwater from the subgrade. | Sub-pavement Drains |
| 13. Subsoil or sub-pavement drains shall be provided on both sides of the formation in the following locations, unless otherwise justified by a geotechnical report: | Geotechnical Survey |
| <ul style="list-style-type: none"> (a) Formations where the depth to finished subgrade level is equal to or greater than 400mm below the natural surface level. (b) Locations of known and/or potential hillside seepage, high water table or isolated springs. (c) Irrigated, flood-prone or other poorly drained areas. (d) Highly moisture susceptible subgrades, ie. commonly displaying high plasticity or low soaked CBRs. (e) Use of moisture susceptible pavement materials. (f) Existing pavements with similar subgrade conditions displaying distress | Locations |

due to excess subsurface moisture.

- (g) At cut to fill transitions.

Where only one side of the formation is in cut, and the other side in fill, it may be sufficient to provide subsoil or sub-pavement drains only along the edge of the formation in cut.

24. The need for subsoil and sub-pavement drains may otherwise become apparent during the construction process, due to changes in site moisture conditions or to areas of poorer subgrade being uncovered that were not identified in the geotechnical investigation. The Design Drawings shall be suitably annotated to the effect that subsoil or sub-pavement drains in addition to those shown on the Drawings shall be installed where and as directed by Council.

During Construction

D4.06 LAYOUT, ALIGNMENT AND GRADE

1. Typical cross sections of subsoil and sub-pavement drains are shown below in Figure D4.1. As indicated, subsoil drain trenches are excavated to below subgrade level, while sub-pavement drains extend into or adjacent to the pavement layers to facilitate drainage of the pavement layers in addition to the subgrade.

Typical Cross Sections

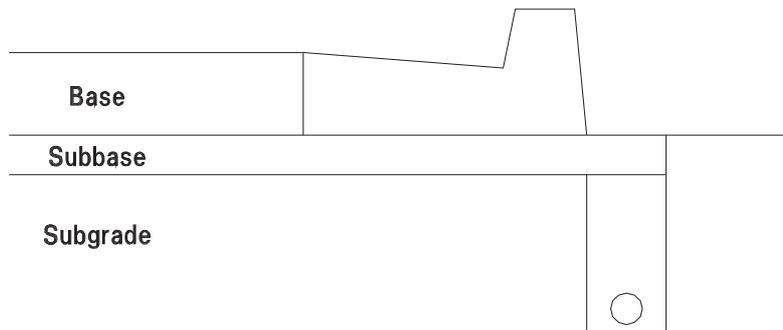


Figure D4.1 - Typical Subsoil Drain

2. In kerbed roads, the acceptable location for the trench is directly behind the rear of kerb as indicated in Figure D4.1. Pavement layers must extend to at least the line of the rear of the trench.

Kerbed Roads

3. In unkerbed roads, subsoil and sub-pavement drains shall be located within the shoulder, preferably at the edge of the pavement layers.

Unkerbed Roads

4. The minimum longitudinal design grade shall be 0.5%.

Grade

5. Trench widths shall be a minimum of 300mm, with a minimum depth below finished subgrade level of 300mm in rock, 600mm in [OTR-Other Than Rock](#) and in all cases shall be below the invert level of any service crossings.

Trench Dimensions

6. Outlets shall be spaced at maximum intervals of 80 metres. Where possible, subsoil and sub-pavement drainage pipes shall discharge into stormwater pits or other stormwater drainage structures.

Outlets

FOUNDATION DRAINS

D4.07 APPLICATION

~~1. Foundation drains are designed to drain excessive ground water areas within the foundation of an embankment or the base of cutting, or to intercept water from entering these areas.~~

**Foundation
Drains**

1.2. The need to provide foundation drains may be apparent from the results of the geotechnical survey along the proposed road formation alignment, and in this case the location shall be shown on the plans. However, more commonly, the need to provide foundation drains is determined during construction, and hence in this situation requirements and locations cannot be ascertained at the design stage.

**Geotechnical
Survey During
Construction**

2.3. The Design Drawings shall be suitably annotated to the effect that foundation drains in addition to those shown on the Drawings shall be installed where and as directed by Council.

D4.08 LAYOUT, ALIGNMENT AND GRADE

1. Typical cross-sections of foundation drains are shown below in Figure D4.3.

**Typical Cross
Section**

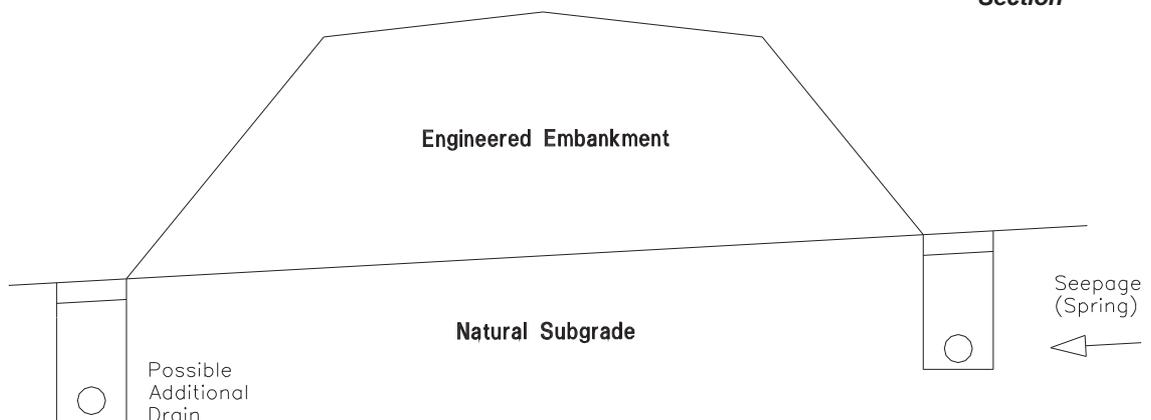


Figure D4.3 - Foundation Drains

2. The minimum acceptable design grade shall be 0.5%.

Grade

3. Foundation drains shall be a minimum trench width of 300mm, with a variable trench depth to suit the application and ground conditions on site.

**Trench
Dimensions**

4. Outlets shall be spaced at maximum intervals of 80 metres.

Outlets

DRAINAGE MATS (BLANKETS)

D4.09 APPLICATION

1. Type A drainage mats are required where there is a need to ensure continuity of a sheet flow of water under fills, to collect surface seepage from a wet seepage area, or for protection of vegetation or habitat downstream of the road reserve where a fill would otherwise cut the flow of water. Type A drainage mats are constructed after the site has been cleared and grubbed and before commencement of embankment construction. *Type A Mats*

2. Type B drainage mats are required where there is a need to intercept water which would otherwise enter pavements by capillary action or by other means on fills and to intercept and control seepage water and springs in the floors of cuttings. Type B drainage mats shall be constructed after completion of the subgrade construction and before construction of the pavement. *Type B Mats*

3. The need to design for the provision of drainage mats should be apparent from the result of the geotechnical survey along the proposed road formation alignment. *Geotechnical Survey*

MATERIALS

D4.10 SUBSOIL AND SUB-PAVEMENT DRAIN PIPE

1. Pipes designated for subsoil, foundation and sub-pavement drains shall be minimum 100mm dia. slotted pipe.
2. Corrugated plastic pipe shall be Class 1000 conforming with the requirements of AS2439.1. Joints, couplings, elbows, tees and caps shall also comply with AS2439.1..
3. Slotted rigid UPVC pipe shall be of a type and class approved by Council.
4. All pipe shall be slotted, and fitted with seamless tubular filter fabric complying with MR Form 1160. Outlets through fill batters shall be unslotted pipe.

D4.11 INTRA PAVEMENT DRAIN PIPE

1. Pipes for use in Type B Drainage Mats shall be designated 100mm diameter slotted fibre reinforced cement pipe, (designated type 100 DMR pipe) meeting the requirements of RTA Specification 3555. These pipes shall be designated for:

- intra pavement drains where crushed rock subbase layer thicknesses are greater than 200mm,
- for edge drains where any part of the shoulder consists of material other than concrete, and
- for use in Type B Drainage Mats.

D4.12 FILTER MATERIAL

1. Reserved
2. Material requirements and gradings for the filter material are included in the Construction Specification, SUBSURFACE DRAINAGE GENERAL.

3. The type of filter material specified to backfill the sub-surface drainage trenches (subsoil, foundation and sub-pavement drains) may depend on the permeability of the pavement layers and/or subgrade and the expected flow rate. Guidance to the selection of appropriate filter material is contained in ARRB Special Report 35.

D4.13 GEOTEXTILE

1. Where necessary to provide separation (ie. prevent infiltration of fines) between the filter material in the trench and the subgrade or pavement material, geotextile shall be specified to encapsulate the filter material. The geotextile shall comply with the requirements included in the Construction Specification, SUBSURFACE DRAINAGE GENERAL.

2. Geotextile shall also be specified for both Type A and Type B Drainage Mats.

DOCUMENTATION

~~**D4.14 DESIGN DRAWINGS AND CALCULATIONS**~~

~~1. The proposed location of all subsurface drains shall be clearly indicated on the Design Drawings, including the nominal depth and width of the trench, and the location with respect to the line of the kerb/gutter or edge of pavement. The location of outlets shall also be indicated on the Drawings.~~

DEVELOPMENT DESIGN SPECIFICATION

D5

STORMWATER DRAINAGE DESIGN

Refer to the following documents (or any subsequent amendments):

- [Wollongong Development Control Plan 2009 – Chapter E13 – Floodplain Management](#)
- [Wollongong Development Control Plan 2009 - Chapter E14 – Stormwater Management](#)
- [NSW Government – Floodplain Development Manual , April 2005](#)
- ~~Drainage Design Code – Wollongong City Council – 1994~~
- ~~On Site Stormwater Detention Code – Wollongong City Council – 2005~~
- ~~Managing Our Flood Risks – Development Control Plan 54~~

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Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Revision of OSD Policy</i>		M	MB	21/01/08
1	<i>Inclusion of DCP 54</i>		A	MB	21/01/08

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DEVELOPMENT DESIGN SPECIFICATION

D6

SITE REGRADING

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DEVELOPMENT DESIGN SPECIFICATION D6 - SITE REGRADING

GENERAL

D6.01 SCOPE

1. This design specification sets out requirements for the site regrading involved in land development and subdivision. Conceptual requirements are presented as necessary considerations when preparing designs for site regrading.

2. The scope of this specification assumes that the Designer is familiar with requirements cited in the various construction specifications, specifically those related to earthworks, clearing and grubbing, erosion and sedimentation. Additionally the Designer needs to make reference to the associated design specifications related to drainage design, geometric road design and stormwater management and erosion design.

***Familiarity
with other
Specifications
Required***

D6.02 OBJECTIVES

1. This specification aims to assist the Designer in achieving:
 - enhancement of the environmental character of the site whilst maintaining the natural features of the site
 - a minimal impact on adjoining properties and developments.

***Environmentally
Sound***

***Impact on
Adjoining
Properties***

D6.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

Construction Specifications

C212 Clearing and Grubbing

C213 Earthworks

Design Specifications

D1 Geometric Road Design

D5 Stormwater Drain Design Code

(b) Australian Standards

AS 3798 Guidelines on earthworks for commercial and residential developments

AS 2870.1 Residential slabs and footings - Construction.

(c) Other Publications

Managing Urban Stormwater, Soils and Construction - Vol 1 - 4th Edition

D6.04 SITE REGRADING CONCEPT

1. Subject to geotechnical, environmental and other constraints (such as but not limited to watercourses, remnant vegetation, heritage items, retention of flood storage)

the Designer shall review the natural surface contours and where necessary shall design finished surface levels that ensure the land is suitably contoured to provide lots or building envelopes which are above the flood planning level in accordance with Council's DCPs.

2. Site regrading shall not create localised or trapped low points and shall ensure that surface water flows naturally to roads or drainage reserves without concentration of flow which may cause hazardous situations or scour.

Drainage

3. The Designer shall consider the implications of site regrading in relation to the existing natural environment. Generally site regrading shall not be permitted in heavily treed areas or in floodplains.

Natural Environment

4. Care shall be taken to provide overland flow routes from low points and over major drainage lines, to direct runoff for floods up to a 100 year average recurrence interval (ARI).

Overland Flow

5. The design of site regrading areas in conjunction with the design of roadworks shall be considered with the objective of balancing cut to fill and achieving both an economical development and minimising haulage of imported fill or spoil to and from the development site.

Minimal Road Haulage

D6.05 SPECIAL TREATMENT OF PARTICULAR AREAS

1. The extent of the 100 year ARI flood inundation line shall be clearly shown on the design plans.

Flooding

2. Proposals to alter surface levels in an area affected by flooding or subject to inundation shall be supported by a detailed flood study which shall be lodged with the Development Application.

Inundation Areas

3. Site constraints may be required to be identified as a burden on developed property. It is recommended that the designer take this into account when preparing the design. The property may ultimately be affected by a "restriction as to user", which may be controlled by a legal 88B Instrument placed on title to the land and/or by a Section 149 message advising prospective purchasers of any restrictions affecting the land.

Restrictions on Land Use

4. The finished surface of filled areas shall be designed to levels allowing an adequate cover depth over pipelines and permitting surface stormwater flow to be guided to inlet pits.

Piped Gullies or Depressions

5. The location of natural and artificial features shall be clearly defined on the site regrading plans and defined by distance to corner boundaries, monuments, etc for purposes of relocation at the geotechnical testing stage for work as executed plans. A geotechnical report specifying the site preparation and compaction requirements shall be part of the site regrading plan. Any proposal for fill shall be supported by a geotechnical report justifying the type of material and physical and chemical characteristics including an assessment of the environmental impact.

6. The finished level of any building area shall be designed to ensure a surfacedesirable surface grading is of not less than 1%, with a absolute minimum of grade 0.5% in the direction of the drainage system designed to cater for its catchment.

Flat Ground

7. For building areas on slopes greater than 15% refer to Council's DCP. For developments not covered by the provisions of a DCP, Council should be consulted.

Steep Slopes

D6.08 TEMPORARY DIVERSION DRAINS

1. Temporary drains shall be installed to divert surface flows away from the site regrading area. The location and silt/erosion control treatment shall be clearly identified

Erosion

on the engineering plans.

The objective will be to ensure minimal soil disturbances and material loss off the site.

DEVELOPMENT DESIGN SPECIFICATION

D7

SOIL AND WATER MANAGEMENT

Refer to the following document (or any subsequent amendment):

DEVELOPMENT DESIGN
SPECIFICATION

D9

CYCLEWAY AND PATHWAY
DESIGN

**DESIGN SPECIFICATION D9
CYCLEWAY AND PATHWAY DESIGN**

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DEVELOPMENT DESIGN SPECIFICATION D9 CYCLEWAY AND PATHWAY DESIGN

GENERAL

D9.01 SCOPE

1. This specification sets out requirements to be used in the design of various types of cycleways and pathways and shared use pathways.

2. All relevant design principles contained in the Austroads Guide referenced below must be integrated in the design of cycleways and associated infrastructure. This specification serves as a companion document to the Austroads Guide extended to incorporate basic requirements for pathways.

AUSTROADS

D9.02 OBJECTIVES

1. This specification aims to set standards and document requirements related to the provision of cycleways and pathways which encourage pedestrian activities and cycling for transportation and recreational purposes. Cycleways and pathways are to be safe and convenient and shall maintain a satisfactory level of service for all pathway users.

Safety

**Level of
Service**

D9.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

~~D1 Geometric Road Design~~

(b) Australian Standards

~~AS 1742 Manual of uniform traffic control devices.~~

~~AS 2890.3 Bicycle parking facilities~~

(c) Other

~~AUSTROADS Guide to Traffic Engineering Practice - PART 13 Pedestrians, PART 14 Bicycles.~~

D9.04 CONSULTATION

1. The Designer is encouraged to consult with Council, the Developer's Landscape Architects/Designers and relevant authorities prior to and during the preparation of cycleway and pathway and shared use pathway design.

**Landscape
Designers
Public
Authorities**

D9.05 PLANNING CONCEPTS

1. Council will provide specific requirements for cycleways and pathways in Council's Subdivision ~~Code-Policy~~ and DCP's as well as in a regional or local strategic bicycle plan. The Designer will need to enquire about such documents and comply with requirements defined.

**Subdivision
~~Code-Policy~~
and Bicycle
Plan**

2. The Designer should be familiar with cycleway geometric design requirements in terms of:

**Geometric
Design**

- width
- grade
- stopping sight distance
- change in grade
- horizontal curvature
- crossfall and drainage
- superelevation
- sight distance on horizontal curves

**AUSTROADS
Guide**

These requirements are discussed in the AUSTROADS Guide.

D9.06 CYCLEWAY AND PATHWAY TYPES

1. Cycleways can be provided on road and off road. The Austroads Guide provides detailed descriptions, warrants, widths, pavement marking etc for the majority of these cycleways.

**On Road Off
Road**

2. Common alternative cycleway types include:

On Road

Shared Parking/Bicycle Lanes
Wide Kerbside Lanes
Shared Traffic Lanes
Exclusive Bicycle Lane
Sealed Shoulder

Off Road

Shared Bicycle/Pedestrian Pathway
Segregated Pathway
Exclusive Cycleway

The AUSTROADS Guide provides advice on the suitability of pavement conditions; drainage pit grates etc for on road cycleways.

**AUSTROADS
Guide**

3. Common pathway types include:

Exclusive Pedestrian Pathways
Shared Bicycle/Pedestrian Pathways

By definition pedestrian pathways are "off road" in that pedestrian facilities routinely designed adjacent to roadways are termed footpaths and are designed to meet criteria outlined in Council's Subdivision [Code-Policy](#) and typically related to road cross section detailing.

Footpaths

4. Pathways by comparison diverge from the road alignment either within the road reserve or across land reserves. Pathways can be provided in conjunction with overland floodways or retention basins.

Land Reserves

D9.07 PROVISIONS FOR CYCLEWAYS AND PATHWAYS AT STRUCTURES

1. Designers shall consider the best way to cater for the uninterrupted movement of cyclists and pedestrians at proposed and existing structures wherever possible. Structures include bridges and underpasses over rivers, roads or railways. The Austroads Guide provides information on:

**Bridges
Underpasses**

- acceptable widths and clearances
- types of cycleways and pathways
- handrails
- bicycle bridges
- approach ramps
- etc.

D9.08 SIGNAGE AND PAVEMENT MARKING

1. The Designer shall provide adequate signposting design for cycleways and pathways.

2. Signs and pavement marking will provide for the safe and convenient use of the facility. The signs and pavement marking will comply with AS 1742.

**Signs
Pavement
Marking**

D9.09 END OF JOURNEY FACILITIES

1. Consideration must be given to the design of adequate facilities at common destinations of bicyclists and pedestrians so as to encourage cycleway and pathway usage.

2. Such facilities could include:

- seats
- standby areas
- secure bicycle parking
- picnic facilities

Facilities

3. Bicycle parking installation design should meet appropriate criteria discussed in the Austroads Guide and be fabricated to meet AS 2890-3.

Parking

D9.10 MINIMUM DESIGN STANDARDS

1. Notwithstanding the guidelines provided in this specification and referenced documents the following minimum standards have been determined as shown in Table D9.1. [Where a disabled access path is being provided, the cross fall should comply with AS 1428 Design for Access and Mobility.](#)

Table D9.1

	Cycleway	Pathway	Shared Use Pathway	Remarks
Path Width	2.0	1.2m	2.5m	
Formation Width	3.0m	2.0m	3.5m*	Width to be 4.0m through a Major Recreational Park
Crossfall min. max.	2.5 % 5 %	2.5 % 5 %	2.5 % 5 %	
Clearance Horiz.	2.5m	1.2m	2.5m	
Thickness	100 mm URreinforced	100 mm URreinforced	100 mm URreinforced	F72 SL72 mesh at vehicle crossing points or designated vehicle access
Joint Spacing	6.0m	3.6 m	6.0 m	'Conolly Key Joint' or equivalent
Concrete Grade	25 MPa	25 MPa	25 MPa	

D9.11 — DOCUMENTATION

1. ~~The following listing outlines Council's minimum requirements for presentation of cycleway and/or pathway designs.~~

a. ~~All plans for cycleways/pathways are to be presented at the reduction ratio 1:500.~~

Plans

b. ~~The cycleway plan sheet may be incorporated into the road plan where clarity permits. Specific details are to be provided at reduction ratio 1:200.~~

c. ~~Longitudinal Sections will be required for all off road cycleways where the longitudinal grade or natural crossfall exceeds 10%.~~

Long Sections

d. ~~Longitudinal Sections will have reduction ratios of 1:500 horizontal and 1:100 vertical.~~

e. ~~Cross Sections will be presented at 1:100 reduction ratio (natural) and transition tables will be required where cross falls vary or superlevation is provided.~~

Cross Sections

f. ~~A typical cross section will be detailed to indicate pavement materials and layer depths.~~

DEVELOPMENT DESIGN SPECIFICATION

D13

LANDSCAPING

Refer to the following document (or any subsequent amendment):

- [Landscape Technical Policy 98/4 - Wollongong City Council - 2002](#)

13.01 CONSULTATION

The Developer is encouraged to consult with Council prior to the preparation of landscape design plans.

13.02 PLANNING CONCEPTS

Council provides specific requirements for Landscaping in Council's Development Control Plan B2 and E6. The Developer will need to comply with the requirements defined in these documents

13.03 STREET TREES

The developer must address the street frontage by installing street tree planting and protective bollards. The street trees shall be 100 litre pot 2.5 m minimum height, 1.2m wide and 40mm minimum caliper. Trees are to be installed in accordance with Wollongong Development Control Plan 2009 – Chapter E6: Landscaping.

Location of street tree plantings to be sited to ensure no conflict occurs with street light poles.

Bollards to consist of minimum two (2 No.) 1800mm x 90 x 90mm ACQ treated/ hardwood posts with weathered top, decorative rebate and set min one third into firm ground (or approved similar) . Brick edging to consist of 110mm wide paver on 150mm thick reinforced concrete footing (or approved similar).

Tree pits must be provided with a root barrier to protect the kerb and footpath. The nature, extent and depth of the root barrier shall be determined on site by a qualified arborist in consideration of the on-site conditions and tree species. Tree pits must be adequately mulched, plants installed and bollards/edging installed to the satisfaction of WCC Manager of Works. These requirements shall be reflected on the Subdivision Certificate plans and any supporting documentation

13.04 PLAYGROUNDS

Developers are to consult with the Council prior to and during the design and specification of playgrounds and associated equipment. The design of these spaces must consider the relevant Australia Standards for playgrounds.

**DEVELOPMENT
CONSTRUCTION
SPECIFICATION**

C101

GENERAL

SPECIFICATION C101 – GENERAL

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SPECIFICATION C101 : DEVELOPMENT CONSTRUCTION - GENERAL

GENERAL REQUIREMENTS

C101.01 CONFLICT BETWEEN APPROVED DRAWINGS AND SPECIFICATIONS

1. Where conflict or inconsistency arises between the Approved Plans, Standard Drawings and/or the Specification, the Contractor shall notify the Principal Certifying Authority and consult the Principal Certifier for a determination.

C101.04 DRAWINGS

1. A set of approved plans as issued with the Construction Certificate shall be kept on site at all times during the work.

2. A copy of the Notification Determination of Development Application (Development Consent) shall be kept on site at all times during the work.

3. A current set of WCC standard drawings shall be kept on site at all times. Unless otherwise approved by the Principal Certifying Authority the following Department of Housing Standard Drawings shall apply to the works:

- a. RM 01 - Standard Kerb and Gutter
- b. RM 07 - Standard Grated Gully Pit to Concrete Accessway
- c. RM 10 - Standard Grated Kerb Inlet Pit
- d. RM 11 - Standard Surcharge Pit
- e. RM 15 - Standard Concrete Headwall (300 to 900 dia)
- f. RM 16 - Standard Concrete Headwall (1050 to 1350 dia)
- g. RM 17 - Standard Concrete Headwall (1500 to 1800 dia)

C101.05 STANDARDS AND TEST METHODS

1. Unless otherwise specified, materials and workmanship shall be in accordance with the relevant standard of the Standards Association of Australia. **Australian Standards**

2. The AS standards applicable to the Works shall be the edition current as at 14 days prior to the commencement of work.

3. Overseas standards and other standard documents named in the Specification shall be applicable in the same manner as Australian Standards to relevant materials and workmanship. **Overseas Standards**

4. Copies of any standards quoted or referred to in the Specification shall be kept on the site if so specified. **Copies to be kept on Site**

5. Where no suitable AS test methods are available, those of the relevant [State Road Authority RMS testing](#) shall be used. **Other Test Methods**

C101.06 TESTING AND SURVEY

1. The minimum frequency of testing and survey shall be in accordance with either the Specification for QUALITY CONTROL REQUIREMENTS. **Minimum Frequency**

C101.07 WORKING AREAS

1. If existing fencing is cut or altered by the Contractor, the Contractor shall provide and maintain temporary fencing to the satisfaction of the Principal Certifying Authority during the Contract to prevent unauthorised entry into the property, and shall reinstate the fencing and remove temporary fencing on completion of the work. **Temporary Fencing**

C101.08 SMOOTH JUNCTIONS

1. Construction shall make smooth junctions with the existing work.

C101.10 SITE MEETINGS

1. Regular site meetings will be held for the purpose of discussion of the progress and co-ordination of the work and any matters of doubt regarding the intent or interpretation of the Drawings or the Specification. The Contractor shall arrange for relevant sub-contractors or their responsible representatives to be present at these meetings. The meetings will be held at a time agreed by the Principal Certifying Authority and the Contractor. **Representation**
2. The Contractor shall give the Principal Certifying Authority 48 hours notice of the date, time and location of the meetings. **Advice to Council**
3. The Developer or the Developer's Representative shall chair site meetings, keep minutes of the proceedings and shall provide copies of the minutes for the Contractor, all present at the meeting and others concerned with the matters discussed. **Responsibility for Minutes**
4. No action shall be taken as a result of a meeting until the minutes have been accepted in writing as a true record of the meeting by the Principal Certifying Authority.

C101.11 WORK-AS-EXECUTED DRAWINGS

1. Certified Work-as-Executed Drawings for the work shall be submitted to the Principal Certifying Authority prior to release of the Subdivision Certificate. The Work-as-Executed Drawings shall comply with the Notification of Determination of Development Application (Development Consent). **Submission**
2. Work-as-Executed Drawings shall show in red ink all changes to the Approved Drawings and actual values of all levels shown on the Drawings. The Drawings shall be signed by a Registered Surveyor and certified by the Designer that the work as completed, including variations and meet the design intent. **Certification**

ENVIRONMENTAL REQUIREMENTS

C101.14 PROTECTION OF THE ENVIRONMENT

1. All work shall be carried out in such a manner as to avoid nuisance and/or damage to the environment. The Contractor shall comply with the requirements of the conditions of the Notification of Determination of Development Application (Development Consent), the Approved Soil & Water Management Plan, Protection Of The Environment Operations (POEO) Act and all other relevant Acts. **Conformance to Acts**
2. The Contractor shall plan and carry out the Works to avoid erosion, contamination and sedimentation of the site and its surroundings. **Erosion Control**
3. Herbicides and other toxic chemicals shall not be used on the site without the prior written approval of the Principal Certifying Authority. **Herbicides and Toxic Chemicals**
4. No noise or smoke or other nuisance, which in the opinion of the Principal Certifying Authority is unnecessary or excessive shall be permitted by the Contractor in the performance of the Works. Should work outside customary working hours be approved, the Contractor shall not use, during such period, any plant, machinery or equipment which in the opinion of the Principal Certifying Authority is causing or is likely to cause a nuisance to the public. No noisy works and/or works likely to disturb nearby residents shall be undertaken during the hours precluding such activity as specified by Council in accordance with the requirements for development consent and building approval made under the Local Government Act and the POEO Act. **Noise, Smoke or Other Nuisances**
5. The Contractor shall ensure that dust from the site is minimised by a method approved by the Principal Certifying Authority. **Dust Control**

C101.16 BLASTING

1. Blasting will not be permitted.

C101.17 LIMITS ON NOISE

1. The Contractor shall only use plant that have effective residential class silencers fitted to all engine exhaust, have engine covers fitted, are maintained in good order, and in addition meet the following requirements. **Plant with Silencers**
 - (a) On purchase have met the NAASRA Specification for Noise levels of plant and equipment, or
 - (b) Have a Maximum Noise level (L_{MAX}) less than 80 dB(A) when measured at a distance of 7 metres.
2. Operational hours of plant or other noise generating equipment shall be restricted to between the prescribed working hours nominated in the development consent, 7 a.m. and 5 p.m. Monday to Friday, between 7 am and 1 pm on Saturday and at no times on Sundays or Public Holidays. Work outside of the hours specified shall not be undertaken without the prior approval of the Principal Certifying Authority. **Working Hours**
3. Notwithstanding noise emission limits on plant, noise emanating from the construction site when measured at any noise sensitive location (such as a residential premise), as determined by the Environment Protection Authority shall not exceed an L10 sound pressure level (noise level exceeded for 10% of the sample time) the greater of: **Maximum Noise Levels**

- (a) Short term (period of up to 1 month) 65dBA or 20dBA above ambient
- (b) Medium term (period of 1 month up to 6 months) 55dBA or 10dBA above ambient
- (c) Long term (any period of more than 6 months) 50dBA or 5dBA above ambient

4. The monitoring positions and time period for monitoring purposes shall be set by the EPA with the time period generally based on a series of 10 to 15 minute measurements which shall be averaged over the entire daily working period for the activity concerned.

Monitoring

C101.18 LIMITS ON GROUND VIBRATION

1. It is the intent of this Specification that ground vibration levels, transmitted from operating items of plant in the vicinity of residential premises shall not exceed levels that are close to the lower level of human perception inside the premise nor will cause structural damage to the building.

Levels

2. Vibration (RMS Z-Axis) generated by construction works shall not exceed

Limits

Curve 4 - for the period of 1 month or less

Curve 2 - for the period of more than 1 month

as defined in British Standard BS6472 "Evaluation of Human Exposure to Vibration in Buildings (1 HZ to 80 HZ)" when measured inside nearby residential premises.

3. Ground vibrations generated by construction works shall not exceed a peak particle velocity (V_R max) limit of 5 mm/sec when measured within one metre of any residential premise.

Peak Particle Velocity

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C201

CONTROL OF TRAFFIC

SPECIFICATION C201 - CONTROL OF TRAFFIC

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Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C201 : CONTROL OF TRAFFIC

GENERAL

C201.01 SCOPE

1. The work to be executed under this Specification consists of all work necessary to provide for the safe movement of traffic and the protection of persons and property through and/or around the work site. **This traffic control specification may be superseded by a Traffic Control Code of Practice issued by WorkCover.**

2. The extent of work includes the design, construction, maintenance and removal of temporary roadways and detours, the provision of traffic controllers, signposting, road markings, raised pavement markers, lights, barriers and any other items required.

**Works
Included**

3. Control of traffic shall be in accordance with AS 1742.3, SAA HB81, this Specification, and the Drawings.

Standards

4. Wherever the word 'should' occurs in AS 1742.3 the word 'shall' applies and the required action is the Contractor's responsibility.

**Contractor's
Responsibility**

C201.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards
Test Methods**

(a) Australian Standards

- AS 1165 - Traffic Hazard Warning Lamps
- AS 1742.3 - Traffic Control Devices for Works on Roads
- AS 1743 - Road Signs Specifications
- AS 1744 - Standard Alphabets for Road Signs
- AS 1906 - Retroreflective Materials & Devices for Road Traffic Control Purposes
- SAA HB81 - Field Guide for Traffic Control at Works on Roads

(b) AUSTRROADS Publications

- AUSTRROADS - Guide to Traffic Engineering Practice - Intersections at Grade
- AUSTRROADS - Guide to the Geometric Design of Rural Roads

C201.03 TRAFFIC CONTROL PLAN

1. The Contractor shall construct the work with the least possible obstruction to traffic.

**Minimise
Obstruction**

2. The Contractor shall obtain all necessary approvals from Councils and other Authorities for temporary traffic arrangements except where specified otherwise.

**Contractor's
Responsibility**

~~3. Two weeks before undertaking work which would involve any obstruction whatsoever to traffic the Contractor shall submit, for the Principal Certifying Authority's approval, a Traffic Control Plan in accordance with AS 1742.3. For works adjacent to or on State and Regional roads or works requiring a temporary road closure, a Traffic~~

**Guidance
Scheme**

~~Control Plan shall be submitted to Council, and approved by the Local Traffic Committee prior to work commencing. The contractor shall have an approved Traffic Control Plan on site at all times during construction.~~

4. The Traffic Control Plan shall include:-

**Control
PlanContents**

- (a) design drawings for any temporary roadways and detours in accordance with Clause C201.11 showing pavement, wearing surface and drainage details,
- (b) details of arrangements for construction under traffic in accordance with SAA HB81, and
- (c) a signpost layout plan showing:
 - (i) location, size and legend of all temporary signs
 - (ii) temporary regulatory signs and temporary speed zones, and
 - (iii) all traffic control devices such as temporary traffic signals, linemarking, pavement reflectors, guideposts, guardfence and barrier boards.

5. Where the Traffic Control Plan involves a temporary road closure, involves the use of Regulatory Traffic Control Signs or Devices and/or where in the opinion of the Council the disruption to local traffic is significant, the Contractor shall obtain the prior approval of the Local Traffic Committee. In such cases the period of notice shall be six weeks in accordance with Clause C201.24.

Notice

6. Where the Traffic Control Plan is for works on State or Regional roads the Contractor shall obtain the prior approval of the Local Traffic Committee. In such cases the period of notice shall be six weeks in accordance with Clause C201.24.

7. The Traffic Control Plan shall be in accordance with the requirements of this specification and the Drawings.

8. Special consideration to the safety of pedestrians and workers shall be given in the preparation of the Traffic Control Plan. Particular care shall be taken when requiring reversal of traffic flows or the separation of unidirectional flow by medians or other physical separation.

Safety

C201.04 SIDE ROADS AND PROPERTY ACCESSES

1. At all times, the Contractor shall provide safe and convenient passage for vehicles, pedestrians and stock to and from side roads and property accesses connecting to the roadway. Work which affects the use of side roads and existing accesses shall not be undertaken without providing adequate alternative provisions to the prior satisfaction of the Superintendent.

Access

C201.05 TRAFFIC CONTROLLERS

1. The Contractor shall advise the Principal Certifying Authority of the names of proposed traffic controllers with a signed declaration that they are appropriately trained in the duties of traffic controllers in accordance with AS 1742.3 and SAA HB81.

**Trained Traffic
Controllers**

C201.06 APPROVED CLOTHING FOR WORK PERSONNEL

1. All personnel working in close proximity to traffic shall wear high visibility clothing to the requirements of AS 1742.3.

**Safety
Clothing**

C201.07 TEMPORARY SPEED ZONING

1. Where a temporary speed limit has been approved by the Local Traffic Committee or Road Authority, the Contractor shall arrange for the supply of appropriate temporary speed zoning signs, including posts and fittings, for erection. Where and when directed by the Principal Certifying Authority, the Contractor shall erect these signs, cover the signs when the speed zone is not in use and remove the signs when the speed zone is no longer required as part of the provision for traffic. A diary recording operation times of the speed zone shall be kept by the Contractor.

Speed Zone Signs**C201.08 PLANT AND EQUIPMENT**

1. During the day plant and equipment working in a position adjacent to traffic and having a projection beyond the normal width of the item, for example, a grader blade, shall have a fluorescent red flag attached to the outer end of the projection. During poor light conditions or at night, an additional traffic controller with an illuminated red wand shall direct traffic around such plant and equipment.

Plant Delineation

2. At night, where traffic is permitted to use the whole or portion of the existing road, all plant items and similar obstructions shall be removed from the normal path of vehicles to provide a lateral clearance of at least 6 m where practicable, with a minimum clearance of 1.2 m.

Night Time Clearance

3. Plant and equipment, within 6 m of the normal path of vehicles, shall be lit by not less than two yellow steady lamps suspended vertically from the point of the obstruction nearest to a traffic lane and one yellow steady lamp at each end of the obstruction on the side furthest away from the traffic lane.

Warning Lamps**TEMPORARY ROADWAYS AND DETOURS****C201.09 APPROVAL**

1. The Contractor shall submit for the Principal Certifying Authority's approval the design of all proposed temporary roadways and detours.

Temporary Roads**C201.10 DESIGN STANDARDS**

1. The standard of alignment and grading adopted shall be in accordance with specific provisions of this Specification and shall otherwise be in accordance with the AUSTROADS publication 'Guide to the Geometric Design of Rural Roads'.

Alignment & Grading

2. Intersections shall be designed in accordance with the AUSTROADS publication 'Guide to Traffic Engineering Practice - Intersections at Grade'.

Intersections

3. Design drawings, geometric standards, design speed, wearing surface type and pavement design of the proposed temporary roadways and detours shall be submitted by the Contractor with the Traffic Control Plan.

Standards & Pavement**C201.11 DESIGN DRAWINGS**

1. Design drawings submitted for approval shall show:

- (a) Alignment and grading at a horizontal scale of 1:2000 for rural roads and 1:500 for urban roads. Where the temporary road rejoins the existing road, levels showing the full cross section shall be extended along the existing road for a minimum length of 200 m.

Contents

- (b) A sight distance diagram if opposing traffic is to use a single carriageway
- (c) Intersections, and any other locations where traffic may be required to make turning, merging or diverging movements, at a scale of 1:500.
- (d) Pavement marking details.
- (e) Sufficient cross-sections to indicate the feasibility of making connections between various parts of the work.
- (f) Sufficient dimensions, especially lane widths, to make clear the geometry and clearances of the proposed Works.
- (g) A north point or some other location method to orientate the plan.

C201.12 DRAINAGE

1. Drainage structures and drains shall be constructed in accordance with the following Specifications: **Standard**

- C220 - Stormwater Drainage - General
- C221 - Pipe Drainage
- C223 - Drainage Structures
- C224 - Open Drains, including Kerb and Gutter

2. Drainage proposed in accordance with Clause C201.03 shall be able to cope with upstream rainfall run-off resulting from all rainfall intensities up to that expected for a once in five year frequency, without overflow over the road. **Design Frequency**

3. Pavements shall be designed and constructed to not pond water on the wearing surface or shoulders. Temporary formations to be constructed shall not dam water. **Pavement Drainage**

C201.13 CONSTRUCTION OF EARTHWORKS AND PAVEMENT

1. Temporary roadways shall be constructed in accordance with the following Specifications: **Temporary Roadways**

- C212 - Clearing And Grubbing
- C213 - Earthworks
- C242 - Flexible Pavements

C201.14 SURFACING

1. The wearing surface width shall extend across the full width of the traffic lanes plus the width for each shoulder, or as shown on the Drawings. **Wearing Surface**

2. The wearing surface shall be carried onto any existing connecting roadway so as to finish square to the existing roadway centreline. **Tie-in to existing work**

3. Surfacing shall be constructed in accordance with: **Standards**

- C244 - Sprayed Bituminous Surfacing and/or
- C245 - Asphaltic Concrete

C201.15 GUARDFENCE

1. Corrugated steel guardfence shall be erected on all temporary embankments where the vertical height between the edge of the shoulder and the intersection of the embankment slope and natural surface exceeds 2m and as otherwise shown on the drawings. **Warrant**

2. Guardfence shall be erected in accordance with: **Erection**
C264 - Guardfence

C201.16 OPENING TO TRAFFIC

1. Temporary roadways and detours (including portable or temporary traffic signals sites) shall not be open to traffic until they have been inspected, approved and authorised in writing by the Principal Certifying Authority. **Approval to use**
2. All signposting, pavement marking, guardfence and portable or temporary traffic signals shall be completed before the opening of temporary roadways to traffic. **Signposting**
3. Unless otherwise approved by the Principal Certifying Authority, the opening of temporary roadways shall be arranged so that sections of existing roadway being replaced are not disturbed for a minimum of forty-eight hours in the event of temporary roadway failure and there is a warrant to redirect traffic back onto the existing roadway. The determination to redirect traffic shall be by the Principal Certifying Authority. **Existing Roadway Retained**
4. The costs associated with the redirection of traffic back onto the existing roadway shall be borne by the Contractor. **Contractor's Cost**
5. Unless otherwise approved by the Principal Certifying Authority, traffic shall be switched to a temporary roadway or detour only where the Contractor's usual workforce will be on site for a minimum of two days thereafter. **Traffic Switch**

C201.17 MAINTENANCE

1. The Contractor shall be responsible for the maintenance of temporary roadways and detours and shall ensure the road surface is kept safe for traffic. Any potholes or other failures shall be repaired without delay. **Contractor's Responsibility**

C201.18 REMOVAL

1. Upon completion of the Work the temporary roadways and/or detour arrangements shall be removed and the area restored to a condition equivalent to that which existed prior to the commencement of the work or restored to a design that was directed at the time of the Road Opening (RO) approval. **Restoration**

ARRANGEMENTS FOR TRAFFIC

C201.19 CONSTRUCTION UNDER TRAFFIC

1. Where a temporary roadway or a detour is not provided or available then, subject to the approval of the Principal Certifying Authority, construction under traffic may be permitted provided a minimum of 3.5 m lane width is available for through traffic on a two lane roadway and where 3.5 m lanes are available in both directions for through traffic when working on multilane roads. **Lane Width**
2. The carriageway/s shall be restored to a safe and trafficable state for through traffic prior to cessation of work each day in accordance with the approved Traffic Control Plan. **Carriageway Restoration**
3. Full details of temporary signposting, traffic control devices and traffic control methods, in accordance with the appropriate arrangement diagrams in SAA HB81, are to be submitted for the Principal Certifying Authority's approval at least ten working days before undertaking any work which would involve construction under traffic. **Signs and Markings**

C201.20 OPENING COMPLETED WORK

1. ~~The Contractor shall give the Principal Certifying Authority at least five working days written notice confirming the date of opening completed work to traffic. The procedure for opening shall be determined through consultation between the Principal Certifying Authority and the Contractor.~~ 1. The contractor shall give the Principal Certifying Authority notice that the completed work is intended to be open to traffic. An inspection is to be arranged and all work is to be to the satisfaction of the PCA prior to the road being opened to traffic.

Written Notice

2. The Contractor shall be responsible for the removal of all temporary traffic control devices no longer required for the safety of traffic, when the Works or part thereof are opened to traffic.

Contractor's Responsibility**TRAFFIC CONTROL DEVICES****C201.21 ARRANGEMENT OF TRAFFIC CONTROL DEVICES**

1. The arrangement and placement of traffic control devices shall be carried out in accordance with the approved Traffic Control Plan, AS 1742.3 and SAA HB81. The arrangement diagrams illustrate the more common examples of the arrangement of traffic control devices and set out the minimum requirements.

Arrangement Diagrams

2. All temporary traffic control devices when no longer required shall be covered and/or removed without delay in order to maintain unambiguous safe guidance to traffic.

Unnecessary Signs**C201.22 MAINTENANCE OF TRAFFIC CONTROL DEVICES**

1. All traffic control devices shall be maintained by the Contractor in accordance with AS 1742.3 so that they are in good order and in the correct positions day and night. They shall be neat and clean, and signs shall be clear and legible at all times.

Contractor's Responsibility

2. The Contractor may need to be contacted outside normal working hours to arrange for adjustments or maintenance of traffic control devices. The Contractor shall notify the Principal Certifying Authority and the local Police, in writing, the names, addresses, and means of communicating with personnel nominated for this purpose.

Out of Hours Contact**C201.24 REGULATORY TRAFFIC CONTROL SIGNS AND DEVICES**

1. A Regulatory Traffic Control Sign or Device shall be in accordance with AS 1742.3, and shall require approval by the Local Traffic Committee before its erection. This approval should be obtained through the Principal Certifying Authority, refer to Clause C201.07.

Prior Approval**C201.25 SIGNS**

1. Signs shall be designed and manufactured in accordance with AS 1743. Details of each letter shall be as shown in AS 1744.

Specifications

2. The reflective material used on signs shall be Class 2 material complying with AS 1906.1 except where otherwise specified.

Reflective Material**C201.26 SUPPLEMENTARY SIGNS**

1. Signs supplementary to AS 1742.3 are shown in Annexure C201A. These signs

may be used in lieu of or in addition to those shown in AS 1742.3.

(a) Heavy Machinery Crossing

This temporary sign, shown as Sign SW5-22, shall be used in lieu of W5-22, trucks entering.

(b) Cycle Hazard Grooved Road

This temporary sign, shown as Sign ST1-10, shall be used in addition to T1-10 of AS 1742.3 where the road is grooved and is a hazard to cyclists.

(c) Tar Spraying Possible Short Delay

This temporary sign, shown as Sign ST3-1, shall be used in addition to T3-1 for bituminous surfacing works.

(d) Changed Traffic Conditions Ahead

This temporary sign, shown as Sign ST1-6, shall be used in addition to T1-1, T1-6, T2-6 and T2-21 on long term works, sidetracks and detours.

C201.27 FLASHING ARROW SIGNS

1. Flashing arrow signs shall comply with AS 1742.3.

C201.28 BARRIER BOARDS

1. Barrier boards shall comply with AS 1742.3.
2. Trestles supporting the barrier boards may be manufactured of timber, metal or other suitable material and shall be yellow. The trestles shall provide firm supports for the barrier board and be kept in place by sandbags or other devices. The bases of the trestles shall not protrude beyond the ends of the boards.

Standard

Trestle Support

C201.29 HIGH VISIBILITY MESH FENCING

1. High visibility mesh fencing shall be constructed where shown on the Drawings, Traffic Control Plan or as directed by the Principal Certifying Authority.
2. High visibility mesh fencing shall be constructed in accordance with AS 1742.3, containment fences.
3. The mesh fencing shall be paraweb or equivalent as approved by the Principal Certifying Authority.

C201.30 TEMPORARY POST-MOUNTED DELINEATORS

1. In addition to the requirements of AS 1742.3, temporary post mounted delineators shall be provided in conjunction with high visibility mesh fencing which is erected parallel to and in close proximity to traffic.

C201.31 CONES AND BOLLARDS

1. Traffic cones and bollards shall comply with AS 1742.3 and be placed in accordance with the arrangement diagrams in SAA HB81.

Standard and Placement

2. Unless cones are firmly fixed in position they shall be used only while work is in progress, or in locations where there is an employee in attendance who shall reinstate any of the cones which have been dislodged by traffic. Otherwise they shall be removed and bollards or barriers substituted. **Conditions of Use**

3. Cones and bollards used under night conditions shall be reflectorised in accordance with AS 1742.3. **Reflectorised for Night Work**

C201.32 TRAFFIC WARNING LAMPS

1. Traffic warning lamps shall comply with AS 1165 and shall be installed in accordance with AS 1742.3. The Contractor shall ensure that warning lamps are in good working order, correctly aligned and positioned with respect to the direction of traffic flow each night, before the site is left unattended. **Standards and Positioning**

C201.33 TEMPORARY PAVEMENT MARKINGS

1. All pavement markings shall be reflectorised and consist of painted lines, roadmarking tape and/or raised pavement markers in accordance with the relevant Australian Standards or as otherwise approved by the Principal Certifying Authority and shall be provided in accordance with AS 1742.3. **Reflectorised Markings**

2. Where the adjoining roadway is edgeline, temporary roadways shall be similarly edgeline. **Adjoining Work**

C201.34 TEMPORARY LINEMARKING

1. Where temporary linemarking is required on the final wearing surface, only pavement marking tape shall be used. **On Final Surface**

2. Where the pavement linemarking has become ineffective in the opinion of the Principal Certifying Authority, remarking shall be undertaken within forty-eight hours of direction by the Principal Certifying Authority. The cost of remarking the pavement lines shall be borne by the Contractor. **Contractor's Cost**

3. Where a single carriageway is opened adjacent to or used in lieu of an existing dual carriageway length, pavement arrows indicating the direction of flow of traffic shall be placed at not more than 500 m or at a spacing nominated by the Principal Certifying Authority. The arrows shall be removed if the section is then reincorporated as dual carriageway. **Pavement Arrows**

4. Immediately before or after placement of new markings all superseded pavement markings shall be obliterated or removed to the satisfaction of the Principal Certifying Authority. **Old Markings Removed**

5. On a final surface, obliteration by painting shall not be permitted.

C201.35 RAISED PAVEMENT MARKERS

1. Where raised pavement markers have become ineffective in the opinion of the Principal Certifying Authority, they shall be replaced within twenty four hours of direction by the Principal Certifying Authority. **Ineffective Markers**

2. The cost of replacing ineffective pavement markers shall be borne by the Contractor. **Contractor's Cost**

3. All superseded raised pavement markers shall be immediately removed from the pavement by the Contractor. **Removal of Superseded Markers**

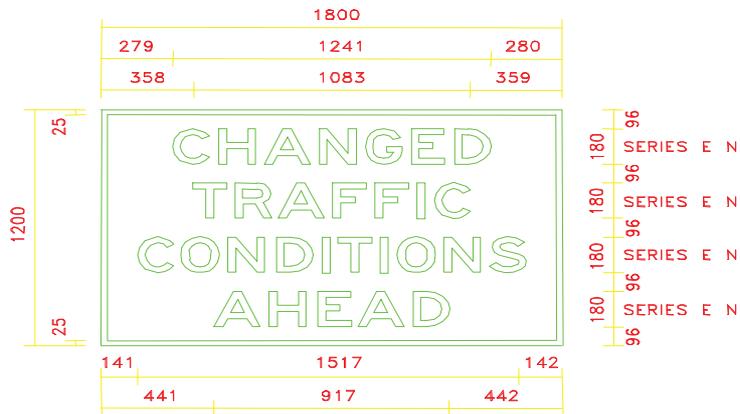
**ANNEXURE C201A
SUPPLEMENTARY TEMPORARY WARNING SIGNS TO AS 1742.3**

Black letters and border on yellow reflectorised ground
Dimensions are in mm

(iii) ST3-1



(iv) ST1-6



DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C212

CLEARING AND GRUBBING

SPECIFICATION C212 - CLEARING AND GRUBBING

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**SPECIFICATION C212
CLEARING AND GRUBBING**

C212.01 SCOPE

- | | | |
|----|--|-------------------------------|
| 1. | The work to be executed under this Specification consists of the clearing and grubbing of all vegetation, structures (such as fences and livestock yards), all rubbish and other materials which are unsuitable for use in the Works. The work also includes the mulching or disposal of all materials that have been cleared and grubbed. | <i>Extent of Work</i> |
| 2. | Prior to, or in conjunction with, clearing and grubbing operations, the Contractor shall install the soil and water management measures in accordance with the Soil and Water Management Plan. | <i>Erosion Control</i> |

C212.02 LIMITS OF CLEARING

- | | | |
|----|--|----------------------------------|
| 1. | The area to be cleared shall be limited to the area required for: | <i>Limits of Clearing</i> |
| a. | erosion and sedimentation measures, | |
| b. | site regrading works, | |
| c. | road formation construction and | |
| d. | associated drainage works, | |
| 2. | A clearance of 2m beyond tops of cuts and toes of embankments will be permitted. | |
| 3. | The limits of clearing shall be clearly marked by the Contractor. | |

C212.03 CLEARING OPERATIONS

- | | | |
|----|---|---|
| 1. | Other than the trees marked for preservation, the area within the limits of clearing shall be cleared of all vegetation, all unnecessary structures (such as fences and livestock yards), all rubbish and other materials which are unsuitable for use in the Works | <i>Extent</i> |
| 2. | The Contractor shall give the Principal Certifying Authority not less than five days notice of the intention to clear any area of the work. Prior to commencing clearing and grubbing work, the Contractor shall arrange for an inspection of the site by the Principal Certifying Authority. <u>The contractor shall mark any trees that are to be preserved in accordance with the approved plans. Trees are to be identified at the site pre commencement meeting</u> The Principal Certifying Authority shall mark the trees that are to be preserved. The Contractor shall not damage nor destroy trees that are to be preserved. | <i>Notice</i>

<i>Trees to be preserved</i> |
| 3. | The Contractor shall execute clearing and grubbing operations to ensure that there is no damage to trees marked for preservation nor any trees outside the limits of clearing. | <i>Trees outside Limits of Work</i> |
| 4. | Every precaution shall be taken to prevent timber or debris from falling on private property and the Contractor shall remove and dispose of any timber so fallen. | <i>Debris in Private Property</i> |
| 5. | Damage of any kind, including damage to trees, fencing, occurring during clearing operations shall be made good by the Contractor. | <i>Damage to Property</i> |

6. Tree removal costs in public areas are to be borne by developer. The removal of trees, including stumps, is to be carried out by suitably qualified tree contractor. This contractor must be appropriately insured to indemnify Council against any loss or damage incurred during the above works. They must also have appropriate WH&S policies and procedures (including traffic control) to ensure that works are carried out in a safe manner and in accordance in Council's own WH&S policies.

The developer must apply for (and be issued) permission under section 138 of the roads act to work within the road reserve. Tree removal must be carried out to the satisfaction of WCC Manager of Works

7. Any branch pruning which has been given approval must be carried out by a qualified arborist in accordance with Australian Standard AS4373-2007 Pruning of Amenity Trees

C212.04 GRUBBING

- | | | |
|----|--|------------------------------|
| 1. | All tree stumps within the work area shall be removed by grubbing. | <i>Extent</i> |
| 2. | Grubbing operations shall be carried out to a depth of not less than 0.5 m below the natural surface or 1.5m below the finished surface level, whichever is the lower. | <i>Depth</i> |
| 3. | Holes remaining after tree stumps have been grubbed shall be backfilled promptly with suitable material. The backfill material shall be compacted to not less than the relative density of the material existing in the adjacent ground. <u>Holes greater than 400mm measured to finished surface level shall be backfilled under Level 1 Supervision in accordance with Specification C213 : Earthworks</u> | <i>Backfill Holes</i> |

C212.06 DISPOSAL OF MATERIALS

- | | | |
|----|--|-------------------------------------|
| 1. | All materials cleared and grubbed shall be removed from the site and legally disposed of. | <i>Removal from Site</i> |
| 2. | Unless approved by the Principal Certifying Authority disposal of timber and other combustible materials by burning shall not be permitted. | <i>Burning not Permitted</i> |
| 3. | The Contractor shall produce a wood-chip mulch derived from crowns of trees and branches of shrubs cleared under this Specification. | <i>Wood-chip Mulch</i> |
| 4. | The wood-chip mulch shall be produced from branches having a maximum diameter of 100 millimetres and the chipped material produced shall not have two orthogonal dimensions exceeding 75mm and 50mm. <u>Woodchip kept on site for reuse shall be stored in small stockpiles and turned regularly to prevent the build-up of heat</u> | <i>Dimensions</i> |

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C213

EARTHWORKS

SPECIFICATION C213 - EARTHWORKS

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Amendment Record for this Specification Part

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SPECIFICATION C213 : EARTHWORKS

GENERAL

C213.01 SCOPE

1. The work to be executed under this Specification consists of:- **Scope**
- (a) removal of topsoil
 - (b) all activities and quality requirements associated with site regrading, the excavation of cuttings, the haulage of material and the construction of embankments to the extent defined in the Drawings and Specification.
 - (c) removal and replacement of any unsuitable material,
 - (d) any spoil or borrow activities associated with earthworks, and
 - (e) any additional processing of selected material for the selected material zone.

C213.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. **Documents
Standards
Test Methods**

(a) Council Specifications

- ~~C201 - Control of Traffic~~
- ~~C211 - Control of Erosion and Sedimentation~~
- ~~C212 - Clearing and Grubbing~~
- ~~C220 - Stormwater Drainage - General~~
- ~~C273 - Landscaping~~

(b) Australian Standards

- ~~AS 1289.F1.1 - Determination of the California Bearing Ratio of a soil - Standard laboratory method for a remoulded specimen.~~
- ~~AS 1289.3.3.1 - Calculation of the plasticity index of a soil.~~
- ~~AS 1289.5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort.~~
- ~~AS 1289.5.4.1 - Compaction control test - Dry density ratio, moisture variation and moisture ratio.~~
- ~~AS 1289.5.7.1 - Compaction Control Test (Rapid Method).~~
- ~~AS 3798-1990 - Earthworks for Residential and Commercial Developments~~

(c) Other

- ~~EPA - Environmental Noise Control Manual.~~

C213.04 PROTECTION OF EARTHWORKS

1. It is the Contractor's responsibility for the care of all Works. **Contractor's
Responsibility**
2. The Contractor shall install soil and water management control measures in accordance with the SOIL AND WATER MANAGEMENT Plan, prior to **Soil and Water
Management**

commencing vegetation clearing and/or earthworks, and shall maintain these control measures for the duration of the work on site.

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| 3. | Adequate drainage of all working areas shall be maintained throughout the period of construction. | <i>Drainage of Working Areas</i> |
| 4. | The Contractor shall program and protect the works to minimise ingress of excess water into earthworks material. Particular attention shall be paid to ripped material remaining in cuttings and material placed on embankments. | <i>Wet Weather Precautions</i> |

REMOVAL OF TOPSOIL

C213.07 SCOPE

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| 1. | Topsoil is surface soil which is reasonably free from subsoil, refuse, clay lumps and stones. | <i>Definition</i> |
| 2. | Removal of topsoil from any section of the Works shall only commence after soil and water management controls have been implemented. Topsoil throughout the length of the work shall be removed and stockpiled separately clear of the work with care taken to avoid contamination by other materials. | <i>Prerequisites</i> |
| 3. | The work shall include the following:- | <i>Extent of Work</i> |
| | <p>(a) Cuttings</p> <p>Removal of the topsoil to the depth indicated on the approved engineering plans or as directed by the Geotechnical Engineer.</p> <p>(b) Embankments</p> <p>Removal of topsoil from the base of embankments to the depth indicated on the approved engineering plans, or as directed by the Geotechnical Engineer.</p> <p>(c) Other Locations</p> <p>Removal of topsoil as directed by the Geotechnical Engineer.</p> | |

C213.09 TOPSOIL STOCKPILES

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| 1. | Unless otherwise agreed to in writing by Council, the maximum height of stockpiles shall not exceed 2.5 m and the maximum batter slope shall not exceed 2:1. | <i>Height and Batter</i> |
| 2. | Topsoil stockpiles shall not contain any timber or other rubbish and shall be trimmed to a regular shape. | <i>Stockpiles Trimmed</i> |
| 3. | To minimise erosion, stockpile batters shall be stabilised by means acceptable to the Principal Certifying Authority. | <i>Erosion Control</i> |
| 4. | Where seeding of stockpiles to encourage vegetation cover is specified, such work shall be carried out in accordance with the Specification for LANDSCAPING. | <i>Seeding Stockpile</i> |

CUTTINGS

C213.10 SCOPE

1. Construction of cuttings shall include all operations associated with the excavation of material within the limits of the batters including benching, treatment of cutting floors and transition from cut to fill. *Extent of Work*

C213.11 EXCAVATION

1. Materials encountered in cuttings shall be loosened and broken down as required so that they are acceptable for incorporation in the Works.
2. Cuttings shall have batter slopes as shown on the approved plans. *Batter Slopes*
3. The tops of all cuttings shall be neatly "rounded".
4. Batters shall be trimmed to present a regular and even surface and shall be free from abrupt surface variations. Batters may require progressive flattening at the ends of cuttings due to the presence of less stable material. *Batters to be Even*
5. Cut faces shall be cleaned of loose or unstable material progressively as the excavation proceeds. *Unstable Material*
6. Where material of variable quality or moisture content is encountered, the Contractor shall adjust his excavation methods to ensure blending of the materials, to obtain material meeting the quality and compaction requirements of this Specification. *Blending Material*

C213.12 BATTER TOLERANCES

1. The tolerances for the excavation of batters, measured at right angles to the design grade line, shall be ± 150 mm. *Batter Tolerances*
2. Reserved.
3. If restoration works are required for batters steeper than 1:1, the batter shall be restored to the average batter slope using randomly mortared stone. The stone shall be similar to the sound rock in the cutting and the mortar shall be coloured to match the colour of the rock. *Restoration of Batter Slope*

C213.13 BENCHING IN CUTTINGS

1. Cut batters shall be benched as shown on the Approved Drawings to provide drainage and erosion control. Notwithstanding the tolerances permitted under Clause C213.12, bench widths shall not be less than those shown on the Approved Drawings. *Bench Construction*
2. Benches shall be maintained and cleaned of loose stones and boulders regularly throughout the construction and maintenance period. *Bench Maintenance*

C213.14 TREATMENT OF FLOORS OF CUTTINGS

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| 1. | The floors of cuttings shall be excavated to the design floor level which shall be at the underside of the selected material zone or at the underside of the pavement subbase. The floors shall then be trimmed to a level of not more than 10 mm above nor 30 mm below the designed floor level. | <i>Excavation Level</i> |
| 2. | Where the floor of the cutting is in rock, the Contractor shall rip or loosen all material in the floor to a minimum depth of 200 mm below the design floor level for the width of the selected material zone or subbase layer. The maximum dimension of any particles in the ripped or loosened zone shall not exceed 150mm. | <i>Floor Material Ripped</i> |
| 3. | Prior to ripping or loosening the cutting floor the Contractor shall determine the CBR of the material in the floor by AS 1289.F1.1. Sufficient tests shall be taken to represent all the various materials which may exist in the cutting floor. | <i>CBR Testing</i> |
| 4. | Ripped or loosened material shall be made available for inspection by the Geotechnical Engineer and the Principal Certifying Authority before recompaction commences. It shall be recompacted in accordance with Clause C213.36. | <i>Inspection by Superintendent</i> |
| 5. | After recompaction, the floors of cuttings shall be re-trimmed so that the constructed levels do not vary by more than 10 mm above nor 30 mm below the design floor levels. | <i>Level Tolerances</i> |

C213.15 TRANSITION FROM CUT TO FILL

1. The transition from cut to fill shall be in accordance with the instructions issued by the Geotechnical Engineer controlling the earthworks.

UNSUITABLE MATERIAL**C213.21 GENERAL**

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| 1. | Unsuitable material is that occurring below the designed floor level of cuttings and below the nominated depth for stripping topsoil beneath embankments, which the Geotechnical Engineer and/or the Principal Certifying Authority deems to be unsuitable for embankment or pavement support in its present condition. Unsuitable material also includes material which the Geotechnical Engineer and/or the Principal Certifying Authority deems to be unsuitable for embankment construction. | <i>Definition</i> |
| 2. | Such material shall be excavated to the extent directed by the Geotechnical Engineer and/or the Principal Certifying Authority and removed from the works. | <i>Extent of Excavation</i> |
| 3. | After removal of the unsuitable material, the floor of the excavation shall be represented to the Geotechnical Engineer and/or the Principal Certifying Authority for inspection, prior to backfilling with replacement material, to determine whether a sufficient depth of unsuitable material has been removed. Prior to placing replacement material the excavated surface shall be compacted in accordance with Clause C213.36. | <i>Floor Inspection</i> |

4. The unsuitable material which has been removed shall be replaced with suitable material placed in accordance with Clause C213.26 and compacted in accordance with Clause C213.36. **Replacement Material**

EMBANKMENT CONSTRUCTION

C213.22 SCOPE

1. Embankment construction includes all operations associated with the preparation of the foundation areas on which fill material is to be placed, the placing and compacting of approved material within areas from which unsuitable material has been removed in accordance with Clause C213.21, the placing and compacting of fill material and of materials of specified quality in nominated zones throughout the Works and all other activities required to produce embankments as specified to the alignment, grading and dimensions shown on the Drawings. It also includes any pre-treatment such as breaking down or blending material or drying out material containing excess moisture. **Extent of Work**

C213.24 FOUNDATIONS FOR EMBANKMENTS

1. Following removal of topsoil in accordance with Clause C213.07, the embankment foundation area shall be made available for inspection by the Geotechnical Engineer. **Inspection**
2. Where the Geotechnical Engineer considers that any underlying material is unsuitable, they may direct that it be removed and replaced in accordance with Clause C213.21. **Unsuitable Material**
- a) Foundations for Shallow Embankments** **Shallow Embankments**
1. Shallow embankments are those embankments of a depth less than 1.0 metre from the top of pavement to natural surface.
2. Material in the foundations for shallow embankments which does not meet the requirements specified in Annexure C213A, shall be deemed unsuitable in accordance with Clause C213.21 and shall be replaced by material of the specified quality. **Unsuitable Material**
3. Foundations for shallow embankments shall be prepared for embankment construction after removing topsoil and unsuitable material, by loosening the material exposed to a depth of 200mm, adjusting the moisture content of the loosened material and compacting as specified in Clause C213.36. The Contractor shall use equipment and techniques to minimise surface heaving or other foundation damage. **Preparation of Foundations**
- b) Other Embankments**
1. For all other embankments the foundation shall be prepared by grading and levelling the general area, adjusting the moisture content where necessary and compacting the top 200mm as specified in Clause C213.36. **Preparation**
2. Where a bridging layer has been specified as a foundation treatment it shall be supplied and placed as part of General Earthworks. The bridging layer shall consist of free-draining granular material with or without geofabric interlayer as specified on the Drawings or as approved by the Geotechnical Engineer. The granular material shall be end-dumped and spread in a single layer and in **Bridging Layer**

sufficient depth to allow the passage of earthmoving equipment with minimal surface heaving. The compaction requirements of Clause C213.36 shall not apply to the bridging layer.

3. A bridging layer may also be employed, subject to the approval of the Geotechnical Engineer, where ground water or seepage is encountered in the foundation area or where the Contractor demonstrates that it is impracticable to achieve the degree of compaction specified for the foundation in Clause C213.36. A bridging layer shall not be acceptable if its proximity to the pavement is likely to affect the pavement design.

Seepage from Foundations

C213.25 HILLSIDE EMBANKMENTS

1. Where embankments are to be constructed on or against any natural slopes or the batters of existing embankments, the existing slope or batter, if it is steeper than 4 horizontal to 1 vertical in any direction shall be cut in the form of horizontal terraces over the whole area to be covered by new filling. The existing slope or batter shall be stepped in successive terraces of 1 metre high or less, each at least 1 metre in width, the terraces to be cut progressively as the embankment is placed. Wherever possible terraces shall coincide with natural discontinuities. Subsoil drainage may be required in some instances. Material thus excavated shall be compacted as part of the new embankment material.

Horizontal Terraces

C213.26 PLACING FILL FOR EMBANKMENT CONSTRUCTION

1. All work shall be under Level 1 Geotechnical Control in accordance with AS 3798.
2. In the absence of a specific geotechnical engineer's specification, embankments shall be constructed in accordance with the following paragraphs:
 - a. The fill shall be approved by the Principal Certifying Authority.
 - b. The methods of excavation, transport, depositing and spreading of the fill material shall be selected so as to ensure that the placed material is uniformly mixed.
 - c. The embankment shall be constructed so as to derive its stability from the adequate compaction of the fine material embedding the large rock pieces rather than mechanical interlock of the rock pieces. The fine material shall be compacted to meet the requirements of Clause C213.36.
 - d. Fill material for embankment construction shall be free of tree stumps, roots and other organic matter and shall be placed in layers parallel to the grade line and compacted in accordance with Clause C213.36. The layers shall be of uniform compacted thickness not exceeding 200 mm.
 - e. The maximum dimension, measured in any direction, of rock pieces in the fill material for embankment construction shall not exceed 150 mm. Any larger rock pieces shall be reduced in size for incorporation in the embankment layers.
 - f. Rock material shall be broken down and evenly distributed through the fill material, and sufficient fine material shall be placed around the larger material as it is deposited to fill the voids and produce a dense, compact embankment. Where the Geotechnical Engineer considers insufficient fine material is present to fill the voids, additional fine material shall be obtained from other places in the work or by a change in the method of winning fill material.
 - g. Areas with insufficient fine material to fill the voids shall be reworked with

Uniformity of Material

Embankment Stability

Layer Thickness

Maximum Size Rock Pieces

Grading of Fill Material

Reworking

additional fine material being blended in to achieve a dense, compact layer.

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| h. | In placing embankment layers, the Contractor shall use equipment and techniques to avoid surface heaving or other damage to the foundations and underlying embankment layers. | <i>Equipment Selection for Placement</i> |
| i. | After compaction, embankment material in the zone(s) below the selected material zone (or subbase layer, where no selected material zone) shall have a CBR value not less than that quoted in Annexure C213A for the depth(s) specified in Annexure C213A. | <i>CBR Value</i> |
| j. | For the purpose of this Clause, the CBR value of the material shall be determined by Test Method AS 1289.F1.1. | <i>Test Methods</i> |

C213.27 EMBANKMENT BATTERS

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| 1. | When completed, the average planes of the batters of embankments shall conform to those shown on the Drawings or as approved by the Principal Certifying Authority. No point on the completed batter shall vary from the specified slope line by more than $\pm 300\text{mm}$ when measured at right angles to the grade line. However, in no case shall the edge of the formation at the underside of the pavement be nearer to the roadway than shown on the Drawings. | <i>Slope Tolerances</i> |
| 2. | Undulations in the general plane of the batter shall not be permitted. | <i>Slope Undulations</i> |

C213.28 ROCK FACING OF EMBANKMENTS

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| 1. | Where shown on the Drawings, embankment batters (including embankments at bridge abutments) shall be provided with a facing of clean, hard, durable rock. | <i>Extent</i> |
| 2. | The rock facing shall be built up in layers ahead of each layer of filling. Rock may be placed by hand or plant but shall be placed in such a manner that its least dimension is vertical and that mechanical interlock between the larger stones occurs. Any rock deposited in the rock facing which has an excess of fine material surrounding it shall be removed together with the excess fine material and replaced. | <i>Mechanical Interlock</i> |
| 3. | The Contractor shall adjust his working methods and programme the work so as to obtain hard and durable rock of the specified dimensions as it is required. The space between larger batter rocks shall be filled with progressively smaller rocks to form a 'graded filter' which prevents the leaching out of fines from the fill material but which does not overflow the voids between larger rocks, or cause the larger rocks to lose contact with one another. Fine material shall not cover the outside of the rocks on the face of the batter. | <i>Graded Filter</i> |
| 4. | The Contractor shall exercise extreme caution whilst placing the rock facing. Where embankment material is placed above other roads in use the outer rock layer shall be placed in such a manner as to prevent spillage down the batter. The Contractor shall ensure that, under no circumstances, could any rock be dislodged and roll onto any adjacent roadway or track in use. | <i>Caution in Placement</i> |

C213.29 TRIMMING TOPS OF EMBANKMENTS

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| 1. | The tops of embankments at these levels shall be compacted to meet the requirements of Clause C213.36 and trimmed so that they do not vary more than | <i>Tolerances</i> |
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10 mm above nor 30 mm below the levels as calculated above.

C213.30 SELECTED MATERIAL ZONE (Includes Subgrade)

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| 1. | A selected material zone may be indicated on the Approved Drawings as a zone below the subbase layer and in accordance with the following quality requirements: | <i>Dimension and Quality</i> |
| | (a) it shall be free from stone larger than 100 mm maximum dimension | |
| | (b) the fraction passing 19.0mm AS sieve shall have a CBR value of not less than 3. | |
| 2. | The selected material zone shall be placed and compacted in layers with the compacted thickness of each layer not exceeding 150mm. Compaction shall be 100% standard compactive effort. | <i>Layer Thickness</i> |
| 3. | After placement, the selected material shall be homogeneous and free from patches containing segregated stone or excess fines. | <i>Homogeneous Layers</i> |
| 4. | The top of the selected material zone shall be compacted and trimmed parallel with the designed grade line at a level equal to the finished surface level minus the thickness of pavement layers adopted. The top of the selected material zone shall not vary by more than 10 mm above nor 30 mm below the design level. | <i>Tolerances</i> |

C213.31 FILL ADJACENT TO STRUCTURES

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| 1. | For the purpose of this Clause, structures shall include bridges, precast and cast-in-place box culverts and retaining walls. Fill adjacent to other culverts and drainage structures shall be provided in accordance with the particular Specifications for STORMWATER DRAINAGE as appropriate. | <i>Structure Types</i> |
| 2. | No filling shall be placed against structures, retaining walls, headwalls or wingwalls within 21 days after placing of the concrete, unless the walls are effectively supported by struts or the Contractor can demonstrate that 85 per cent of the design strength of the concrete has been achieved. | <i>Time of Placement</i> |

C213.32 TREATMENT AT WEEPHOLES

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| 1. | Drainage adjacent to weepholes shall be provided by either a layer of hard broken stone or river gravel consisting of clean, hard, durable particles graded from 50mm to 10mm such that: | <i>Grading</i> |
| | (a) The maximum particle dimension shall not exceed 50mm | |
| | (b) No more than 5 per cent by mass shall pass the 9.5mm A.S. sieve. | |
| 2. | The broken stone or river gravel shall be continuous in the line of the weepholes, extend at least 300mm horizontally into the fill and extend to a point 300mm below finished surface level. | <i>Extent</i> |
| 3. | Alternatively the Contractor may provide a synthetic membrane of equivalent drainage characteristics. It shall be stored and installed in accordance with Manufacturer's instructions. The use of a synthetic membrane shall be subject to approval by Council. | <i>Synthetic Membrane</i> |

C213.33 SELECTED BACKFILL

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| 1. | Selected backfill shall be placed adjacent to structures in accordance with | <i>Quality</i> |
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Table C213.2. The selected backfill shall consist of a granular material having a maximum dimension not exceeding 50mm and a Plasticity Index, determined by AS 1289.3.3.1, neither less than 2 nor more than 12.

Structure Type	Selected Backfill	
	Width	Height
Bridge abutments	2m	H
Cast-in-place Box Culverts	H/3	H + 300mm
Corrugated Steel Pipes and Arches	0.5m	H + 500mm
Retaining walls	H/3	H

(Where H = height of structure)

Table C213.2 - Selected Backfill, Width and Height

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| 2. | The selected backfill shall be placed in layers, with a maximum compacted thickness of 150mm. Layers shall be placed simultaneously on both sides of box culverts to avoid differential loading. Compaction shall start at the wall and proceed away from it. | <i>Placement in Layers</i> |
| 3. | The backfill material shall be compacted to 100% standard compactive effort within 150mm of the subgrade level and 95% standard compactive effort below this zone. | <i>Compaction</i> |
| 4. | The existing embankment slope behind the structure shall be cut in the form of successive horizontal terraces, each terrace being at least 1 metre in width, and the selected backfill shall be placed in accordance with Clause C213.26. | <i>Horizontal Terraces</i> |
| 5. | No selected backfilling shall be placed against structures, retaining walls, headwalls or wingwalls within 21 days after placing of the concrete, unless the walls are effectively supported by struts to the satisfaction of the Principal Certifying Authority, or when the Contractor can demonstrate that 85 per cent of the design strength of the concrete has been achieved. | <i>Time of Placement</i> |
| 6. | Where a bridge deck is being concreted adjacent to an abutment, no filling shall be placed against the abutment within twenty-one days after placing concrete in the bridge deck. | <i>Adjacent to Concrete Deck</i> |
| 7. | In the case of spill-through abutments, rocks shall not be dumped against the columns or retaining walls but shall be built up evenly by individual placement around or against such structures. | <i>Spill through Abutments</i> |
| 8. | In the case of framed structures, embankments at both ends of the structure shall be brought up simultaneously, the difference between the levels of the embankments at the respective abutments, shall not exceed 500mm. | <i>Framed Structures</i> |

COMPACTION AND QUALITY CONTROL

C213.36 COMPACTION AND MOISTURE REQUIREMENTS

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| 1. | All layers shall be uniformly compacted to not less than the relative compaction specified before the next layer is commenced. Each layer of material shall be trimmed prior to and during compaction to avoid bridging over low areas. An evenly trimmed surface shall be presented at the top of each layer. | <i>Trimming and Compaction</i> |
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2. The following areas shall be compacted to not less than 95% standard compaction in accordance with AS 1289.5.7.1: **95% (standard) Compaction Requirements**
- a. Each layer of material replacing unsuitable material as detailed in Clause C213.21.
 - b. Each layer of material placed in embankments, up to the subgrade level.
 - c. The whole area on the floors of cuttings.
 - d. Fill placed adjacent to structures up to 1.0 metre from the top of pavement.
 - e. Material in unsealed verges and within medians up to the level at which topsoil is placed.
3. The following areas shall be compacted to not less than 100% standard compaction in accordance with AS 1289.5.7.1: **100% (standard) Compaction Requirements**
- a. Foundations for shallow embankments.
 - b. Foundations other than shallow embankments.
 - c. Each layer of the embankment within 150 mm from the subgrade level.
 - d. Each layer of the selected material zone as specified in Clause C213.30.
 - e. The fill material placed adjacent to structures as specified in Clauses C213.31 and C213.33 in each layer within 1.0 metre from the top of the pavement.
4. Prior to the commencement of placing embankment material, the Contractor shall engage a qualified Geotechnical Engineer to determine the optimum moisture content (OMC) for the materials to be used.
5. At the time of compaction the moisture content of the material shall be adjusted so as to permit the specified compaction to be attained at a moisture content which is within the range of the optimum moisture content (OMC) as determined by AS 1289.5.1.1 or AS 1289.5.7.1. Material which becomes wetted up after placement shall not be compacted until it has dried out so that the moisture content is within this range. If there is insufficient moisture in the material for it to be compacted as specified, water shall be added. The added water shall be applied uniformly and thoroughly mixed with the material until a homogeneous mixture is obtained. **Moisture Content**
6. Compaction shall be undertaken to obtain the specified relative compaction for the full depth of each layer in embankments and for the full width of the formation over the entire length of the work. Compaction shall be completed promptly to minimise the possibility of rain damage. **Prompt Compaction**
7. Any material placed by the Contractor that has attained the specified relative compaction but subsequently becomes wetted up so that the moisture content is greater than the apparent optimum, determined by AS 1289.5.7.1, shall be dried out and uniformly recompacted to the required relative compaction in accordance with this Clause before the next layer of material is placed. Alternatively, the Contractor may remove the layer of wetted material to a stockpile site for drying and later re-use. **Moisture Content above Optimum**
8. Prior to placing pavement material, the Proof Roll test shall be passed. **Proof Rolling**
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C213.37 TEST LOCATIONS

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| 1. | The specified compaction and moisture tests shall be performed in accordance with Annexure CQC - B1. | Testing |
| 2. | If testing confirms that the material does not conform to the Specification, the Contractor shall carry out remedial work as necessary to achieve conformance to the requirements of Clause C213.36. | Non Compliance with Specification |

C213.39 WIDENING OF FORMATION

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| 1. | Road shoulders and formation shall be widened to accommodate footpaths, guardfence, streetlight plinths, emergency telephone bays and vehicle standing areas as shown on the Approved Drawings. | Provision for Services |
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C213.40 STANDARD OF FILL FOR LOTS

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| 1. | <p>Lot filling material shall conform to the following:</p> <ul style="list-style-type: none"> a. is to be clean material free from large rock, organic matter, builders refuse and other debris , and b. Maximum particle size shall be 100 mm. | |
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Placing of filling shall not commence until the proposed fill material and the prepared area has been inspected and approved by a qualified geotechnical engineer.

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| 2. | All work shall be under Level 1 Geotechnical Control in accordance with AS 3798. Fill is to be placed in layers not exceeding 150mm compacted thickness. All fill is to be compacted to 95% standard maximum dry density. Maximum particle size shall be 2/3 of the layer thickness. | Fill Quality |
| 3. | All areas where filling has been placed are to be top dressed with a layer of clean arable topsoil, fertilised and sown with suitable grasses. The topsoil layer shall be between 75 mm (min) and 300 mm (max). | Top Dressing |

[4. Allotment earthworks to be completed in accordance with and comply with AS 3798-2007](#)

[5. All road verges, between the back of kerb and property boundary, are to have 150mm of topsoil, spray grassed and turf strip located at the back of kerb](#)

LIMITS AND TOLERANCES

C213.45 SUMMARY OF TOLERANCES

1. The tolerances applicable to the various clauses in this Specification are summarized in the Table below:

Item	Activity	Limits/Tolerances	Spec Clause
1.	Batter Slopes		
	a) Excavation	± 150mm	C213.12
	b) Embankment	± 150mm	C213.27
2.	Floors		
	a) Floor of Cutting	Parallel to the designed grade line and ± 50mm of the designed floor level	C213.14
3.	Tops of Embankments		
	Trimming tops of Embankments	Parallel to the designed grade line, +10mm or -30mm of the levels specified	C213.29
4.	Selected Material (includes subgrade)		
		Parallel to the designed grade line, +10mm or -30mm of the levels specified	C213.30

NOTE: Plus (+) is towards the roadway/surface and minus (-) is away from the roadway/surface. Tolerances are measured at right angles to design surfaces.

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C220

STORMWATER DRAINAGE
GENERAL

**SPECIFICATION C220
STORMWATER DRAINAGE - GENERAL**

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C220 : STORMWATER DRAINAGE - GENERAL

GENERAL

C220.01 INTRODUCTION

1. This is the general Specification common and applicable to all types of drainage lines, open drains, kerb and gutter, and drainage structures and shall be read in conjunction with drainage Specifications: **Purpose**

C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C223	-	Drainage Structures
C224	-	Open Drains, including Kerb and Gutter
D05	-	Council's Drainage Design Code

C220.02 SCOPE

1. The work to be executed under this Specification consists of:
- preparation for stormwater drainage construction,
 - temporary drainage during construction,
 - siting of pipes, pipe arches and box culverts.
 - all activities and quality requirements associated with excavation and backfilling,
 - all concrete work associated with stormwater drainage.

C220.03 EXTENT OF WORK

1. Details of the work are shown on the Drawings.

~~C220.04 REFERENCE DOCUMENTS~~

- ~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Other Council Specifications~~

C211	-	Control of Erosion and Sedimentation
C213	-	Earthworks
C271	-	Minor Concrete Works

~~(b) Australian Standards~~

AS 1289.5.4.1	-	Compaction control test – Dry density ratio, moisture variation and moisture ratio
AS 1289.5.7.1	-	Compaction control test (Rapid Method)

~~AS 3725 Loads on Buried Concrete Pipes~~

~~(c) Other Publications~~

~~Concrete Pipe Selection and Installation, Concrete Pipe Association of Australia~~

CONSTRUCTION

C220.05 TEMPORARY DRAINAGE DURING CONSTRUCTION

- | | | |
|----|--|------------------------------------|
| 1. | All drainage works carried out by the Contractor shall comply with the SOIL & WATER MANAGEMENT PLAN. | Control |
| 2. | The Contractor shall make adequate provision for runoff at drainage works under construction to avoid damage or nuisance due to scour, sedimentation, soil erosion, flooding, diversion of flow, damming, undermining, seepage, slumping or other adverse effects to the Works or surrounding areas and structures as a result of the Contractor's activities. | Contractor's Responsibility |
| 3. | The Contractor shall not implement any proposals to dam up or divert existing watercourses (either temporarily or permanently) without the prior approval of the Principal Certifying Authority. | Limitations |
| 4. | The Contractor's material and equipment shall be located clear of watercourses or secured so that they will not cause danger or damage in the event of large runoff. | Location of Equipment |

C220.07 EXCAVATION

- | | | |
|----|--|---|
| 1. | Before undertaking stormwater drainage excavation, topsoil shall be removed in accordance with the Specification for EARTHWORKS. | Topsoil |
| 2. | The Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements. | Safety |
| 3. | Where public utilities exist in the vicinity of stormwater drainage works the Contractor shall obtain the approval of the relevant authority to the method of excavation before commencing excavation. | Approval by Public Utility Authorities |
| 4. | Trench or foundation excavation for stormwater drainage works shall be undertaken to the planned level for the bottom of the specified bedding or foundation level. All loose material shall be removed by the Contractor. | Excavation Level |
| 5. | Any material at the bottom of the trench or at foundation level which the Geotechnical Engineer and/or Principal Certifying Authority deems to be unsuitable shall be removed and replaced with backfill material. The bottom of the excavated trench or foundation, after any unsuitable material has been removed and replaced, shall be parallel with the specified level and slope of the culvert. | Unsuitable Material |

C220.08 BACKFILLING & INSPECTION

- | | |
|----|---|
| 1. | Backfilling shall be carried out in accordance with the requirements of the |
|----|---|

relevant culverts or drainage structures Specifications and to the compaction requirements specified below.

2. The Contractor shall arrange for the Principal Certifying Authority to inspect the pipe laying operation at the following stages:
 - a. upon placing & compaction of the bedding material,
 - b. upon laying the pipe and backfilling to haunch zone.

C220.09 COMPACTION

1. Foundations, bedding and backfilling shall be compacted to the following requirements when tested in accordance with AS 1289.5.4.1 for standard compactive effort. **Standard**

	Relative Compaction
Foundations or trench base to a depth of 150mm below foundation levels	95%
Material replacing unsuitable material	95%
Bedding material	95%
Selected backfill and ordinary backfill material	
a. below 1.0m of finished surface	95%
b. within 1.0m of finished surface	100%
Backfill material within the selected material zone	100%

2. All material shall be compacted in layers not exceeding 150mm compacted thickness. Each layer shall be compacted to the relative compaction specified before the next layer is commenced. **Layers**
3. At the time of compaction, the moisture content of the material shall be adjusted so as to permit the specified compaction to be attained at a moisture content which, unless otherwise approved by the Geotechnical Engineer, is neither less than 60 per cent nor more than 95 per cent of the apparent optimum moisture content, as determined by AS 1289.5.7.1 (standard compaction). **Moisture Content**
4. When compacting adjacent to culverts or drainage structures, the Contractor shall adopt compaction methods which will not cause damage or misalignment to any culvert or drainage structure. **Precautions**

C220.10 CONCRETE WORK

1. For all concrete work, the Contractor shall comply with the Specification for MINOR CONCRETE WORKS in relation to the supply and placement of normal class concrete and steel reinforcement, formwork, tolerances, construction joints, curing and protection. **Specification**

C220.11 SPRAYED CONCRETE

1. If sprayed concrete has been specified, shown on the Drawings or directed by the Superintendent, it shall comply with requirements in the Specification for MINOR CONCRETE WORKS. **Standard**

LIMITS AND TOLERANCES

C220.14 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C220.1 below:

Item	Activity	Limits/Tolerances	Spec Clause
1.	Relative Compaction (Standard / Density Index)		
	(a) Foundations or trench base to a depth of 150mm below foundation levels	95% Standard	C220.09
	(b) Material replacing unsuitable material	95% Standard	C220.09
	(c) Bedding zone material	Density Index >70	C220.09
	(d) Haunch and Side zone Material	Density Index > 70	C220.09
	(e) Overlay Zone in roadways elsewhere		C220.09
2.	Backfill		
	(a) Layers	≤ 150mm	C220.09
	(b) Moisture Content	>60%, <95%	C220.09

Table C220.1 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C221

PIPE DRAINAGE

SPECIFICATION C221 - PIPE DRAINAGE

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C221 : PIPE DRAINAGE

GENERAL

C221.01 SCOPE

- | | | |
|----|--|----------------------------------|
| 1. | This Specification covers the supply and installation of pipes and pipe arches for stormwater drainage. | |
| 2. | This Specification shall be read in conjunction with the specification for STORMWATER DRAINAGE - GENERAL. | <i>Associated Specifications</i> |
| 3. | The work to be executed under this Specification consists of supply of pipes and pipe arches, bedding, installation and backfilling. | <i>Extent of Work</i> |

~~C221.02 REFERENCE DOCUMENTS~~

- | | | |
|---------------|--|---|
| 1. | Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. | <i>Documents
Standards
Test Methods</i> |
|---------------|--|---|

~~(a) Council Specifications~~

C213	Earthworks
C220	Stormwater Drainage - General
C230	Subsurface Drainage - General
C271	Minor Concrete Works

~~(b) Australian Standards~~

AS 1141.11	-	Particle size distribution by dry sieving.
AS 1254	-	Unplasticised PVC (UPVC) pipes and fittings for storm or surface water applications.
AS 1289.3.3.1	-	Calculation of the plasticity index of a soil.
AS 1289.D3.1	-	Determination of the pH value of a soil - Standard method.
AS 1289.D4.1	-	Determination of the electrical resistivity of sands and granular materials.
AS 1289.E6.1	-	Compaction control test - Density index method for a cohesionless material.
AS 1397	-	Steel sheet and strip - Hot dipped zinc coated or aluminium/zinc coated.
AS 1650	-	Hot dipped galvanised coatings on ferrous articles.
AS 2032	-	Code of practice for installation of UPVC pipe systems.
AS 2105	-	Inorganic zinc silicate paint.
AS 3725	-	Loads on buried concrete pipes.
AS 4058	-	Precast concrete pipes
AS 4139	-	Fibre reinforced concrete pipes and fittings.

COMMON REQUIREMENTS

C221.03 GENERAL

- | | | |
|----|--|---------------------|
| 1. | All pipes and pipe arches shall comply with the appropriate Australian Standards. | <i>Load Testing</i> |
| 2. | The Contractor shall take all necessary steps to drain the excavation to allow the | <i>Excavation</i> |

- | | |
|---|---|
| <p>foundation, the bedding and any backfilling to be compacted to the specified relative compaction.</p> | <p>Drainage</p> |
| <p>3. Pipes shall be installed within 20 mm of the grade line and within 50 mm of the horizontal alignment specified on the Drawings. The Contractor shall re-lay any pipe which is not within these tolerances.</p> | <p>Tolerances</p> |
| <p>4. At the discharge end of pipes terminating at pits and headwalls a 3m length of 100mm diameter subsurface drain shall be laid in the trench 100mm above the invert level of the pipe and discharging through the wall of the pit. The subsurface drainage pipe shall be sealed at the upstream end and shall be enclosed in a seamless tubular filter fabric in accordance with the Specification for SUBSURFACE DRAINAGE.</p> | <p>Subsurface Drain</p> |
| <p>5. Where the Contractor proposes to travel construction plant or vehicles over pipes, the Contractor shall design and provide adequate protective measures for the pipes.</p> | <p>Construction Plant Movement</p> |

REINFORCED CONCRETE AND FIBRE REINFORCED CONCRETE PIPES

C221.04 PIPES

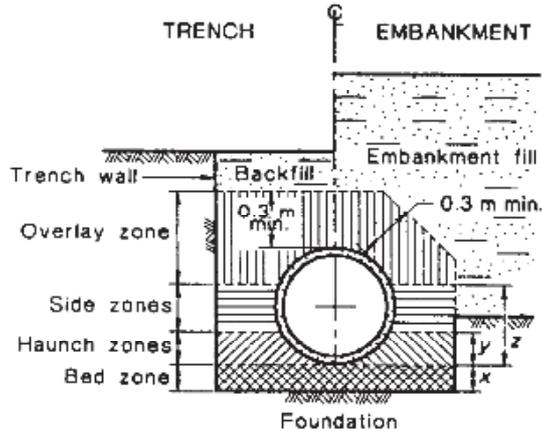
- | | |
|---|---|
| <p>1. Reinforced concrete pipes shall comply with AS 4058 and shall be of the class and size as shown on the Drawings.</p> | <p>Reinforced Concrete Pipes</p> |
| <p>2. Fibre reinforced concrete pipes shall comply with AS 4139 and shall be of the class and size as shown on the Drawings</p> | <p>Fibre Reinforced Pipes</p> |
| <p>3. Pipe joints shall be rubber ring joints as recommended by the manufacturer.</p> | <p>Joints</p> |

C221.05 CONDITIONS OF INSTALLATION

- | | |
|--|---|
| <p>1. Unless otherwise indicated on the Drawings or approved by the Principal Certifying Authority, the formation shall be completed to subgrade level and the pipes then installed in the normal trench condition.</p> | <p>Formation to Subgrade Level</p> |
| <p>2. Installation shall be in accordance with this Specification and AS3725 and AS3725 Supplement 1. Type HS3 support shall be used in road reserves. Type HS2 support shall be used elsewhere unless a higher standard is noted on the Drawings.</p> | |
| <p>3. For normal trench conditions, the pipe shall be laid in an excavated trench with bedding as specified below. The trench shall not be excavated wider than 1.4 times the external diameter of the pipe plus 300mm.</p> | <p>Normal Trench Conditions</p> |
| <p>4. For a single pipe, embankment conditions apply when $W > D_e + 1$ metre. Where W = Width of trench (m) and D_e is the pipe external diameter (m).</p> | <p>Wide Trench Conditions</p> |
| <p>5. For multi-cell pipes, embankment conditions apply when $W > n D_e + nS + 1$ metre where n is the number of pipe cells, D_e is the pipe external diameter (m) and S is the square spacing between the pipelines (m).</p> | |

C221.06 BEDDING

- 1. Unless otherwise shown on the Drawings, the bedding requirements shall be as set out in this clause. **Requirements**
- 2. Figure C221.1 indicates the proportionate dimensions of bedding and backfilling for pipes laid in trench conditions and embankment conditions. **Bedding Dimensions**



where, Z = 0.7D
 Y = 0.3D
 X = 100mm for D < 1500mm
 X = 150mm for D > 1500mm
 D = Internal Diameter of Pipe

**Figure C221.1
 Pipe Installation Conditions**

- 3. Bedding material for the bed and haunch zones shall consist of a granular material having a grading, determined by AS 1141.11, complying with Table C221.2, and a Plasticity Index, determined by AS 1289.3.3.1 of less than 6. **Material Requirements**

Sieve size mm	Mass passing %
19.0	100
2.36	100 - 50
0.60	90 - 20
0.30	60 - 10
0.15	25 - 0
0.075	0

**Table C221.2
 Bedding Material Grading Limits**

- | | | |
|----|---|--------------------------------|
| 4. | The Contractor shall advise the Principal Certifying Authority of the source of bedding material. | Source |
| 5. | Bedding material in the bed and haunch zones shall be placed and compacted in layers to a minimum density index of 70 per cent as determined by AS 1289.E6.1. | Compaction Requirements |
| 6. | Reserved | |

C221.07 INSTALLATION

(a) General

- | | | |
|----|--|-------------------------------|
| 1. | Pipes shall be laid with the socket end placed upstream. Pipes which have marks indicating the crown or invert of the pipes shall be laid strictly in accordance with the markings. Unless specified, no individual length of pipe shall be shorter than 1.2m. | Positioning of Pipes |
| 2. | In the case of pipes 1.2 m or more in diameter, laid in situations where embankments are to be more than 3m high, measured above the invert of the pipe, pipes shall be stiffened temporarily by the Contractor by interior timber struts, erected before filling is placed. Struts shall be of hardwood measuring at least 100mm by 100mm or 125mm diameter. One strut shall be placed in a vertical position at each pipe joint, thence at a spacing not greater than 1.2 m. Struts shall bear against a sill laid along the invert of the pipe and a cap bearing against the crown of the pipe. Both the sill and the cap shall be continuous throughout the length of the pipe and they shall be of sawn hardwood, of cross section not less than 100mm by 100mm. Struts shall be made to bear tightly by the use of wedges between the top of the struts and the cap. Struts, sills and caps shall be removed on completion of the embankment, unless removal is ordered earlier. | Stiffening of Culverts |
| 3. | Lifting holes in pipes shall be sealed before the commencement of backfilling with an appropriate plug specifically designed for the purpose. Where a lifting hole has been made in a length of pipe by the contractor, it shall be sealed with a 3:1 sand: cement mortar. | Seal Lifting Holes |

(b) Joints in Steel Reinforced Concrete Pipes

- | | | |
|----|--|-------------------------------|
| 1. | Before making the joint, the spigot and socket and the rubber ring shall be clean and dry except for any lubricants recommended by the manufacturer. | Clean and Dry Material |
| 2. | The rubber ring shall be stretched on to the spigot end of the pipe, square with the axis and as near as possible to the end, care being taken that it is not twisted. The spigot end of the pipe shall then be pushed up to contact the socket of the pipe with which it is to join, and be concentric with it. The spigot end shall then be entered into the socket of the already laid pipe and eased home. | Procedure |
| 3. | The joint shall be tested to ensure that the rubber ring has rolled evenly into place. | Joint Test |

(c) Joints in Fibre-Reinforced Concrete Pipes

- | | | |
|----|---|--|
| 1. | Joints shall be of a flexible type. Rubber rings shall be used to seal joints in both rebated and spigot and socket jointed pipes in the manner specified in Clause C221.07(b). Alternatively, a jointing compound comprising plasticised butyl | |
|----|---|--|

rubber and inert fillers may be used to seal such pipes in accordance with the manufacturer's instructions.

Procedure

C221.08 BACKFILL

1. Roads, Carriageways and Accessways. Backfill to the side, overlay and backfill zones shall consist of material defined in Table C221.2. Backfill to the side, overlay and backfill zones shall be compacted to density index of not less than 70.
2. Council or Public Drainage Easements and Interallotment Drainage Easements. Backfill to the side and overlay shall consist of material defined in Table C221.2 and shall be compacted to a density index of not less than 70. The backfill zone shall comprise material that is clean, free from large rock, organic matter, builders refuse and other debris and has a maximum particle size of 50 mm. The backfill zone shall be compacted to a relative compaction of 95% Standard Compaction.
3. Backfilling on both sides of the pipe and both sides of the wingwalls shall be carried out simultaneously. Backfilling and compaction shall commence at the pipe or wall so as to confine remaining uncompacted material at commencement.

Procedure

Sequence

uPVC PIPES

C221.19 PIPE MATERIALS

1. Unplasticised PVC (uPVC) Pipes and Fittings shall be manufactured in accordance with AS 1254. **Specification**

C221.20 INSTALLATION

1. The materials utilised, the excavation requirements, bedding, backfill and jointing requirements for uPVC pipes are those set out in Section 7 of AS 2032. Installation of all uPVC pipes shall comply with the requirements of this Australian Standard.

LIMITS AND TOLERANCES

C221.26 SUMMARY OF LIMITS AND TOLERANCES

Item	Activity	Tolerances	Spec Clause
1.	Pipe Position		
	(a) Grade Line	± 10mm	C221.03
	(b) Horizontal Alignment	± 50mm	C221.03
2.	Bedding		
	(a) Compacted Layers	< 150mm	C221.06
3.	Installation		
	(a) Normal Trench	<1.4 x External Diameter + 300mm	C221.05
	(i) Trench Width		
	(b) Pipe Length	Not less than 1200mm	C221.07a
	(c) Strut Stiffening		
	(i) Timber Size	> 100mm x 100mm	C221.07a
	(ii) Spacing	< 1200mm	C221.07a

Table C221.2 - Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C222

PRECAST BOX CULVERTS

SPECIFICATION C222 - PRECAST BOX CULVERTS

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C222.02 REFERENCE DOCUMENTS.....	<u>134128</u>
MATERIALS	<u>134128</u>
C222.03 CULVERT UNITS, LINK AND BASE SLABS.....	<u>134128</u>
C222.04 CONCRETE	<u>135129</u>
C222.05 SELECTED BACKFILL	<u>135129</u>
C222.06 ORDINARY BACKFILL	<u>135129</u>
CONSTRUCTION	<u>135129</u>
C222.07 COFFER DAMS	<u>135129</u>
C222.08 EXCAVATION	<u>136130</u>
C222.09 FOUNDATIONS	<u>136130</u>
C222.10 BEDDING	<u>136130</u>
C222.11 CAST-IN-SITU BASE SLABS	<u>137131</u>
C222.12 INSTALLATION OF PRECAST UNITS.....	<u>137131</u>
C222.13 BACKFILL	<u>138132</u>
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C222.16 SUMMARY OF TOLERANCES	<u>139133</u>

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C222 : PRECAST BOX CULVERTS

GENERAL

C222.01 SCOPE

1. This Specification covers the installation of precast concrete box culverts and should be read in conjunction with the Specification for STORMWATER DRAINAGE - GENERAL.
2. The work to be executed under this Specification consists of:
 - (a) preparation of foundations;
 - (b) provision of bedding;
 - (c) construction of base slabs;
 - (d) installation of precast culvert units;
 - (e) headwalls and wingwalls;
 - (f) backfilling against structures;
 - (g) provision and removal of coffer dams;
 - (h) excavation of inlet and outlet channels.

Extent of Work

~~C222.02 REFERENCE DOCUMENTS~~

- ~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

- ~~C213 Earthworks~~
- ~~C220 Stormwater Drainage - General~~
- ~~C224 Open Drains, including Kerb and Gutter~~
- ~~C242 Flexible Pavements~~
- ~~C271 Minor Concrete Works~~

~~(b) Australian Standards~~

- ~~AS1597.1 Precast reinforced concrete box culverts - Small culverts~~
- ~~AS1597.2 Precast reinforced concrete box culverts - Large culverts~~
- ~~AS/NZS ISO 9002 Quality Systems - Model for Quality Assurance in Production, Installation and Servicing.~~

~~(c) Other~~

- ~~AUSTROADS Guide to Geotextiles~~

MATERIALS

C222.03 CULVERT UNITS, LINK AND BASE SLABS

1. The supply and testing of precast reinforced concrete box culvert units, link and **Supply**

base slabs shall be in accordance with AS 1597.1 for small culverts not exceeding 1200mm width and 900mm depth and AS 1597.2 for large culverts from 1500mm span and up to and including 4200mm span and 4200mm height with the following alterations or additional requirements:

- (a) Proof load testing shall be arranged by the Contractor in batches as specified in either AS 1597.1 or AS1597.2 as appropriate.
 - (b) Lifting holes, galvanised lifting points or steel lifting eyes shall be provided in the culvert units, link and base slabs.
 - (c) The end units shall have factory installed starter bars for headwall and wingwall construction.
2. The Supplier shall implement and maintain a Quality System in accordance with ISO 9002 to ensure materials, manufacture and proof load testing conform to the appropriate Standards.
3. A conformance certificate, to AS 1597.1 or AS 1597.2, for the box culvert units shall be submitted to the Principal Certifying Authority at least 3 working days prior to despatch.
4. Each unit shall be marked at time of manufacture with:
- (a) Type and size
 - (b) Casting date
 - (c) Manufacturer's name
 - (d) Inspection pass and date.

C222.04 CONCRETE

1. The concrete and reinforcement for cast-in-situ base slabs shall comply with the Specification for MINOR CONCRETE WORKS. **Quality**

C222.05 SELECTED BACKFILL

1. The quality of selected backfill shall comply with the requirements in AS 1597.2. **Quality**

C222.06 ORDINARY BACKFILL

1. Ordinary backfill is material obtained from culvert excavations, cuttings and/or borrow areas which is in accordance with the requirements for the upper 1.0m of embankment construction as detailed in the Specification for EARTHWORKS. **Quality**

CONSTRUCTION

C222.07 COFFER DAMS

1. The Contractor shall obtain approval from Council and the Department of Infrastructure, Planning and Natural Resources for the construction of coffer dams.
2. Coffers shall be sufficiently watertight to prevent damage of the concrete by percolation or seepage through the sides, and shall be taken sufficiently below the level of the foundations to prevent loosening of the foundation materials by water rising through the bottom of the excavation. Coffers shall be **Construction**

adequately braced and shall be so constructed that removal will not weaken or damage the structure.

- | | | |
|----|---|--|
| 3. | A coffer dam may be constructed to the actual size of the reinforced concrete invert slab and used as side forms for the concrete. The details of the coffer dam and formwork, and the clearances proposed shall be subject to the approval of the Principal Certifying Authority, but the Contractor shall be responsible for the successful construction of the work. | Contractor's
Responsibility |
| 4. | Coffer dams which have tilted or have moved laterally during sinking, shall be righted or enlarged to provide the clearances specified. This work will be at the Contractor's expense. | Specified
Clearances |
| 5. | No timber or bracing shall be left in the concrete or in the backfill of the finished structure. Coffer dams, including temporary piles, shall be removed at least to the level of the invert after completion of the structure. | Removal |

C222.08 EXCAVATION

- | | | |
|----|---|----------------------|
| 1. | Excavation shall be carried out in accordance with the provisions in the Specification for STORMWATER DRAINAGE - GENERAL. | Specification |
| 2. | The trench width shall be the width of the base slab plus 150mm minimum each side. | Trench Width |

C222.09 FOUNDATIONS

- | | | |
|----|--|----------------------------------|
| 1. | Rock foundations shall be neatly excavated to the underside of the mass concrete or selected fill bedding shown on the Drawings. All minor fissures shall be thoroughly cleaned out and refilled with concrete, mortar or grout. All loose material shall be removed. | Rock
Foundations |
| 2. | Where rock is encountered over part of the foundation only, or lies within 300mm below the underside of the mass concrete or selected fill, all material shall be removed to a depth of 300mm below the mass concrete or selected fill for the full width of the foundation over the length where the rock is encountered. This additional excavation shall be backfilled with ordinary backfill material. | Additional
Excavation |
| 3. | Over-excavation or uneven surfaces shall be corrected with mass concrete so as to provide a uniform surface at least 50mm above the highest points of rock. | Uniform
Surface |
| 4. | Earth foundations shall be finished to line and level to the underside of bedding shown on the Drawings. Care shall be taken to avoid disturbing material below this level. | Line and Level |
| 5. | All soft, yielding or unsuitable material shall be removed and replaced with ordinary backfill material as directed by the Principal Certifying Authority and backfilled in accordance with the Specification for STORMWATER DRAINAGE - GENERAL. | Unsuitable
Material |

C222.10 BEDDING

(a) Cast-In-Situ Base Slabs

- | | | |
|----|---|-------------------|
| 1. | No bedding material shall be placed until the foundations have been inspected and approved by the Principal Certifying Authority. | Inspection |
| 2. | Bedding shall be either mass concrete or lightly bound DGB20 in accordance with the Specification for FLEXIBLE PAVEMENTS, whichever is shown on the Drawings. | Type |

3. Mass concrete bedding shall not be less than 50mm thick over any point in the foundation. It shall be laid to the line and level of the underside of the base slab to a tolerance of ± 10 mm in level and ± 5 mm in line. The bedding shall be finished to a smooth surface. *Mass Concrete*

(b) Precast Base Slabs

1. Precast base slabs, U-shaped culvert units and one piece culvert units shall be supported on a bed zone of selected backfill of minimum compacted depth 150mm in accordance with AS 1597.2. *Selected Fill*

C222.11 CAST-IN-SITU BASE SLABS

1. Cast-in-situ base slabs shall be constructed to the dimensions shown on the Drawings and in accordance with the requirements of the Specification for MINOR CONCRETE WORKS. The invert levels shall be within -10mm to +10mm of the design level, grade 5mm in 2.5m (1 in 500) and plan position ± 50 mm. *Construction*
2. Recesses to accommodate the walls of the precast crown units shall be formed in the base slab to the dimensions shown on the Drawings. *Recesses for Walls*
3. Concrete for cast in situ base slabs shall be grade N32. *Concrete N32*
4. Concrete for base slabs shall not be placed until the Principal Certifying Authority has inspected and approved the formwork and reinforcement. *Inspection*

C222.12 INSTALLATION OF PRECAST UNITS

1. Precast units shall not be installed until the base slab has attained a compressive strength of not less than 20 MPa. *Minimum Strength*
2. Precast crown units shall be placed on a bed of mortar in the recesses in the base slab. Any gaps between the side walls and the sides of the recesses shall be packed with cement mortar. Lifting holes and butt joints between units shall be packed or sealed with cement mortar or grout. *Mortar Bed in Recess*
3. Before placement of top slabs on U-shaped units or link slabs on adjacent crown units, the bearing areas of the supports shall be thoroughly cleaned and covered with a bed of mortar of minimum thickness 5mm after placement of precast unit. *Mortar Bed on Supports*
4. Steel lifting hooks shall be cut flush with the surface of the concrete, cleaned to bright metal and coated with two coats of coal tar epoxy. Alternatively, they shall be cut off 12mm below the surface of the unit and the recess sealed with epoxy mortar. *Lifting Hooks*
5. In the case of multi-cell culverts, a nominal 15mm gap shall be provided between adjacent cells. This gap shall be filled with cement mortar or grout. *Gap Between Cells*
6. All mortar joints shall be protected from the sun and cured in an approved manner for not less than 48 hours. *Curing of Joints*
7. All external surfaces of joints between precast crown units, both laterally and longitudinally, shall be covered full length, and minimum 250mm width, with strips of non-woven geotextile of minimum mass 270 g/m² in accordance with AUSTRROADS Guide to Geotextiles. *Joint Covering*

C222.13 BACKFILL

- | | | |
|----|---|-----------------------------------|
| 1. | All bracing and formwork shall be removed prior to backfilling. | <i>Removal of Formwork</i> |
| 2. | Selected backfill shall be placed in the side zones of the box culverts and wingwalls, and to a depth of 300mm in the overlay zone of the culverts, in layers with a maximum compacted thickness of 150mm in accordance with the backfilling and compaction requirements of AS 1597.2. The remainder of the excavation shall be backfilled with ordinary embankment fill in accordance with the Specification for EARTHWORKS. | <i>Selected Fill</i> |
| 3. | No backfill shall be placed against wingwalls until 21 days after casting. | <i>Wingwalls</i> |
| 4. | Backfill layers shall be placed simultaneously on both sides of the culvert with a maximum 600mm level difference to avoid differential loading. Backfilling and compaction shall commence at the wall and proceed away from it. | <i>Sequence</i> |
| 5. | Where the slopes bounding the excavation are steeper than 4:1, they shall be cut in the form of successive horizontal terraces of at least 1m width before the backfill is placed. | <i>Horizontal Terraces</i> |

C222.14 EXCAVATION OF INLET AND OUTLET CHANNELS

- | | | |
|----|--|----------------------|
| 1. | Excavation of inlet and outlet channels shall be carried out as shown on the Drawings and shall extend to join the existing stream bed in a regular manner as detailed in the Specification for OPEN DRAINS INCLUDING KERB AND GUTTER. | <i>Extent</i> |
|----|--|----------------------|

C222.15 CONSTRUCTION LOADING ON CULVERTS

- | | | |
|----|--|------------------------------------|
| 1. | Construction vehicles and plant shall not pass over the culvert until 28 days after the casting of the base slab or until the cylinder compressive strength of the base slab concrete has reached 32MPa. | <i>Traffic Over Culvert</i> |
| 2. | Construction vehicle loads on culverts for various design fill heights shall be in accordance with AS 1597.2. | <i>Loading Restrictions</i> |

LIMITS AND TOLERANCES

C222.16 SUMMARY OF TOLERANCES

1. The tolerances applicable to the various clauses in this Specification are summarised in the Table below:

Item	Activity	Tolerance	Spec Clauses
1.	Mass Concrete Correction		
	a) Over highest points of rock	50mm	C222.09
2.	Mass Concrete Bedding		
	a) Level	± 10mm	C222.10
	b) Line	± 5mm	C222.10
3.	Culvert Location		
	a) Invert Level	±10mm	C222.11
	b) Grade	5mm in 2.5m (1 in 500)	C222.11
	c) Plan Position	±50mm	C222.11

Table C222.1 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C223

DRAINAGE STRUCTURES

SPECIFICATION C223 - DRAINAGE STRUCTURES

CLAUSE	PAGE
GENERAL	<u>143137</u>
C223.01 SCOPE	<u>143137</u>
C223.02 REFERENCE DOCUMENTS	<u>143137</u>
CONSTRUCTION	<u>143137</u>
C223.03 GENERAL	<u>143137</u>
C223.04 ALIGNMENT	<u>143137</u>
C223.05 HEADWALLS AND WINGWALLS	<u>144138</u>
C223.06 PITS	<u>144138</u>
C223.07 PRECAST UNITS	<u>144138</u>
C223.08 JOINTING	<u>144138</u>
C223.09 MASS CONCRETE BEDDING	<u>144138</u>
C223.10 BACKFILL	<u>144138</u>

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C223 : DRAINAGE STRUCTURES

GENERAL

C223.01 SCOPE

1. This Specification covers the construction of drainage structures and shall be read in conjunction with the Specification for STORMWATER DRAINAGE - GENERAL and other drainage Specifications as applicable:

Associated Specifications

C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C224	-	Open Drains, including Kerb and Gutter

2. The work to be executed under this Specification consists of the construction of headwalls, wingwalls, pits, gully pits, inspection pits, junction boxes/pits, drop structures, inlet and outlet structures, energy dissipaters, batter drains and other supplementary structures as shown on the Drawings.

Extent of Work

~~C223.02 REFERENCE DOCUMENTS~~

- ~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

- | | | |
|-----------------|--------------|---|
| C213 | - | Earthworks |
| C220 | - | Stormwater Drainage - General |
| C221 | - | Pipe Drainage |
| C222 | - | Precast Box Culverts |
| C224 | - | Open Drains, including Kerb and Gutter |
| C271 | - | Minor Concrete Works |

~~(b) Australian Standards~~

- | | | |
|--------------------|--------------|--|
| AS 3996 | - | Metal access covers, road grates and frames |
|--------------------|--------------|--|

CONSTRUCTION

C223.03 GENERAL

1. Drainage structures shall be constructed in concrete and in accordance with the Specification for MINOR CONCRETE WORKS.

Concrete Work

2. All structures shall be constructed as soon as practicable.

Time for Completion

C223.04 ALIGNMENT

1. Unless otherwise shown on the Drawings, headwalls and pits shall be constructed parallel to the road centreline and wingwalls at 135° to the headwall.

2. Energy dissipaters shall be constructed in accordance with the Drawings and on the centreline of the axis of the culvert.

Energy Dissipaters

C223.05 HEADWALLS AND WINGWALLS

- | | | |
|----|--|--------------------------------|
| 1. | The wingwalls shall be constructed to retain the batters effectively. Where the dimensioned drawings do not satisfy this requirement the Principal Certifying Authority shall be notified before the headwalls and wingwalls are constructed. The Principal Certifying Authority shall direct the Contractor as to the action to be taken. | <i>Batter Retention</i> |
|----|--|--------------------------------|

C223.06 PITS

- | | | |
|----|--|----------------------------|
| 1. | All new pits, including gully grates and frames complying with AS 3996, shall be constructed to the details shown on the Drawings. Modification of existing pits is only to be carried out if such is shown on the Drawings. | <i>Modification</i> |
| 2. | Where pits and drop structures are deeper than 1.2m the Contractor shall install suitable non corroding step irons at a vertical spacing of 300mm in one wall of the pit, for the full depth of the pit. | <i>Step Irons</i> |

C223.07 PRECAST UNITS

- | | | |
|----|---|---|
| 1. | Where precast units are provided in the design they shall be handled and installed in accordance with the manufacturer's instructions. | <i>Manufacturer's Instructions</i> |
| 2. | If the Contractor proposes to use precast units, detailed drawings and complete details of installation procedures shall be submitted for the approval of the Principal Certifying Authority. | <i>Contractor's Responsibility</i> |
| 3. | Unless otherwise approved by the Principal Certifying Authority, precast units shall not be delivered to the site before satisfactory documentary evidence has been submitted to the Principal Certifying Authority that quality tests have been carried out. | <i>Delivery</i> |

C223.08 JOINTING

- | | | |
|----|--|--|
| 1. | Where drainage structures abut concrete paving, kerb and gutter or other concrete structures, a 10mm wide joint shall be provided between the structure and paving, or kerb and gutter or other concrete structures. The joint shall consist of pre-formed jointing material of bituminous fibreboard. | <i>Pre-formed Jointing Material</i> |
|----|--|--|

C223.09 MASS CONCRETE BEDDING

- | | | |
|----|--|--|
| 1. | Mass concrete bedding for reinforced concrete bases shall not be placed on earth or rock foundations until the foundations have been inspected and approved by the Principal Certifying Authority. Following such approval, the surface of the foundation shall be dampened and a layer of concrete not less than 50mm thick, shall be placed over the excavated surface and shall be finished to a smooth even surface. | <i>Mass Concrete Base Foundation Inspection</i> |
| 2. | Unreinforced concrete bases may be cast on earth or rock foundations without the mass concrete bedding. | <i>Unreinforced Concrete Base</i> |

C223.10 BACKFILL

- | | | |
|----|---|----------------------------|
| 1. | Backfilling shall not commence until the compressive strength of concrete has reached at least 15MPa unless otherwise approved by the Principal Certifying Authority. | <i>Commencement</i> |
| 2. | Selected backfill shall be placed against the full height of the vertical faces of | <i>Selected</i> |

- structures for a horizontal distance equal to one-third the height of the structure. **Backfill**
3. Selected backfill shall consist of a granular material in accordance with the requirements in the Specification for EARTHWORKS. **Composition**
4. Special care shall be exercised to prevent wedge action against vertical surfaces during the backfilling. Where the sides of the excavation are steeper than 4 horizontally to 1 vertically they shall be cut in the form of successive horizontal terraces at least 600mm in width, as the backfill is placed. **Horizontal Terraces**
5. Backfill on both sides of the structure shall be carried up to level alternately in layers so as to avoid wedge action or excessive horizontal forces. Backfilling and compaction shall commence at the wall. Compaction shall be in accordance with the Specification for STORMWATER DRAINAGE - GENERAL. **Procedure**

**DEVELOPMENT
CONSTRUCTION
SPECIFICATION**

C224

**OPEN DRAINS
INCLUDING KERB & GUTTER (CHANNEL)**

SPECIFICATION C224 - OPEN DRAINS, INCLUDING KERB AND GUTTER

CLAUSE	PAGE
GENERAL	<u>149143</u>
C224.01 SCOPE	<u>149143</u>
C224.02 DEFINITION	<u>149143</u>
C224.03 REFERENCE DOCUMENTS	<u>149143</u>
UNLINED OPEN DRAINS	<u>150144</u>
C224.04 GENERAL	<u>150144</u>
C224.05 TYPES	<u>150144</u>
C224.06 CONSTRUCTION	<u>150144</u>
LINED OPEN DRAINS	<u>151145</u>
C224.07 GENERAL	<u>151145</u>
C224.08 CONCRETE LINING	<u>151145</u>
C224.09 STONE PITCHING	<u>151145</u>
C224.10 BATTER DRAINS	<u>151145</u>
C224.12 KERB AND GUTTER (CHANNEL)	<u>152146</u>
ROCK FILLED WIRE MATTRESSES AND GABIONS	<u>152146</u>
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C224.15 ASSEMBLY AND ERECTION	<u>154148</u>
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C224.16 SUMMARY OF LIMITS AND TOLERANCES	<u>155149</u>

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Stormwater outlet requirement in Point 8</i>	224.12	M	MB	21/01/08

SPECIFICATION C224 : OPEN DRAINS, INCLUDING KERB AND GUTTER

GENERAL

C224.01 SCOPE

1. The work to be executed under this Specification consists of the construction, lining and protection of all types of open drains including the construction of rock filled wire mattresses and gabions.
2. This Specification should be read in conjunction with the Specification for STORMWATER DRAINAGE - GENERAL, and other drainage Specifications as applicable:

C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C223	-	Drainage Structures

C224.02 DEFINITION

1. Open drains are all drains other than pipe lines and box culverts and include catch drains, contour drains, diversion drains, table drains, batter drains, swales, channels, gutters and kerbs and gutters.

Definition

~~C224.03 REFERENCE DOCUMENTS~~

- ~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

C220	-	Stormwater Drainage - General
C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C271	-	Minor Concrete Works

~~(b) Australian Standards~~

AS 1141.22	-	Wet/dry strength variation
AS 1289.5.4.1	-	Compaction control test - Dry density ratio, moisture variation and moisture ratio
AS 1289.5.7.1	-	Compaction control test (rapid method)
AS 1650	-	Hot-dipped galvanised coatings on ferrous articles
AS 2876	-	Concrete kerbs and channels (gutters) - Manually or machine placed

~~(c) Other~~

AUSTROADS	-	Guide to Geotextiles
Soil & Water Management Plan		

UNLINED OPEN DRAINS

C224.04 GENERAL

1. Unless shown otherwise on the Drawings, drains shall be of parabolic or trapezoidal cross section and shall not be less than 300mm deep and have a minimum waterway area of 0.2 square metres. **Shape**
2. Open drains shall be graded to ensure free flow of water and, shall not have a grade of less than 0.5 %. **Grade**
3. Where trees exceeding 1m in girth at 500mm above the ground, trees marked for preservation or rock outcrops occur in the line of a drain, the drain may be neatly diverted if approved by the Principal Certifying Authority. **Trees and Rock Outcrops**
4. Open drains shall be extended as necessary to lead the water clear of the work to natural drainage depressions, culverts, or pits connected to underground drainage systems. The drains shall follow existing watercourses and depressions in the natural surface, unless other locations are shown on the Drawings **Open Drains**
5. All work shall be undertaken in accordance with the requirements of the Specification for CONTROL OF EROSION AND SEDIMENTATION. **Control of Erosion**

C224.05 TYPES

1. Catch drains shall be provided above the tops of cuttings or along the toes of embankments where shown on the Drawings before construction of the adjacent roadway. The edges of catchdrains shall be positioned not be less than 2m from the tops of cuttings or the toes of embankments nor more than is necessary to maintain the fall of the drains. **Catch Drains**
2. Minor diversion and contour drains shall be constructed where shown on the Drawings or directed by the Principal Certifying Authority. Minor diversion drains shall have the same capacity as the nearest pipe culvert on the line of the drain unless otherwise approved by the Principal Certifying Authority. **Diversion & Contour Drains**
3. Table drains, swales and depressed medians shall be constructed to the line and level shown or calculated from the Drawings. Their construction is deemed to be part of earthworks. **Table Drains**
4. Inlet, outlet and diversion channels shall be excavated as shown on the Drawings and, unless indicated otherwise, shall extend to join the existing stream bed in a regular manner, avoiding disturbance in stream flow. The channel shall be excavated to the full width of the structure but the existing stream bed shall be preserved as far as possible outside the limits of the excavation. **Channels**

C224.06 CONSTRUCTION

1. Where the drawings permit the material excavated from drains to be placed on the lower sides of the drains and formed as banks, the material shall be compacted in accordance with AS 1289.5.4.1 to not less than 95% standard compactive effort. **Excavated Material**
2. The Contractor shall ensure that none of the activities associated with the work disturbs any watercourse. Any excavation below the level of the natural channel shall be backfilled with suitable material compacted to a density equal to and compatible with that existing naturally. **Contractor's Responsibility**

- | | | |
|----|--|-------------------------------|
| 3. | Any excess material shall be legally and responsibly disposed of by the Contractor. | <i>Excess Material</i> |
| 4. | Unlined drains and areas adjacent to open drains shall be revegetated immediately after the drains are complete. | <i>Revegetation</i> |

LINED OPEN DRAINS

C224.07 GENERAL

- | | | |
|----|---|---|
| 1. | Lined open drains include concrete gutters/channels and kerb and gutter. | |
| 2. | Where shown on the Drawings, open drains shall be lined. Lining shall conform to the profile of the drain and shall be provided as soon as possible after forming the drain. | <i>Profile</i> |
| 3. | Before placing any lining material, the foundation material shall be shaped and compacted to form a firm base for the lining. Other than for kerb and gutter constructed on pavement courses, the relative compaction, as determined by AS 1289.5.7.1 or AS 1289.5.4.1 shall not be less than 95 per cent for standard compactive effort. | <i>Compaction of Foundations</i> |

C224.08 CONCRETE LINING

- | | | |
|----|--|------------------------|
| 1. | Concrete lining for open drains shall be cast-in-situ or sprayed concrete supplied and placed in accordance with the Specification for MINOR CONCRETE WORKS. In wet areas weepholes shall be provided in the concrete at intervals as determined by the Principal Certifying Authority. | <i>Method</i> |
| 2. | Contraction joints in concrete lining, consisting of narrow transverse and vertical grooves, 20mm deep, shall be formed neatly in the surface of the freshly placed concrete at intervals of 3m unless otherwise specified by the Principal Certifying Authority. Unless other approved by the Principal Certifying Authority, expansion joints shall be placed at intervals not more than 15m and shall consist of preformed jointing material of bituminous fibreboard and shall be of sufficient depth to fill the joint. | <i>Jointing</i> |

C224.09 STONE PITCHING

- | | | |
|----|---|--|
| 1. | Stone Pitching shall consist of sound durable rock not less than 100mm thick, properly bedded on approved loam or sand and mortared to present a uniform surface. The exposed surface of each stone or block shall be approximately flat and not less than 0.05 square metres in area. Spaces between adjacent stones or blocks shall not exceed 20mm in width. | <i>Rock Quality and Placing</i> |
|----|---|--|

C224.10 BATTER DRAINS

- | | | |
|----|--|----------------------------|
| 1. | Batter drains shall be constructed using either half round steel pipes or precast nestable concrete units as shown and detailed on the Drawings. | <i>Type</i> |
| 2. | The units shall be installed in carefully excavated and template controlled trench to produce an even rim line of +0 to -50 mm from the batter line at the underside of topsoil. | <i>Installation</i> |
| 3. | Any over excavation and undulations in the batter line shall be backfilled and both sides of the drain compacted over the full length to form a firm shoulder against the rim of the batter drain. | <i>Compaction</i> |

4. When topsoil is placed it shall be tapered over a width of 1m to zero thickness at the rim of the drain. Both sides of the drain shall then be turfed for minimum width of 600mm and pinned down as provided in the Specification for LANDSCAPING. **Topsoil and Turfing**

C224.12 KERB AND GUTTER (CHANNEL)

1. Kerb and/or gutters (channel) may be constructed in fixed forms, by extrusion or by slip forming, in accordance with AS 2876. **Method**
2. The foundation, concrete quality, curing and testing details shall be in accordance AS 2876. **Construction Details**
3. The top and face of the finished kerb and gutter shall be true to line and the top surface shall be of uniform width, free from humps, sags or other irregularities. **Finish**
4. The level at any point on the surface of the gutters shall be within ± 10 mm of design levels. When a straight edge 3m long is laid on top of or along the face of the kerb or on the surface of gutters, the surface shall not vary more than 5mm from the edge of the straight edge, except at kerb laybacks, grade changes or curves or at gully pits requiring gutter depression. **Tolerances**
5. Unless shown otherwise on the Drawings, contraction joints, shall be formed every 3m of gutter length for a minimum of 50 per cent of cross sectional area. The joint shall be tooled 20mm in depth to form a neat groove of 5mm minimum width. **Contraction Joints**
6. Unless shown otherwise on the Drawings, expansion joints, 10mm in width for the full depth of the kerb and gutter, shall be constructed at intervals not exceeding 15m and where the gutter abuts against gutter pits, retaining walls and overbridges. Expansion joints shall consist of a preformed jointing material. **Expansion Joints**
7. Where kerbs and/or gutters are cast adjacent with a concrete pavement the same type of contraction, construction and expansion joints specified in the concrete base shall be continued across the kerb and/or gutter. **Adjacent Concrete Pavement**
8. A minimum of one Council approved stormwater outlet shall be provided through the kerb for each allotment which drains to a road system. **Stormwater Outlets**
9. Where shown on the Drawings or where directed by the Principal Certifying Authority, vehicular and pedestrian access ramps shall be provided which comply with the requirements for access for persons with disabilities. **Vehicular or Pedestrian Access**

ROCK FILLED WIRE MATTRESSES AND GABIONS

C224.13 GENERAL

1. Installation shall be in accordance with the manufacturer's instructions. A geotextile approved by the Principal Certifying Authority shall be placed between the wire cage and the material being protected. **Location and Geotextile**

C224.14 MATERIALS

1. For wire mattresses and gabions, the galvanising requirements for wire of circular cross section cited in this Clause as 'heavily galvanised', shall comply with the coating mass requirements for wire in AS 1650, type A wire.

(a) Gabions

1. The gabions shall be of the sizes shown on the Drawings and fabricated of woven heavily galvanised wire mesh and PVC coated where specified on the Drawings. Each gabion shall be divided by diaphragms into cells whose length shall not be greater than the width of the gabions plus 100mm. Gabions shall have a nominal mesh size of 80mm x 100mm and body wire shall be a minimum diameter of 2.7mm heavily galvanised with an additional thickness of 0.5mm PVC coating where specified on the Drawings. The minimum core diameters of heavily galvanised selvedge wire and lacing wire shall be 3.4mm and 2.2mm respectively.

Dimensions

(b) Wire Mattresses

1. Unless specified otherwise, the wire mattresses shall be supplied in units having dimensions of 6m x 2m x 230mm, and shall be cut to suit areas as shown on the Drawings. The mattresses shall be divided by diaphragms into cells of length not exceeding 600mm. Unless otherwise specified, they shall be fabricated of woven heavily galvanised wire and PVC coated where specified on the Drawings..

Mattress Dimension

2. Mattresses shall have a mesh size of 60mm x 80mm and body wire shall be a minimum diameter of 2.0mm heavily galvanised with an additional minimum thickness of 0.5mm PVC coating where specified on the Drawings. The minimum core diameters of heavily galvanised selvedge wire and lacing wire shall be 2.7mm and 2.2mm respectively.

Wire Dimensions

(c) Geotextile

1. A chemically and biologically stable geotextile with a minimum strength rating (G) of 1350 and minimum mass of 180 grams per square metre, in accordance with AUSTROADS Guide to Geotextiles, shall be used.

Type

2. Samples, manufacturer's specification and instructions on installation shall be submitted to the Principal Certifying Authority seven days before the intended use of geotextile.

Sample

(d) Rock Fill Material

1. The rock fill shall consist of clean hard rock with a minimum wet strength of 100 kilo newtons and a maximum wet/dry strength variation of 45 per cent as determined by AS 1141.22.

Rock Quality

2. Rock fill for gabions shall have particle sizes between 100mm and 250mm and preferably not greater than 200mm. Rock fill material may be placed by hand or suitable mechanical device to ensure fill is tightly packed with a minimum of voids. Fill material shall be levelled off 25mm to 50mm above the top of the mesh to allow for settlement.

For Gabions

3. Rock fill for wire mattresses shall have particle sizes between 75mm and 150mm and preferably not greater than 125mm. When the mattress is on a slope, rock fill material shall be placed into the units starting from the low end. Units shall be filled slightly overfull to allow for settlement and to provide an even tight and smooth surface of the required contour.

For Wire Mattresses

C224.15 ASSEMBLY AND ERECTION

1. Before laying out the gabions or wire mattresses, a filter fabric approved by the Principal Certifying Authority shall be placed on the founding material. The edges of wire mattresses shall be firmly tied to galvanised star pickets driven a minimum of 900mm into the surrounding ground at 1m maximum intervals and the star pickets cut off level with the top of the mattress. The upstream edge of wire mattresses shall be folded down into a trench of minimum depth 300mm and filled with rock fill. This edge shall be tied to star pickets.

Procedure

LIMITS AND TOLERANCES

C224.16 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C230.7 below.

Item	Activity	Tolerances	Spec Clause
1.	Open Drains - General		
	(a) Grading	Grade $>+0.5\%$	C224.04
	(b) Depth	$>300\text{mm}$	C224.04
	(c) Waterway Area	$>0.2\text{ sq m}$	C224.04
	(d) Catch Drain Location	$>2\text{m}$ from top of cuttings or toes of embankments	C224.05
2.	Open Drains - Lining		
	(a) Compaction of Foundation	$>95\%$ (standard compaction)	C224.07
3.	Stone Pitching		
	(a) Rock Dimensions	$>100\text{mm}$ thickness	C224.09
	(b) Exposed Surface Area	$>0.05\text{ sq m}$	C224.09
	(c) Spaces between Stones	$<20\text{mm}$ width	C224.09
4.	Batter Drains		
	(a) Rim line	$+0, -50$ from batter line	C224.10
5.	Kerb and Gutter		
	(a) Level of gutter surface	Level $\leq\pm 10\text{mm}$ of design level	C224.12
	(b) Surface uniformity	Deviation of kerb and gutter surface from 3m straight edge $\leq 5\text{mm}$	C224.12
6.	Rock Fill for Gabions and Wire Mattresses		
	(a) Wet Strength	$>100\text{kN}$	C224.14d
	(b) Wet/Dry Strength variation	$<45\%$	C224.14d
	(c) Particle size for Gabions	$>100\text{mm} <250\text{mm}$	C224.14d
	(d) Fill Level	$>25\text{mm} <50\text{mm}$ above top of mesh	C224.14d
	(e) Particle size for Wire Mattresses	$>75\text{mm} <150\text{mm}$	C224.14d

Item	Activity	Tolerances	Spec Clause
7.	Erection of Wire Mattresses		
	(a) Star pickets for ties	Depth in ground >900mm Spacing <1m	C224.15
	(b) Trench Depth for upstream edge	Depth >300mm	C224.15

Table C224.1 - Summary of Limits and Tolerances

-

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C230

**SUBSURFACE DRAINAGE
GENERAL**

SPECIFICATION C230 - SUBSURFACE DRAINAGE-GENERAL

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C230 : SUBSURFACE DRAINAGE - GENERAL

GENERAL

C230.01 INTRODUCTION

1. This is the general specification common and applicable to all types of subsurface drainage and shall be read in conjunction with subsurface drainage specifications: **Purpose**

- C231 - Subsoil and Foundation Drains
- C232 - Pavement Drains
- C233 - Drainage Mats

as applicable to particular contracts.

C230.02 SCOPE

1. The work to be executed under this Specification consists of:
- (a) preparation for subsurface drainage construction;
 - (b) siting of subsurface drainage facilities;
 - (c) the supply of all materials associated with the provision of the subsurface drainage system;
 - (d) all activities and quality requirements associated with the supply, placement and compaction of filter material;
 - (e) the provision of a detailed record of all subsurface drain installations;
 - (f) the marking on the ground of the location of all subsurface drains.

C230.03 EXTENT OF WORK

1. Details of the work are shown on the Drawings or as directed by the Principal Certifying Authority and Geotechnical Engineer.

C230.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards
Test Methods**

(a) Council Specifications

- C213 Earthworks
C271 Minor Concrete Works

(b) Australian Standards

- AS 1141.11 Particle size distribution by dry sieving.
AS 1141.22 Wet/dry strength variation.
AS 1289.E5.1 Determination of minimum and maximum dry density of a cohesionless material.
AS 1477 Unplasticised PVC (UPVC) pipes and fittings for pressure applications
AS 2439.1 Perforated drainage pipe and associated fittings
AS 2758.1 Aggregates and rock for engineering purposes—Concrete aggregates
ASTM-D2434-68 Test method for permeability of granular soils (constant head)

b) Other

- Soil & Water Management Plan

C230.06 SITING OF WORK

1. The Principal Certifying Authority may amend the locations or designed levels or the lengths to suit actual site conditions.
2. Should the Contractor propose changes to the location, length, designed levels, conditions of installation or cover to suit the Contractor's construction procedures, the Contractor shall present the proposed set-out in addition to the designed set-out for consideration by the Principal Certifying Authority. No changes shall be made unless the prior written approval of the Principal Certifying Authority is obtained.

**Amendments
to Planned
Work**

**Proposed
Changes by
Contractor**

C230.07 EXCAVATION

1. The Contractor shall provide shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.
2. Where service utilities exist in the vicinity of drainage works the Contractor shall obtain the approval of the relevant authority to the method of excavation before commencing excavation.
3. Trenches shall be excavated to the line, grade, width and depth shown on the Drawings or as directed by the Principal Certifying Authority. The bottom of the trench shall be constructed so that no localised ponding can occur. All loose material shall be removed by the Contractor.
4. Any material at the bottom of the trench or at foundation level which the Principal Certifying Authority deems to be unsuitable shall be removed and disposed in accordance with the Specification for EARTHWORKS by the Contractor and replaced with backfill material in accordance with the requirements of this Specification. The bottom of the excavated trench or foundation, after any

Safety

**Approval by
Public Utility
Authorities**

**Excavation
Level**

**Unsuitable
Material**

unsuitable material has been removed and replaced, shall be parallel with the specified level or grade of the pipe.

C230.08 BACKFILLING

- 1. Backfilling shall be carried out in accordance with the requirements of the relevant subsurface drainage structures Specifications. ***Detail***

C230.09 OUTLET STRUCTURES FOR SUBSURFACE DRAINAGE

- 1. Subsurface drainage pipes shall be connected to discharge into gully pits or to outlet structures as shown on the Drawings or as directed by the Principal Certifying Authority. ***Discharge***
- 2. Outlets shall be spaced at a maximum interval of 80m. ***Spacing***
- 3. Outlets shall be made rodent proof using galvanised wire netting. ***Rodent Proof***
- 4. The outlet shall be located so that erosion of the adjacent areas does not occur or shall be protected by the placement of selected stone or similar approved treatment. ***Erosion Control***
- 5. Outlet pipes from curtain drains shall be unslotted. At no point shall an outlet pipe be higher than the pipe at the end of the curtain drain. ***Outlet Pipe***
- 6. All concrete used in the construction of outlet structures shall conform to the requirements of the Specification for MINOR CONCRETE WORKS. ***Concrete Specification***

MATERIALS

C230.10 CORRUGATED PLASTIC PIPE

- 1. Corrugated plastic pipe shall be Class 1000 complying with AS2439.1 of 100mm diameter unless otherwise indicated on the Drawings. All pipe shall be slotted unless otherwise indicated on the Drawings. ***Specification***
- 2. Joints, couplings, elbows, tees and caps shall also comply with AS2439.1 and only the manufacturer's recommended fittings shall be used. ***Fittings***
- 3. The Contractor shall obtain from the Manufacturer a Test Certificate demonstrating compliance with AS2439.1. ***Compliance***

C230.12 FILTER MATERIAL

(a) General

- 1. The filter material shall consist of clean, hard, tough, durable particles and comply with the following requirements: ***Grading***

TEST METHOD	PROPERTY	REQUIREMENT
AS 1141.11	Material passing AS sieve	Per cent by mass
	6.7mm	100
	4.75mm	85 to 100
	2.36mm	0 to 40
	1.18mm	0 to 5
	425um	0 to 2

Table C230.1 - Filter Material

C230.13 GEOTEXTILE

(a) General

- 1. The geotextile, other than seamless tubular filter fabric, shall consist of a needle punched felt which shall be manufactured from synthetic materials other than polyamide. It shall be bio-stable and resistant to attack by alkalis, acids, dry heat, steam, moisture, brine, mineral oil, petrol, diesel and detergents. **Properties**
- 2. The geotextile shall be resistant to ultra-violet light. No geotextile shall be left exposed to sunlight during storage and construction for a period longer than a total of twenty-one days. If exposure in excess of twenty-one days does occur, the geotextile shall be tested and if its characteristics have deteriorated to or below 90 per cent of the characteristics claimed by the manufacturer or the characteristics determined on unexposed geotextile, whichever is the better, it shall be removed and replaced with a geotextile complying with this Specification. **Ultra Violet Light Resistant**
- 3. The geotextile shall be capable of retaining particles of particle size greater than 100 microns. **Particle Retention**
- 4. The minimum mass of geotextiles for different types of subsurface drainage shall be as follows: **Mass**

TYPE OF SUBSURFACE DRAINAGE	MINIMUM MASS OF GEOTEXTILE (Grams per square metre)
Trench Drains and Drainage Mats	250
Curtain Drains	500

Table C230.6 - Geotextile Mass

- 5. In addition to the above requirements, geotextiles for curtain drains shall consist of either polyester, polypropylene or polyethylene. When subjected to a pressure of 200 kPa applied at right angles to the plane of the fabric and to a constant head of water no greater than 50 mm applied to the top edge of the fabric, geotextiles for curtain drains shall have a rate of water transmission not less than 20 litres per hour per metre width of fabric through a 300 mm length of the fabric. **Water Transmission Rate**

(b) Seamless Tubular Filter Fabric

Specification

1. Seamless knitted tubular filter fabric shall be used to enclose all slotted pipes and shall be manufactured from either polypropylene or polyester. The fabric shall be free of imperfections in weave or yarn and have abrasion resistant and weave stability qualities such that it shall not form holes, ladder, deweave, tear or unravel more than 5mm from a cut end.

RECORDING OF DRAINAGE

C230.14 RECORDING OF SUBSURFACE DRAINAGE INFORMATION

1. The Contractor shall keep a detailed record of all subsurface drainage pipes and the completed subsurface drainage systems shall be shown on the work-as-executed plans. **Work As Executed Plans**
2. The Work As Executed plans shall include: **Detail**
 - a. Type of Drain,
 - b. Pipe Size,
 - c. Depth below FSL, and
 - d. Locations of Outlets.

LIMITS AND TOLERANCES

C230.17 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C230.7 below.

Item	Activity	Tolerances	Spec Clause
1.	Outlets Spacing	Max 80m	C230.09
2.	Filter Material	Table C230.1	C230.12
3.	Geotextile (a) Exposure to sunlight	<21 days If >21 days deterioration not to exceed 10% of claimed characteristics	C230.13
	(b) Curtain Drains Water Transmission	>20 litres/hr/m	C230.13

Table C230.7 - Table of Limits and Tolerances

DEVELOPMENT
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C231

**SUBSOIL AND
FOUNDATION DRAINS**

SPECIFICATION C231 - SUBSOIL AND FOUNDATION DRAINS

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

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Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C231 : SUBSOIL AND FOUNDATION DRAINS

GENERAL

C231.01 SCOPE

- | | |
|--|---------------------------------|
| 1. The work to be executed under this Specification covers the excavation, bedding, installation and backfilling of subsoil and foundation drains. | Scope |
| 2. Subsoil and foundation drains shall be constructed where and as shown on the Drawings or as directed by the Geotechnical Engineer and the Principal Certifying Authority. | Location |
| 3. This Specification should be read in conjunction with the Specification for SUBSURFACE DRAINAGE - GENERAL. | Associated Specification |

C231.02 TERMINOLOGY

- | | |
|--|--------------------------|
| 1. Subsoil drains are intended for the drainage of ground water and/or the pavement in cuttings. | Subsoil Drains |
| 2. Foundation drains are required for the drainage of seepage, springs and wet areas within and adjacent to the foundations. | Foundation Drains |

~~**C231.03 REFERENCE DOCUMENTS**~~

- | | |
|---|---|
| 1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. | Documents Standards Test Methods |
|---|---|

~~**(a) Council Specifications**~~

- | | |
|-----------------|--|
| C213 | Earthworks |
| C230 | Subsurface Drainage - General |

~~**(b) Australian Standards**~~

- | | |
|--------------------------|---|
| AS 1289.5.4.1 | Compaction control test - Dry density ratio, moisture variation and moisture ratio |
|--------------------------|---|

C231.04 ORDER OF CONSTRUCTION

(a) Subsoil Drains

- | | |
|--|-------------------------------|
| 1. Subsoil drains shall be constructed as soon as possible after necessary earthworks are completed in the area of the drain. | Timing of Work |
| 2. Where a Selected Material Zone is specified and excessive ground water is encountered, subsoil drains may be installed in two stages as follows:

Stage 1: Standard subsoil drains installed below the base of the cutting prior to placement of select material in the Selected Material Zone. | Two Stage Construction |

Stage 2: Extension of subsoil drain to top of the Selected Material Zone after placement of selected material.

(b) Foundation Drains

- | | |
|---|--------------------------------------|
| 1. Foundation drains shall be constructed after completion of clearing and stripping operations, and preceding the commencement of embankment construction. | <i>Timing of Construction</i> |
|---|--------------------------------------|

CONSTRUCTION

C231.05 SUBSOIL DRAINS

(a) Excavation

- | | |
|--|--------------------------------------|
| 1. Trenches for subsoil and foundation drains shall be excavated to the line, grade, width and depth as shown on the Drawings or as directed by the Principal Certifying Authority. | <i>Dimensions and Grade</i> |
| 2. The bottom of the trench shall be excavated to the same grade as the design pavement surface. Where the grade of the design pavement surface in the direction of the trench is less than 0.5 per cent, the trench depth shall be increased to provide a minimum grade of fall in the trench of 0.5 per cent. The bottom of the trench shall be excavated so that no localised ponding of water occurs. | <i>Minimum Grade</i> |
| 3. If at any location the trench is excavated below the specified floor level, the trench shall be backfilled with non-porous subgrade material so that when the subgrade material is compacted to a relative compaction, determined by AS 1289.5.4.1, of at least 95 per cent (standard compaction), the bottom of the trench shall be at the specified floor level. | <i>Over-excavation</i> |
| 4. Where a subsoil drain is constructed in two stages, the excavation for Stage 2 shall be carried out after placement and compaction of the selected material zone or the stabilised subgrade layer. The Stage 2 trench shall be excavated to the same line and width as the Stage 1 trench and to a depth to provide a clean, full contact with the filter material placed in Stage 1. All excavated material shall be disposed to waste or incorporated into fills. | <i>Two Stage Construction</i> |

(b) Laying of Pipe

Bedding

- | | |
|--|----------------------------------|
| 1. The 100mm diameter corrugated slotted plastic piping, complying with the Specification for SUBSURFACE DRAINAGE - GENERAL, shall be laid on a bed of filter material 50mm in thickness and shall be laid to the required line and grade. | |
| 2. The type of filter material shall comply with Table C230.1. | <i>Filter Material</i> |
| 3. Joints in the pipeline shall be kept to the minimum number and, where required, shall be made using a suitable external joint coupling. The inlet end of the pipe shall be fitted with a cap. | <i>Joints and Capping</i> |

(c) Backfilling

Filter Material

- | | |
|---|--|
| 1. The trench shall be backfilled with filter material to the subgrade level. The filter material shall be placed and compacted in layers with a maximum compacted thickness of 300mm. Tamping around and over the pipe shall be done in such a manner as to avoid damage or disturbance to the pipe. | |
|---|--|

2. The filter material shall be compacted for its full depth to a relative compaction of not less than 100 per cent (standard compaction) as determined by AS 1289.5.4.1. ***Compaction of Filter Material***

(d) Outlets

Pipes and Structures

1. Outlets are to be provided at maximum intervals of 80m. Where possible, subsoil drains shall discharge into gully pits and other stormwater drainage structures. Where not possible, an outlet shall be constructed of unslotted plastic pipe of the same diameter as the main run to discharge below the edge of the road shoulder. An outlet structure in accordance with the Drawings shall be constructed at the discharge end.

C231.06 FOUNDATION DRAINS

(a) Excavation

1. Excavation shall be undertaken in accordance with the requirements of the Specification for SUBSURFACE DRAINAGE - GENERAL and Clause C231.05 of this Specification. ***Associated Specification***

(b) Laying of Pipe

1. The 100mm diameter corrugated slotted plastic piping, complying with the Specification for SUBSURFACE DRAINAGE - GENERAL, shall be laid on a bed of filter material 50mm in thickness and shall be laid to the required line and grade. ***Bedding***

2. The type of filter material shall be as shown in Table C230.1 ***Filter Material***

3. Joints in the pipeline shall be kept to the minimum number and, where required, shall be made using a suitable external joint coupling. The inlet end of the pipe shall be fitted with a PVC cap. ***Jointing of Pipe***

(c) Backfilling

1. The trench shall be backfilled with filter material in accordance with the provisions of Clause C231.05(c). ***Filter Material***

2. The upper section of the trench, above the level specified for filter material backfill, shall be backfilled with suitable earth backfill material, compacted for its full depth to a relative compaction of not less than 95 per cent (standard compaction) as determined by AS 1289.5.4.1. ***Earth Backfill and Compaction***

3. Where shown on the Drawings or as directed by the Geotechnical Engineer and the Principal Certifying Authority, a geotextile, conforming with the requirements of the Specification for SUBSURFACE DRAINAGE - GENERAL, shall be provided at the interface between the filter material and adjoining materials. Laps of 500mm shall be provided at joints in the fabric. ***Geotextile***

(d) Outlets

1. An outlet structure in accordance with the detail shown on the Drawings and the Specification for SUBSURFACE DRAINAGE - GENERAL shall be constructed at the discharge end. The outlet shall be located so that erosion of the adjacent area does not occur or shall be protected by the placement of selected stone in the splash zone of the outlet. ***Construction Detail***

LIMITS AND TOLERANCES

C231.08 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C231.1 below.

Item	Activity	Tolerances	Spec Clause
1.	Excavation Trench Grade	≥0.5%	C231.05(a)
2.	Subsoil Drain Backfill		
	(a) Layer thickness	300mm max	C231.05(c)
	(b) Compaction (Relative) Filter and Backfill material	100% standard	C231.05(c)
3.	Outlet Spacing	80m max	C231.05(d)
4.	Foundation Drain Backfill		
	(a) Layer thickness	300mm max	C231.05(c)
	(b) Compaction (Relative) Filter material	100% Standard	C231.05(c)
	Backfill material	>95% Standard	

Table C231.1 - Table of Limits and Tolerances

DEVELOPMENT
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SPECIFICATION

C233

DRAINAGE MATS

SPECIFICATION C233 - DRAINAGE MATS

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C233.05 TYPE A MATS	<u>176170</u>
C233.06 TYPE B MATS	<u>176170</u>
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C233.08 SUMMARY OF LIMITS AND TOLERANCES	<u>178172</u>

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Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C233 : DRAINAGE MATS

GENERAL

C233.01 SCOPE

- | | |
|--|---------------------------------|
| 1. The work to be executed under this Specification covers the installation of Drainage Mats (Blankets). | Scope |
| 2. Drainage mats shall be constructed where and as shown on the Drawings or as directed by the Geotechnical Engineer and Principal Certifying Authority. | Location |
| 3. This Specification should be read in conjunction with the Specification for SUBSURFACE DRAINAGE - GENERAL. | Associated Specification |

C233.02 TERMINOLOGY

- | | |
|--|--------------------|
| 1. Type A drainage mats are intended to ensure continuity of a sheet flow of water under fills, to collect surface seepage from a wet seepage area or for protection of vegetation or habitat downstream of the road reserve where a fill would otherwise cut the flow of water. | Type A Mats |
| 2. Type B drainage mats are constructed to intercept water which would otherwise enter pavements by capillary action or by other means on fills and to intercept and control seepage water and springs in the floors of cuttings. | Type B Mats |

C233.03 REFERENCE DOCUMENTS

- | | |
|---|---|
| 1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. | Documents
Standards
Test Methods |
|---|---|

~~(a) Council Specifications~~

~~C230 Subsurface Drainage - General~~

~~(b) Australian Standards~~

~~AS 1289.5.4.1 Compaction control test - Dry density ratio, moisture variation and moisture ratio.~~

C233.04 ORDER OF CONSTRUCTION

- | | |
|--|--------------------|
| 1. Type A drainage mats shall be constructed after the site has been cleared and grubbed and before commencement of embankment construction. | Type A Mats |
| 2. Type B drainage mats shall be constructed after completion of the subgrade construction and before construction of the pavement. | Type B Mats |

CONSTRUCTION

C233.05 TYPE A MATS

1. Type A drainage mats shall be constructed under embankments as and where shown on the Drawings or as directed by the Geotechnical Engineer and Principal Certifying Authority. **Location**
2. After the embankment foundation has been trimmed and any necessary trench drains installed, a geotextile complying with the requirement of the Specification for SUBSURFACE DRAINAGE - GENERAL, shall be laid on the embankment foundation. The area of geotextile laid shall be sufficient to cover the area of the Type A drainage mat and an additional amount for enclosing the sides of the drainage mat after the filter material has been placed. Laps of minimum width of 500mm shall be provided at each join in the geotextile. **Placing of Geotextile**
3. Filter material, as shown on the Drawings or as determined by the Geotechnical Engineer and Principal Certifying Authority, shall be placed on the geotextile and compacted to the satisfaction of the Geotechnical Engineer and Principal Certifying Authority. The minimum thickness of the compacted filter material shall be 300mm plus an allowance for the expected consolidation of the embankment foundation under the embankment load or 500mm if the amount of the expected total consolidation of the embankment foundation is not known. The filter material shall be placed in two or more layers so that no layer, when compacted, has a thickness greater than 250mm. **Placing of Filter Material**
4. After completion of placement and compaction of the filter material, geotextile shall be placed on top of and around the sides of the filter material so that the filter material is completely enclosed by geotextile. The geotextile shall be secured in such a manner as to prevent movement of the geotextile by wind or by construction plant placing subsequent layers of filter material or earth filling over the drainage mat. **Securing of Geotextile**
5. An additional layer of geotextile shall be placed on the drainage mat under the base of any rock facing which may be placed as part of the embankment construction. The additional layer of geotextile shall extend beyond the outside and inside faces of the bottom layer of rock. **Geotextile under Rock Facing**
6. Care shall be taken not to damage the geotextile during the construction of the drainage mat or during placement of subsequent layers of filter material, earth filling or rock facing. Any geotextile so damaged shall be repaired or replaced by the Contractor to the satisfaction of the Geotechnical Engineer and Principal Certifying Authority. **Damaged Geotextile**
7. Type A drainage mats shall extend 2m beyond the toes of embankments and such extensions shall be covered by a 300mm thick layer of filter material, as determined by the Geotechnical Engineer and Principal Certifying Authority. This protective layer shall be placed immediately after completion of construction of each drainage mat. **Protective Layer**
8. Outlets from Type A drainage mats may be surface outlets at the toes of embankments or piped outlets connected to other drainage systems. Where piped outlets are constructed they shall conform to the requirements of the Specification for SUBSURFACE DRAINAGE - GENERAL. **Outlets**

C233.06 TYPE B MATS

1. Type B drainage mats shall be constructed in cuttings as and where shown on the Drawings or as directed by the Geotechnical Engineer and Principal Certifying Authority. Type B drainage mats shall be constructed for the full width of cuttings and for the pavement width in other locations. **Location and Width**

-
2. After the subgrade material has been compacted and trimmed, a geotextile complying with the requirements of the Specification for SUBSURFACE DRAINAGE - GENERAL, shall be laid on the subgrade. Laps of minimum width of 500mm shall be provided at each join in the geotextile. ***Placing of Geotextile***
3. Slotted thick walled unplasticised PVC pressure pipe complying with AS 1477, shall be laid on the geotextile at a distance of 200mm from and parallel to the longitudinal edges of the drainage blanket as shown in the Drawings. ***UPVC Pressure Pipe***
4. Filter material shall be placed on the geotextile and compacted to achieve a relative compaction, determined by AS 1289.5.4.1, of at least 100 per cent (standard compaction). Alternatively, the Geotechnical Engineer and Principal Certifying Authority may approve the use of a coarser filter material having a maximum particle size of 75mm and a maximum D90/D10 ratio of three. ***Placing of Filter Material***
5. The thickness of the compacted filter material shall be as shown on the Drawings or as directed by the Geotechnical Engineer and Principal Certifying Authority. If the required thickness of compacted filter material is greater than 250mm, the filter material shall be placed in two or more layers so that no layer, when compacted, has a thickness greater than 250mm. ***Thickness of Filter Material***
6. After completion of placement and compaction of the filter material, geotextile shall be placed on top of and around the sides of the filter material so that the filter material is completely enclosed by geotextile. The geotextile shall be secured in such a manner as to prevent movement of the geotextile by wind or by construction plant placing pavement layers over the drainage mat. ***Securing of Geotextile***
7. Care shall be taken not to damage the geotextile during the construction of the drainage mat or during placement of subsequent pavement layers. Any geotextile so damaged shall be repaired or replaced by the Contractor to the satisfaction of the Geotechnical Engineer and Principal Certifying Authority. ***Damaged Geotextile***
8. The surface of the completed drainage mat shall be at the design level for the top of the drainage mat with a tolerance of plus zero and minus 40mm. ***Surface Level Tolerance***
9. Outlet structures where specified, or where directed by the Geotechnical Engineer and Principal Certifying Authority, shall be in accordance with the requirements of the Specification for SUBSURFACE DRAINAGE - GENERAL.

LIMITS AND TOLERANCES

C233.08 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C233.1 below.

Item	Activity	Tolerances	Spec Clause
1.	Filter Material		
	(a) Layer thickness	250mm max	C233.05 C233.06
2.	Type B Mats		
	(a) Design level at top of mat	+0, -40mm	C233.06

Table C233.1 - Table of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C242

FLEXIBLE PAVEMENTS

SPECIFICATION C242 - FLEXIBLE PAVEMENTS

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Amendment Record for this Specification Part

This Specification is Council’s edition of the AUS-SPEC generic specification part and includes Council’s primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is ‘A’ for additional script ‘M’ for modification to script and ‘O’ for omission of script. An additional code ‘P’ is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Modification of Primer Seal to Wearing Course</i>	242.25	M	MB	21/01/08
1	<i>Modification of Primer Seal to Wearing Course</i>	242.26	M	MB	21/01/08
1	<i>Definition of Proof Roll</i>	242.18	M	MB	21/01/08

SPECIFICATION 242 : FLEXIBLE PAVEMENTS

GENERAL

C242.01 SCOPE

1. The work to be executed under this Specification consists of the supply, spreading, compaction and trimming of base and subbase courses of flexible pavements to the specified levels and thicknesses as shown on the Drawings.

C242.02 TERMINOLOGY

- (a) Materials designated as 'base' require the provision of a wearing surface comprising either a sprayed bituminous seal or asphalt up to 50mm thick.
- (b) Materials designated as 'subbase' require a covering course of 'base'. The subbase may consist of one or more layers.
- (c) A flexible pavement consists of a base and a subbase constructed of unbound materials. For the purpose of this Specification it also includes lightly bound pavements.
- (d) Modified material incorporates small amounts of stabilising binder to improve the properties of the material without significantly affecting structural stiffness.

Definitions

~~C242.03 REFERENCE DOCUMENTS~~

- ~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

Documents Standards Test Methods

~~(a) Council Specifications~~

- ~~— C244 — Sprayed Bituminous Surfacing~~
- ~~— C245 — Asphalt Surfacing~~
- ~~— Wollongong City Council Specification for Asphaltic Concrete.~~

~~(b) Australian Standards~~

- ~~— AS 1141.14 — Particle shape, by proportional calliper.~~
- ~~— AS 1141.22 — Wet/dry strength variation.~~
- ~~— AS 1289.3.1.1 — Determination of the liquid limit of a soil - Four point Casagrande method.~~
- ~~— AS 1289.3.3.1 — Calculation of the plasticity index of a soil.~~
- ~~— AS 1289.3.6.1 — Determination of the particle size distribution of a soil - Standard method of analysis by sieving.~~
- ~~— AS 1289.3.6.3 — Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer.~~
- ~~— AS 1289.5.2.1 — Determination of the dry density/moisture content relation of a soil using modified compactive effort.~~
- ~~— AS 1289.5.3.1 — Determination of the field density of a soil - Sand replacement method using a sand cone pouring apparatus.~~
- ~~— AS 1289.5.4.1 — Compaction control test - Dry density ratio, moisture variation and moisture ratio.~~
- ~~— AS 1289.5.8.1 — Determination of field density and field moisture content of a soil using a nuclear surface moisture - density gauge.~~

~~AS 1289.F1.1 – Direct transmission mode. Determination of the California bearing ratio of a soil- Standard laboratory method for a remoulded specimen.~~

~~(c) – RTA Test Methods~~

- ~~T114 – Maximum Dry Compressive Strength of Road Materials~~
- ~~T116 – Unconfined Compressive Strength – Remoulded Material~~
- ~~T130 – Dry Density Moisture Relations for Mixtures of Road Materials and Cement.~~
- ~~T131 – Unconfined Compressive Strength~~
- ~~T160 – Benkelman Beam Deflection Test~~
- ~~T171 – Modified Texas Triaxial Compression Test~~

~~(d) – AUSTROADS~~

- ~~APRG Special Report No 21 - A Guide to the design of new pavements for light traffic - 1998~~
- ~~A Guide to The Structural Design of Road Pavements - 1992~~

C242.04 PAVEMENT STRUCTURES

- 1. Flexible or semi-rigid pavement material types and layer thicknesses shall be as shown on the Drawings. ***Material Types and Layer Thickness***

C242.05 INSPECTION, SAMPLING AND TESTING

- 1. Inspection, sampling and testing of the pavement shall be undertaken by the Contractor in accordance with the requirements of this Specification before, during and after the construction of the pavement. Testing shall be carried out by a NATA registered laboratory with appropriate accreditation and suitably qualified personnel. ***Contractor's Responsibility***
- 2. The Contractor shall provide the Principal Certifying Authority with written notice when testing is being carried out and copies of all test reports for approval to proceed. ***Written Notice***
- 3. Field density tests shall be carried out in accordance with AS 1289.5.3.1, or, with the Principal Certifying Authority's concurrence, with a Nuclear Density Meter in accordance with Clause 242.12. ***Density Tests***

MATERIALS

C242.06 GENERAL

- 1. The Contractor shall submit details of all constituents of the proposed base and subbase materials, including sources of supply and the proposed type and proportion of any binder. These details shall be submitted to the Principal Certifying Authority, supported with test results from a NATA registered laboratory confirming that the constituents comply with the requirements of this Specification. ***Details of Proposed Base and Subbase to be Submitted***
- 2. No material shall be delivered until the Principal Certifying Authority has ***Source of***

approved the source of supply.

Supply

3. If, after the Contractor's proposals have been approved, the Contractor wishes to make changes in any of the material constituents the Contractor shall inform the Principal Certifying Authority in writing of the proposed changes. No delivery of material produced under the altered proposal shall take place without the approval of the Principal Certifying Authority.

Variations by Contractor

4. At least two days before placement of the material on site, the Contractor shall submit a Certificate from a laboratory with appropriate NATA registration demonstrating and stating that the unbound material or the mix and its constituents comply with the requirements of this Specification.

NATA Certificate

5. Ongoing testing of materials during delivery and construction shall be undertaken on samples taken from the site.

Sampling on-site

C242.07 TRAFFIC CATEGORY

1. Pavement materials are specified in terms of the Traffic Categories given in Table C242.1 for the calculated design traffic of the pavement.

Pavement Material Traffic Category Drawings

2. The Traffic Category (or Design Traffic) for the pavement materials shall be as shown on the Drawings.

Pavement Material Traffic Category	Description
1	Roads with design traffic equal to or exceeding 10^7 equivalent standard axle (ESA) repetitions.
2a	Roads with design traffic exceeding 4×10^6 ESAs but less than 10^7 ESAs.
2b	Roads with design traffic exceeding 10^6 ESAs but less than or equal to 4×10^6 ESAs.
2c	Roads with design traffic exceeding 10^5 ESAs but less than or equal to 10^6 ESAs.
2d	Roads with design traffic less than or equal to 10^5 ESAs.

Table C242.1 - Pavement Material Traffic Categories

C242.08 UNBOUND BASE AND SUBBASE

1. Unbound materials, including blends of two or more different materials, shall consist of granular material which does not develop significant structural stiffness when compacted. Material produced by blending shall be uniform in grading and physical characteristics.

Granular Material

2. Unbound crushed rock materials are designated as follows:

Crushed Rock

- DGB20 20mm nominal sized densely graded base
- DGS20 20mm nominal sized densely graded subbase
- DGS40 40mm nominal sized densely graded subbase

3. The acceptable material types for each Traffic Category are given in Table C242.2.

Material Types

Traffic Category	Acceptable Base Material	Acceptable Subbase Material
1	DGB20	DGS20, DGS40
2a	DGB20	DGS20, DGS40
2b	DGB20	DGS20, DGS40
2c	DGB20	DGS20, DGS40
2d	DGB20	DGS20, DGS40

Table C242.2 - Acceptable Pavement Material Types

4. Base materials shall comply with the requirements of Table C242.3.

Base

Test Method	Description	Base Material Requirements			
		DGB20			
AS 1289.3.6.1	Coarse Particle Size Distribution % passing 75.0mm sieve % passing 53.0mm sieve % passing 37.5mm sieve % passing 26.5mm sieve % passing 19.0mm sieve % passing 13.2mm sieve % passing 9.5mm sieve % passing 6.7mm sieve % passing 4.75mm sieve % passing 2.36mm sieve % passing 0.425mm sieve % passing 0.075mm sieve	- - - 100 95-100 - - 50-70 - 35-55 - -			
AS 1289.3.6.3	Fine Particle Size Distribution Ratios expressed as percentages (for that portion of the material passing 2.36mm sieve) A. Pass 425mm sieve % B. Pass 75mm sieve % Pass 425mm sieve C. Pass 13.5mm sieve % Pass 75mm sieve	35-55 35-55 35-60			
AS 1289.3.1.1	Liquid Limit (if non plastic) *	max 20			
AS 1289.3.3.1	Plastic Limit (if plastic)	max 20			
AS 1289.3.3.1	Plasticity Index ■	max 6			
T114	Maximum Dry Compressive	min 1.7 MPa			

Test Method	Description	Base Material Requirements			
		DGB20			
	Strength on fraction passing 19mm sieve (only applies if Plasticity Index is less than 1)				
AS 1141.14	Particle Shape by Proportional Calliper % mis-shapen (2 : 1)	max 35			
AS 1141.22	Aggregate Wet Strength ◇ For category 1 or 2a For category 2b or 2c For category 2d	min 80 min 70 min 60			
AS 1141.22	Wet/Dry Strength Variation ◇ <u>Dry - Wet %</u> Dry For category 1 or 2a For category 2b or 2c For category 2d	max 35 max 40 max 45			
AS 1289.F1.1	4 day Soaked CBR (98% Modified Compaction)	-			

Table C242.3 - Unbound Base Material Properties

NOTES ON TABLE C242.3:

Material consisting of rounded river stone shall have a minimum of two fractured faces on at least 75 per cent of the particles larger than 6.70mm.

- * The maximum value of the Liquid Limit may be increased to 23 for non-plastic material, provided that the value determined is not influenced by the presence of adverse constituents.
- For category 2d base materials the maximum Plasticity Index shall be 8.
- ◇ All fractions of the sample specified by AS 1141.22 must be within specification. The fraction with the highest wet/dry strength variation is the value for determining conformance with the specification. The fractions 19.0mm to 13.2mm and 6.7mm to 4.75mm must be tested.

5. Subbase materials shall comply with the requirements of Table C242.4

Subbase

Test Method	Description	Subbase Material Requirements				
		DGS20	DGS40			
AS 1289.3.6.1	Coarse Particle Size Distribution % passing 75.0mm sieve % passing 53.0mm sieve % passing 37.5mm sieve % passing 26.5mm sieve % passing 19.0mm sieve % passing 13.2mm sieve % passing 9.5mm sieve % passing 6.7mm sieve % passing 4.75mm sieve % passing 2.36mm sieve % passing 0.425mm sieve % passing 0.075mm sieve	- - - 100 95-100 - - 50-70 - 35-55 - -	- 100 - - 50-85 - - 30-55 - 25-50 - -			
AS 1289.3.6.3	Fine Particle Size Distribution Ratios expressed as percentages (for that portion of the material passing 2.36mm sieve) A. Pass 425mm sieve % B. Pass 75mm sieve % Pass 425mm sieve C. Pass 13.5mm sieve % Pass 75mm sieve	 35-55 35-55 35-60	 35-60 35-60 35-65			
AS 1289.3.1.1	Liquid Limit (if non plastic)	max 23	max 23			
AS 1289.3.3.1	Plastic Limit (if plastic)	max 20	max 20			
AS 1289.3.3.1	Plasticity Index	max 12	max 12			
T114	Maximum Dry Compressive Strength on fraction passing 19mm sieve (only applies if Plasticity Index is less than 1)	min 1.0 MPa	min 1.0 MPa			
AS 1141.14	Particle Shape by Proportional Calliper % mis-shapen (2 : 1)	max 35	max 35			
AS	Aggregate Wet Strength	min 50kN	min 50kN			

Test Method	Description	Subbase Material Requirements				
		DGS20	DGS40			
1141.22	①					
AS 1141.22	Wet/Dry Strength Variation ◊ Dry - Wet % Dry	max 60	max 60			
AS 1289.F1.1	4 day Soaked CBR (98% Modified Compaction)	-	-			

Table C242.4 - Unbound Subbase Material Properties

NOTES ON TABLE C242.4:

Material consisting of rounded river stone shall have a minimum of two fractured faces on at least 75 per cent of the particles larger than 6.70mm.

- ◊ All fractions of the sample specified by AS 1141.22 must be within specification. The fraction with the highest wet/dry strength variation is the value for determining conformance with the specification. The fractions 19.0mm to 13.2mm and 6.7mm to 4.75mm must be tested.

Where the proposed unbound base material complies with all of the requirements of Table C242.3 except gradings (AS 1289.3.6.1 and AS 1289.3.6.3), the Contractor may propose the use of the material, subject to approval of the Council, if the material complies with the RTA Modified Texas Triaxial Classification Number (T171) requirements specified in Table C242.5, (T171 tested at not less than 85 per cent of Optimum Moisture Content and 98 per cent of Maximum Dry Density as determined by AS 1289.5.2.1).

**Modified
Texas Triaxial
Classification**

Traffic Category	Modified Texas Triaxial Classification Number (Test Method T171)
1	max 2.0
2a	max 2.2
2b	max 2.5
2c	max 3.0
2d	max 3.0

Table C242.5 - RTA Modified Texas Triaxial Classification Number Requirements

DELIVERY, STOCKPILING AND PROCESSING OF PAVEMENT MATERIAL

C242.11 DELIVERY TO SITE

1. Materials shall be supplied sufficiently damp to avoid segregation and loss of fines during transit. **Damp Condition**

C242.12 STOCKPILING OF UNBOUND MATERIALS

1. Stockpile sites shall be located as shown on the Drawings or as approved by the Principal Certifying Authority. **Stockpile Sites**
2. Stockpile sites, which shall be cleared of all vegetation and extraneous matter, shall be shaped to form a crown so as to be free draining and compacted over the whole area to provide a relative compaction, determined by AS 1289.5.4.1 for standard compactive effort, of not less than 95 per cent. **Compacted and Free Draining**
3. Stockpiles and stockpile sites shall be maintained so as to prevent the stockpiled materials from becoming intermixed or contaminated with foreign material. **Stockpile Requirements**
4. The total height of any stockpile shall not exceed 2.5 m. **Height**
5. Stockpiles shall be of uniform shape with side slopes neither steeper than 1.5 to 1 nor flatter than 3 to 1. **Shape**
6. The worked face of any stockpile shall be the full face of the stockpile. The stockpiled material shall be maintained at a moisture content sufficiently damp to avoid loss of fines. **Maintained Damp**
7. At the completion of the works, stockpile sites shall be cleared of all surplus material and left in a clean and tidy condition. **Completion of Work**

SPREADING OF PAVEMENT MATERIAL

C242.14 SPREADING PAVEMENT MATERIALS

1. Unbound materials shall not be spread upon an underlying pavement layer which has a moisture content exceeding 90 per cent, the laboratory optimum moisture content as determined by AS 1289.5.2.1 or which has become rutted or mixed with foreign matter. The underlying layer shall be corrected to comply with this Specification before spreading of the next layer of pavement. **Underlying Layer Quality**
2. Each layer of material shall be deposited and spread in a concurrent operation and, after compaction, the finished surface levels on the base and subbase courses shall be within the permitted tolerances stated in Clause C242.22(c) without subsequent addition of material. The thickness of each compacted layer shall be neither less than 100mm nor more than 200mm for all pavement layer types. **Tolerances**
3. When spread for compaction processes the moisture content of the base or subbase materials shall be in the range of 60-90 per cent of laboratory optimum moisture content in accordance with AS 1289.5.2.1.

TRIMMING AND COMPACTION

C242.15 GENERAL REQUIREMENTS

- | | | |
|----|---|--|
| 1. | Each layer of the base and subbase courses shall be uniformly compacted over its entire area and depth to satisfy the requirements of relative compaction set out in Clauses C242.19 and C242.20. | <i>Uniform
Compaction</i> |
| 2. | On sections of pavement with one-way crossfall, compaction shall begin at the low side of the pavement and progress to the high side. On crowned sections, compaction shall begin at the sides of the pavement and progress towards the crown. Each pass of the rollers shall be parallel with the centreline of the roadway and uniformly overlap each preceding pass. | <i>Compaction
Procedure</i> |
| 3. | At locations where it would be impracticable to use self propelled compaction plant, the pavement material shall be compacted by alternative hand-operated plant approved by the Principal Certifying Authority. | <i>Hand Operated
Plant</i> |
| 4. | If any unstable areas develop during rolling, the unstable material shall be rejected. The rejected material shall be removed for the full depth of the layer, disposed of and replaced with fresh material in accordance with Clause C242.24. | <i>Unstable
Areas</i> |
| 5. | The placement of subsequent layers shall not be allowed until the requisite testing has been completed and the test results for each layer have been accepted by the Principal Certifying Authority. | <i>Placing
Subsequent
Layers</i> |
| 6. | Any unbound material in a layer that has attained the specified relative compaction but subsequently becomes wetted up shall be dried out and, if necessary, uniformly recompacted and trimmed to meet the specified density requirements and level tolerances. | <i>Excessive
Moisture
Content</i> |

ACCEPTANCE OF COMPACTED LAYERS

C242.17 ACCEPTANCE

- | | | |
|----|--|----------------------------|
| 1. | Acceptance of work, as far as compaction is concerned, shall be based on | <i>Requirements</i> |
| | (a) density testing of each layer, | |
| | (b) proof rolling of each layer, and | |
| | (c) deflection testing on the completed final pavement layer. | |

A lot shall be nominated by the Contractor, but shall conform to the following:

- | | |
|-----|--|
| (a) | cover only a single layer of work which has been constructed under uniform conditions in a continuous operation and not crossing any transverse construction joints; |
| (b) | for unbound materials it may equal a day's output using the same material. |

C242.18 COMPACTION ASSESSMENT

- 1. For residential, commercial and industrial roads, the Contractor shall arrange for testing to assess compaction on the basis of either one test per 50 lin. m or 250 m² (which ever is the greater) with a minimum of two tests in any one length. The results shall be presented to the Principal Certifying Authority for approval. **Sampling**
- 2. For rural roads, the Contractor shall arrange for testing to assess compaction on the basis of either one test per 100 lin. m or 500 m² (which ever is the greater) with a minimum of two tests in any one length. The results shall be presented to the Principal Certifying Authority for approval.
- 3. Acceptance of final pavement layer shall be determined according to the elastic rebound deflection. The elastic rebound deflection shall be taken as the maximum deflection in accordance with Test Method T160 utilising the Benkelman Beam or equivalent. The average maximum deflection for any lot shall not exceed the limits stated in AUSTROADS. The co-efficient of variation (CV) in recorded deflections shall not exceed 30 per cent. Measurements shall be taken at maximum spacings of 10 metres (alternating wheel paths) in each lane, with not less than 4 measurements per any one length of road. **Benkelman Beam Testing**
- 4. Proof rolling shall be performed on all subgrades, subbases and base courses with the method, instruments and results acceptable to the Principal Certifying Authority. **Proof Roll Test**

C242.19 RELATIVE COMPACTION

- 1. The relative compaction of pavement material at each location tested for in-situ dry density shall be calculated in accordance with AS 1289.5.4.1 as follows: **Calculation**

$$\text{Relative Compaction (per cent)} = \frac{\text{In-situ dry density}}{\text{Comparative dry density}} \times 100$$
- 2. The Council may approve some or all of the in-situ dry density testing to be carried out with a single probe Nuclear Density Meter in the direct transmission mode in accordance with AS 1289.5.8.1. **In-Situ Dry Density Testing**
- 3. For unbound layers, the sample shall be tested in accordance with AS 1289.5.2.1 to determine the maximum dry density (modified compactive effort) for the material. **Maximum Dry Density**
- 4. The maximum dry density so determined shall be used as the comparative dry density in relative compaction calculations for all like material from that lot or day's production placed in a single layer of work whichever is the lesser. **Comparative Dry Density**

C242.20 REQUIREMENTS FOR ACCEPTANCE

1. A lot shall be accepted for compaction if:
 - a. **for sub-base:**
 - i. the minimum value of all calculated relative compaction for modified compactive effort is not less than 95 per cent within the lot or the area of pavement being assessed.
 - ii. Pass proof roll test
 - iii. Thickness within tolerance as determined from test pits at locations nominated by the Principal Certifying Authority.
 - b. **for base:**
 - i. the minimum value of all calculated relative compaction for modified compactive effort is not less than 98 per cent within the lot or the area of pavement being assessed.
 - ii. Pass proof roll test
 - iii. Thickness within tolerance as determined from test pits at locations nominated by the Principal Certifying Authority.
 - iv. Comply with deflection criteria of Benkelman Beam Testing.

2. Areas of pavement not achieving these specified values shall be rejected. **Rejection**
 Unbound layers may be reworked as provided by Clause C242.21.

C242.21 REWORKING OF REJECTED UNBOUND LAYERS

1. Lots or areas of pavement that have been rejected in regard to compaction shall be reworked before resubmission for compaction assessment. **Reworking**

2. Material that has become degraded, segregated or otherwise reduced in quality by reworking shall be rejected. The rejected material shall be removed, disposed of and replaced with fresh material complying with this Specification in accordance with Clause C242.24. When a lot or area of pavement is resubmitted for compaction assessment, testing shall be carried out in accordance with Clauses C242.18 and C242.19. **Rejected Material**

C242.22 TOLERANCES

- a) **General**
 1. The tolerances stated are the acceptable limits of departure from the dimensions shown on the Drawings. **Tolerances**

- b) **Width**
 1. At any cross section without kerb and/or guttering, and for pavement layers extending under the kerb and/or guttering, the horizontal dimension measured from the design centre line to the edge of the constructed pavement surface shall be neither less than 50mm less than the dimension nor more than 300 mm greater than the dimension shown on the Drawings. **Horizontal Dimensions**

 2. The average width of the layer determined from measurements at three sites selected at random by the Principal Certifying Authority over any 200 metre road **Average Width**

length, or part thereof, shall be not less than the specified width.

c) Levels and Surface Trim

- | | | |
|----|---|--------------------------------|
| 1. | The levels of the finished surface of the top of the unbound subbase course shall not vary from the design levels by more than ± 20 mm. | Subbase Surface Level |
| 2. | Level tolerances at the top of the unbound base course shall not exceed ± 10 mm. In addition, where kerb and gutter exists or is being constructed, the level of the top of the base course adjacent to the kerb and gutter shall not vary by more than ± 5mm from the lip level of the gutter minus the design thickness of the wearing surface. | Base Surface Level |
| 3. | The design level of the top of the subbase course shall be determined from the design level of the finished road surface less the thickness of the base course and the wearing course. | Subbase Design Level |
| 4. | The pavement surface after trimming and immediately prior to sealing shall be of a quality such that the deviation under a 3 metre straight edge placed in any direction does not exceed 12 mm. | Straight Edge Deviation |

C242.23 ACTION ON REJECTION

(a) Unbound Materials

- | | | |
|----|--|---------------------------|
| 1. | A lot that has not complied with the requirements for width or level tolerance as set out in Clauses C242.22(b) and C242.22(c) respectively shall be rejected except as otherwise provided in this Clause. Rejected lots shall be removed, disposed of and replaced with fresh material in accordance with Clause C242.24. | Rejection Criteria |
| 2. | Notwithstanding the above, where the rejected lot can be corrected by further trimming, the Principal Certifying Authority may allow the surface to be corrected without complete removal and replacement with fresh material. Such trimming shall be undertaken in a manner that produces a uniform, hard surface and shall be achieved by cutting only without filling. After any such cutting, the level tolerances in Clause C242.22(c) shall apply. | Corrective Action |

C242.24 REMOVAL AND REPLACEMENT OF REJECTED COURSES

- | | | |
|----|--|--------------------------------------|
| 1. | Sections of the work that have been rejected shall be removed from the work and replaced with fresh material. Rejected material shall be removed from site. | Rejected Material |
| 2. | In rejected sections the material shall be removed over the full length of the rejected lot. Any damage to underlying or abutting layers or structures shall be made good by the Contractor using methods approved by the Principal Certifying Authority. | Length to be Removed |
| 3. | The Principal Certifying Authority may approve removal for less than the full width as constructed if the cause of the rejection of the work can be isolated transversely to the Principal Certifying Authority's satisfaction. In this case, the new longitudinal cold joint shall be formed and located along the centreline of the road pavement. | Superintendent's Discretion |
| 4. | After removal of rejected base or subbase course material, the section shall be presented for inspection by the Principal Certifying Authority before replacement work is commenced. | Inspection Before Replacement |
| 5. | Materials used as replacement materials, and the subsequent spreading, compaction, trimming, curing and testing of the replacement materials, shall comply with the requirements of this Specification. | Replacement Material |

C242.25 MAINTENANCE BEFORE COMPLETION OF WEARING SURFACE

1. Following the Principal Certifying Authority's acceptance of any section of the work, the Contractor shall maintain the prepared surface of the base in the condition specified for acceptance until the wearing course is completed. The wearing course shall be provided in accordance with the Specification for ASPHALTIC CONCRETE within seven days of the date of the acceptance of such sections, unless otherwise approved by the Principal Certifying Authority. **Completion Time Limit**

2. Should the Principal Certifying Authority withdraw permission to proceed due to a deterioration of the base course during the seven day period, the Contractor shall re-prepare the base course and re-present the base course for inspection by the Principal Certifying Authority. **Contractor's Responsibility**

OPENING PAVEMENT TO TRAFFIC**C242.26 GENERAL REQUIREMENTS**

1. For unbound pavements, construction plant and vehicles not involved in the current construction or testing of the work shall not be permitted to use the pavement until the wearing course has been applied, unless otherwise approved by the Principal Certifying Authority. **Restrictions on Movement**

LIMITS AND TOLERANCES

C242.27 SUMMARY OF LIMITS AND TOLERANCES

The tolerances applicable to the various clauses in this Specification are summarised in the Table below:

Item	Activity	Tolerances	Spec Clause
1.	Stockpile Sites	(i) Relative Compaction >95% (ii) Stockpile height <3m (iii) Stockpile batter <1.5:1 and >3:1	C242.12 C242.12
2.	Spreading Pavement Materials		
	(i) Compacted Layer Thickness	100mm min 200mm max	C242.14
3.	Compaction Acceptance		
	Minimum value of all calculated relative compaction results	95 % (modified) - subbase 98% (modified) - base	C242.20
4.	Width of Pavement		
	(i) Design centre-line to edge of constructed pavement	-50mm to +300mm of dimensions on Drawings	C242.22(b)
	(ii) Average Width	The average width determined from 3 random sites over any 200m road length, or part thereof, shall be not less than the specified width.	C242.22(b)
5.	Surface Level		
	(i) Subbase levels	±20mm from design level	C242.22(c)
	(ii) Base levels	±10mm from design level	C242.22(c)
	(iii) Base levels adjacent to Kerb and Gutter	±5mm from the lip levels of adjacent gutter minus design thickness of wearing surface.	C242.22(c)
	(iv) Shape	Deviation from a 3m long straightedge on base surface immediately prior to sealing shall be less than 12mm	C242.22(c)

Table C242.3 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C244

**SPRAYED
BITUMINOUS SURFACING**

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

**SPECIFICATION C244
SPRAYED BITUMINOUS SURFACING**

GENERAL

C244.01 SCOPE

1. The work to be executed under this Specification consists of the supply of all materials and the application of any or all of the following types of sprayed bituminous surfacing:

(i) Prime

The application of a primer of field or refinery cutback bitumen without aggregate to provide penetration of the surface (preferably from 5 to 10 mm) and waterproofing.

(ii) Primerseal

The application of a primerbinder of field or refinery cutback bitumen to provide surface penetration (preferably from 2mm to 5mm), into which aggregate is incorporated to provide a temporary wearing surface prior to the application of the final wearing surface.

(iii) Seal or Reseal

The application of a bitumen binder into which aggregate is incorporated to provide a durable wearing surface.

2. The locations and required types of sprayed bituminous surfacings, including types of binders and aggregate sizes, shall be as shown on the Drawings and/or as detailed in Annexure C244.A.

3. For multiple application treatments, the binder and aggregate may be required to be laid in one or more separate applications.

C244.02 REFERENCE DOCUMENTS

~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

~~C201 Control of Traffic~~

~~(b) Australian Standards~~

~~AS 2008 Residual bitumen for pavements.~~

~~AS 2157 Cutback bitumen.~~

~~AS 2341.9 Determination of water content.~~

~~AS 2758.2 Aggregate for sprayed bituminous surfacing.~~

~~AS 3568 Oils for Reducing the Viscosity of Bitumen for Pavements.~~

~~(c) RTA Specifications and Forms~~

- ~~MR466 - Sprayed Bituminous Surfacing Cutback Chart~~
- ~~3253 - Bitumen for Pavements~~
- ~~3258 - Aggregate Precoating Agents~~
- ~~3259 - Bitumen Adhesion Agents~~
- ~~3261 - Cutback Bitumen~~
- ~~RTA Form 23 - Bituminous Surfacing Daily Record~~

~~(d) Government Legislation~~

- ~~Bush Fires Act, 1949~~
- ~~Local Government Act, 1993~~

~~(e) Other~~

- ~~AUSTROADS - Design of Sprayed Seals (1987)~~

MATERIALS

C244.03 BINDERS

(a) Bitumen

1. Bitumen shall be Class 170 conforming to AS2008.

(b) Refinery Cutback Bitumen

1. Refinery cutback bitumen shall conform to AS 2157.

C244.04 ADDITIVES

(a) Cutter Oil

**Cutter
Specification**

1. Cutter oil shall conform to the requirements of AS3568, displaying an Abel flash point of not less than 38°C and a viscosity at 40°C not greater than 2.0 millipascal seconds, with the following qualifications to the properties for its classification as set down in AS3568 Table 1:

- (i) Either "Aniline point" or "Aromatic content" is acceptable.
- (ii) There shall be no "Density" requirement.
- (iii) The presence of water, assessed visually as an immiscible phase in any sample of the material, shall be grounds for its rejection. AS2341.9 shall not be demanded as a referee test if more than 0.1% of liquid water is found in any delivery or batch.
- (iv) If the viscosity is calculated by the equation given in Table 1, Note 3 of AS3568, "f" shall be taken to be 0.0009 per °C.

2. Delivery and storage procedures for cutter oil delivered in drums or in bulk shall ensure that all containers are clean and free from any deleterious material prior to filling with cutter oil, and all drums are stored so as to ensure that entry of water through seals or welds in the drums is prevented.

**Delivery &
Storage**

(b) Adhesion Agent

Adhesion Agent

1. Bitumen adhesion agents shall conform to RTA Specification 3259.

C244.05 AGGREGATE

1. Aggregate shall conform to AS 2758.2.

Specification

2. The Contractor shall obtain test results for each lot/stockpile of aggregate, and certification of compliance with AS 2758.2 from a suitably accredited NATA laboratory, before aggregate from the lot is incorporated in the Works.

Test Requirements

C244.06 PRECOATING AGENT

1. Aggregate precoating agent(s) shall conform to RTA Specification 3258.

Specification

C244.07 SAMPLING AND TESTING OF MATERIALS

1. Sampling and testing of materials shall be arranged by the Contractor and carried out by a NATA registered laboratory in accordance with the relevant materials specifications cited in this Specification.

NATA Registration

DESIGN OF BITUMINOUS SURFACING

C244.08 GENERAL

1. Reserved.

2. The Contractor shall carry out the design of bituminous surfacing in accordance with the procedure contained in AUSTRROADS Design of Sprayed Seals (1987) and shall submit these design details to the Principal Certifying Authority. Design application rates shall be known as "nominated application rates" and materials as "nominated materials".

AUSTRROADS Design Procedure

3. The following additional details are required:

Additional Information Sought

- (i) Test results for all nominated materials.
- (ii) Aggregates - source, geological type, nominated grading, ALD.
- (iii) Precoating agent and bitumen adhesion agent - types and proportions.
- (iv) Bitumen - refinery source, certification of compliance with AS2008.
- (v) Cutback bitumen - refinery source of bitumen, source of cutter, certification of compliance with AS2157.

APPLICATION OF SPRAYED BITUMINOUS SURFACING

C244.09 GENERAL

1. The Contractor shall carry out sprayed bituminous surfacing so as to: **Work Quality**
 - (i) provide a uniform application of binder with adequate adhesion to the underlying surface;
 - (ii) provide a complete cover of interlocking aggregate particles, and
 - (iii) achieve effective bond between binder and aggregate.

2. The Contractor shall give the Principal Certifying Authority two days notice of intention to commence sprayed bituminous surfacing, confirming spray rates, nominal aggregate size and ALD, and shall obtain the Principal Certifying Authority's approval to proceed.

C244.10 PRECOATING OF AGGREGATE

1. The aggregate precoating agent shall be applied to the aggregate in a manner and at a rate and time which will provide a complete, light, uniform, effective cover of all aggregate particles at the time of spreading. **Application**

2. Precoating of aggregate shall not be carried out when rain is imminent. If aggregate has been precoated and rain appears imminent, the aggregate shall be adequately covered to prevent the precoating material being washed from the aggregate particles. **Weather Conditions**

3. The Contractor shall take precautions, such as covering stockpiles, to prevent settlement of dust, penetration of moisture or drying out of the precoating agent on the stockpiled aggregate. **Cover for Stockpiles**

C244.11 PLANT

1. A mechanical sprayer shall be used to apply primer, primerbinder and binder. The sprayer shall have a current Sprayer Certificate (RTA Form 354) issued by the Roads and Traffic Authority of NSW. **Sprayer Certificate**

2. The spray nozzles shall be of the make and type endorsed on the Sprayer Certificate. Any nozzles which may be damaged or become unduly worn or defective shall be replaced by satisfactory nozzles of similar type. A sufficient number of nozzles for this purpose shall be available at all times. **Spray Nozzles**

3. Mechanical spreading equipment shall be used to spread aggregate and shall be capable of achieving a uniform spreading rate. **Aggregate Spreader**

4. Rollers shall be in accordance with Clause C244.20. **Rollers**

5. The Contractor shall remove from the work any plant or equipment not fully operational or not in a satisfactory condition for carrying out work in accordance with this Specification. **Faulty Equipment**

C244.12 PREPARATION OF PAVEMENT SURFACE

1. Before the application of primer, primerbinder or binder, the pavement surface **Pavement**

shall be swept by the use of a mechanically-operated rotary road broom or suction broom to provide a uniformly clean surface. If necessary, additional sweeping shall be done by hand, using stiff brooms. Sweeping shall extend at least 300mm beyond each edge of the area to be sprayed.

Sweeping

2. Adherent patches of foreign material shall be removed from the surface of the pavement.

Foreign Matter on Pavement

3. For the spraying of primer or primerbinder, the pavement surface shall be slightly damp so as to impede dust interfering with initial adhesion.

Damp Pavement

C244.13 REVIEW OF NOMINATED APPLICATION RATES

1. The Contractor shall select the locations where each lot of aggregate is to be incorporated in the Works.

Aggregate Lots

2. The Contractor shall review the bituminous surfacing design at each location based on the actual ALD test result for the lot of aggregate instead of the ALD value of the nominated aggregate, and using the AUSTROADS Design of Sprayed Seals (1987). The revised application rates shall be known as “target application rates”.

Target Application Rates

3. The Contractor shall submit details of the aggregate lot and target application rates of each work location to the Principal Certifying Authority for approval before commencing sprayed sealing at that location.

Contractor's Responsibility

C244.14 BINDER TEMPERATURE REQUIREMENTS

1. Bitumen and cutback bitumen shall be within the range shown in Table C244.1 when incorporated with cutter oil.

Mixing Temperature

2. Temperature ranges for spraying of primers, primer binders and binders shall be within the ranges shown in Table C244.1.

Spraying Temperature

3. The Contractor shall measure and record the temperature of the binder, using a thermometer. The thermometer shall be verified as accurate to within 2.5 percent of the correct temperature.

Measurement of Temperature

4. If the temperature of the bituminous material is below the applicable lower limit from Table C244.1, the bituminous material may be heated providing safe heating practices are adopted. Burners shall not be used unless the level of the material in the heating tank is at least 250 mm above the tops of the heating tubes. The Contractor shall comply with the Bush Fires Act, 1949 and the Local Government Act 1993. Two or more suitable fully-charged pressurised chemical fire extinguishers shall be placed conveniently to the heaters at all times while heating is in progress.

Safe Heating Practices

5. During heating, the temperature of the bituminous material shall not exceed the applicable upper limit from Table C244.1. The temperature of the bituminous material just above the heating tubes shall be checked at regular intervals to ensure that there is no local overheating.

Heating Limits

6. Bituminous materials shall not be held at temperatures within the ranges shown in Tables C244.1 for periods in excess of ten hours.

Max Period of Heating

7. Any bituminous material which has been overheated shall not be used in the work. The Contractor shall record disposal of such material confirming its exclusion from use under this contract.

Overheated Bitumen

C244.15 PAVEMENT TEMPERATURE AND WEATHER CONDITIONS

- | | | |
|----|---|-------------------------------------|
| 1. | The Contractor shall measure and record pavement temperatures at regular intervals during the course of the work. For this purpose, a suitable type of thermometer shall be placed in direct contact with the pavement and allowed to remain in position until the reading becomes steady. The bulb of the thermometer shall be covered from direct sunlight with a small heap of grit or similar material. | Measurement and Recording |
| 2. | If the pavement is partly in sun and partly in shade, the temperatures for both conditions shall be taken and recorded. | Sun and Shade Conditions |
| 3. | Spraying primers, primerbinders and binders shall be undertaken only if the pavement temperature has been at or above the minimum temperature shown in Table C244.1 for at least one hour before commencement of spraying and does not fall below the specified minimum pavement temperature for spraying during the period of spraying. | Minimum Pavement Temperature |
| 4. | Spraying shall not be carried out on a wet pavement, while rain appears imminent or during high winds or dust storms. | Spraying Conditions |

TYPE OF MATERIAL	CLASS OR GRADE	EQUIVALENT % CUTTER	MAX HEATING TEMP (°C)	MIN PAVEMENT TEMP (°C)	SPRAYING TEMP (°C)
Bitumen	170		190	10	160 - 190
Cutback Bitumen		Conventional Cutter			
	AMC 00		30	10	10 - 20
	AMC 0	56)	55	10	35 - 55
	AMC 1	44)	80	10	60 - 80
	AMC 2	34)	100	10	75 - 100
	AMC 3	27)	115	10	95 - 115
	AMC 4	21)	135	10	110 - 135
	AMC 5	16)	150	10	120 - 150
	AMC 6	11)	160	10	135 - 160
	AMC 7	7)	175	10	150 - 175
		3)			
Cutback Bitumen		Fast Evaporating Cutter			
	FC2		95	5	70 - 75
	FC3	25)	95	5	80 - 90
	FC4	20)	110	5	95 - 110
	FC5	15)	140	10	120 - 140
	FC6	10)	150	10	130 - 150
	FC7	7)	160	10	140 - 160
		3)			

Table C244.1 - Temperature Limits

C244.16 INCORPORATION OF CUTTER OIL AND ADHESION AGENT

(a) Cutting Back Bitumen

- | | | |
|----|---|------------------------------------|
| 1. | The Contractor shall determine and record the proportion of cutter oil required for each sprayer load, using MR Form 466 and based on the measured pavement temperatures. | Contractor's Responsibility |
| 2. | The cutter oil, without being previously heated, shall be pumped into the sprayer, | Mixing Cutter |

followed by the hot bitumen. The full sprayer load of cutback bitumen shall be circulated at a rate of at least 700 litres per minute for twenty minutes to ensure that the mixture is homogeneous.

Oil

3. If a part sprayer load of field cutback bitumen is unused on the date of mixing, and needs to be returned to the heater tanks, it shall be placed in an empty tank reserved for that purpose. No bitumen or cutter shall be added to the returned cutback bitumen unless the tank is fitted with an effective mechanical mixing system. When the returned cutback bitumen is subsequently used as part of a sprayer load, allowance shall be made for the cutter oil contained in the returned cutback bitumen.

***Unused
Cutback
Bitumen***

(b) Bitumen Adhesion Agent

1. Where bitumen adhesion agent is to be included, it shall be added to the bitumen in the sprayer and the mixture circulated at a rate of at least 700 litres per minute for fifteen minutes before spraying.

***Mixing
Adhesion
Agent***

C244.17 APPLICATION OF BINDER

(a) General

***Limit on Spray
Area***

1. The area to be sprayed with primerbinder or binder shall be limited to the area which can be covered with aggregate at the target application rate within fifteen minutes of spraying bitumen or cutback bitumen.
2. Nominated and target application rates and quantities of binder shall be based on the volumes of bitumen measured at a temperature of 15°C and shall not include any bitumen adhesion agent and/or cutter oil.
3. Where bitumen adhesion agent and/or cutter oil have been added to the binder, the application rate of the total binder at 15°C shall be adjusted to allow for the quantities of bitumen adhesion agent and/or cutter oil in the mixture.
4. The Contractor shall determine the hot application rate of total binder, including bitumen adhesion agent and/or cutter oil, using MR Form 466.
5. Where refinery cutback bitumen is used as the binder, the target application rate of binder shall be increased by the Contractor to allow for the percentage cutter oil in the mixture as indicated in Table C244.1.

***Nominated
and Target
Rates***

***Adjustment of
Application
Rate***

***Calculation of
Hot
Application***

***Refinery
Cutback
Bitumen
Variation***

(b) Operation of the Sprayer

1. The type of spray nozzles to be used on the spray bar of the sprayer shall be compatible with the nature of the binder to be sprayed and its application rate.
2. Where the longitudinal edges of spray runs are not required to overlap, either special type end nozzles or intermediate nozzles set with a jig as end nozzles may be used. Where an overlap is required, the overlap of spray between adjacent longitudinal runs shall be in the range 50-100mm for special type end nozzles. If intermediate nozzles are to be used to overlap adjacent longitudinal sprays the nozzles shall be set in the normal manner for intermediate nozzles and the overlap shall be in the range 250-350mm.
3. The spraying of primer, primerbinder or binder for each run of the sprayer shall commence on a protective strip of heavy paper weighing not less than 120 grams per square metre laid across and held securely to the pavement surface beforehand. The sprayer shall commence moving at a sufficient distance in

Nozzle Type

Spray Overlap

***Protective
Paper Strip***

advance of the protective strip to ensure that the road speed for correct application is attained at the commencement of spraying.

- | | | |
|-----|--|--------------------------------|
| 4. | The sprayer shall maintain a constant road speed throughout the length of each sprayer run. | Road Speed |
| 5. | The spraying for each run shall terminate on a protective strip of paper laid across and held securely to the pavement surface beforehand. The width of paper at the commencement and/or termination of each run shall not be less than that endorsed on the Sprayer Certificate. | Terminating Paper Strip |
| 6. | Spraying shall cease immediately any defect develops in the spraying equipment and spraying shall not recommence until the fault has been rectified. | Equipment Defects |
| 7. | Where any blockage or partial blockage of nozzles occurs, spraying shall cease immediately. If the blockage is due to the condition of the binder being sprayed, that load together with any binder from the same bulk tanker or supply unit shall not be used. | Nozzle Blockage |
| 8. | Where a mechanical sprayer is not able to satisfactorily spray small areas or areas of irregular shape, such areas shall be sprayed by means of the hand spray equipment attached to the sprayer. | Hand Spraying |
| 9. | After each sprayer run, the quantity of binder sprayed shall be checked against the area covered and any necessary adjustments shall be made to ensure that the target application rate is achieved in subsequent runs. If the actual application rate of binder after three runs differs by more than 5 per cent from the target application rate, the sprayer shall not be used until a new Sprayer Certificate has been obtained. | Application Rate Checks |
| 10. | Areas not within 5 percent of the target application rate of primer, primerbinder or binder shall constitute a 'Nonconformance' under the Contract. | Non-conformance |

C244.18 WORK RECORDS

- | | | |
|----|--|----------------------------|
| 1. | Particulars of the work performed shall be recorded by the Contractor on RTA Form 23 - Bituminous Surfacing Daily Record or a record of at least equivalent detail. Details of primer, primerbinder, binder and aggregate applied shall be recorded immediately after every sprayer run. Each form shall be signed by the Contractor's representative as a true record of the work performed. The Contractor shall supply to the Principal Certifying Authority a copy of each completed form. | Sprayer Run Records |
|----|--|----------------------------|

C244.19 CONTROL OF TRAFFIC

- | | | |
|----|--|------------------------------------|
| 1. | The Contractor shall provide for traffic in accordance with the requirements of the Specification for CONTROL OF TRAFFIC while undertaking the work and shall take all necessary precautions to protect the work from damage until such time as the new seal coat has developed sufficient strength to carry normal traffic without disturbance of the aggregate. | Contractor's Responsibility |
| 2. | Where early use of the new seal is needed to facilitate the movement of traffic, vehicles may be allowed to run on the work after initial rolling has taken place provided that vehicles are controlled to such slow speeds that no displacement of aggregate occurs. Where necessary, the Contractor shall use patrol vehicles to ensure that traffic travels at an acceptable speed. | Speed Control |
| 3. | The Contractor shall take all necessary steps to avoid or minimise delays and inconvenience to road users during the course of the work. Where adequate detours or side tracks are included in the Contract or are otherwise available, | Minimise Traffic Delays |

traffic shall be temporarily diverted while the work is in progress.

- | | | |
|----|--|---------------------------------------|
| 4. | If facilities for the diversion of traffic are not available, the Contractor may spray part width of the pavement in the one operation and make available to traffic the adjacent strip of roadway, except during the actual spraying operation when all traffic movement through the work shall cease. Traffic shall not be permitted to encroach upon the edge of the sprayed bituminous material until such time as it is covered with aggregate. | <i>Part Width
Spraying</i> |
|----|--|---------------------------------------|

C244.20 APPLICATION AND INCORPORATION OF AGGREGATE

- | | | |
|-----|--|---|
| 1. | The application of aggregate shall proceed after spraying is commenced and shall be completed within fifteen minutes of spraying bitumen or cutback bitumen. | <i>Time for
Completion</i> |
| 2. | Wet aggregate shall not be used. | <i>Wet Aggregate</i> |
| 3. | The Contractor shall apply the aggregate of the specified nominal size and at the target aggregate application rate. Sufficient loaded and measured trucks of dry aggregate shall be at the site to provide full cover for the area sprayed. | <i>Procedure</i> |
| 4. | The aggregate shall be spread uniformly over the sprayed surface by means of suitable mechanical spreading equipment. | <i>Uniform
Application</i> |
| 5. | Any bare or insufficiently covered areas shall be re-run by the mechanical spreader or covered by hand as necessary to give a uniform and complete coverage. Any aggregate spread in excess of the target aggregate application rate shall be removed before rolling is commenced. | <i>Deficient or
Excess
Aggregate</i> |
| 6. | After the aggregate has been applied to each section of the work, initial rolling shall be carried out with two or more dual axle smooth pneumatic tyred multi-wheel rollers of minimum load of one tonne per tyre and minimum tyre pressure of 550 kPa. Initial rolling shall continue until the aggregate is firmly embedded in the primerbinder or binder. | <i>Initial Rolling</i> |
| 7. | If the aggregate is not evenly distributed over the surface of the pavement, the surface shall be traversed with a light drag broom or by light hand brooming after the initial rolling. If the broom has any tendency to dislodge aggregate particles bedded in the primerbinder or binder, the Contractor shall defer or eliminate the drag brooming. | <i>Brooming of
Surface</i> |
| 8. | Backrolling shall then be carried out for a minimum period of one hour per roller per 1000 square metres sprayed. | <i>Backrolling</i> |
| 9. | Where a bituminous surfacing is specified with separate applications of coarse and fine aggregate on a single application of binder, the coarse aggregate shall be applied first, rolled and any necessary brooming carried out as described above, before application of the fine aggregate and its subsequent rolling and brooming. In this case, the time limits for incorporation of aggregate (paragraph 1 above) shall apply only to the application of the coarse aggregate. The application of fine aggregate will proceed in any case as soon as possible after satisfactory application and embedment of the coarse aggregate. | <i>Two
Aggregate
Application</i> |
| 10. | When the aggregate has been evenly spread and embedded in the binder, any remaining loose particles of aggregate shall be removed from the pavement not prior to two days and not later than ten days after sealing. | <i>Removal of
Loose
Particles</i> |

C244.21 PROTECTION OF SERVICES AND ROAD FIXTURES

- | | | |
|----|---|---|
| 1. | The Contractor shall take all necessary precautions to prevent primer, primerbinder, binder, aggregate or other material used on the work from entering | <i>Contractor's
Responsibility</i> |
|----|---|---|

or adhering to gratings, hydrants or valve boxes, access chamber covers, kerb and gutter, bridge or culvert decks and other road fixtures.

2. Immediately after aggregate has been spread over the binder, the Contractor shall clean off or remove any sprayed surfacing material and leave the services and road fixtures in a condition equivalent to that existing when the Contractor commenced the sprayed surfacing work.

***Services and
Road Fixtures***

NONCONFORMANCE OF MATERIALS AND WORK

C244.22 GENERAL

1. Non conforming materials and work shall be rejected.

***Replace or
Correct Non-
conformance***

LIMITS AND TOLERANCES

C244.29 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C244.2 below:

Item	Activity	Limits/Tolerances	Spec Clause
1.	Design of Bituminous Surfacing	Contractor to provide details of design to Principal Certifying Authority at least seven days before proposed commencement of work	C244.08
2.	Sweeping of Pavement Surface	Sweeping shall extend at least 300mm beyond each edge of the area to be sprayed	C244.12
3.	Bitumen Heating		
	(a) Bitumen Temperature	When incorporated with cutter oil, bitumen shall be in temperature ranges as per Table C244.1.	C244.14
	(b) Refinery Cutback Bitumen Temperature	At the time of spraying shall be in temperature range as per Table C244.1.	C244.14
	(c) Overheating of Bitumen	Bituminous material shall not be heated above the upper temperature limits of Table C244.1. Overheated material shall be rejected.	C244.14
	(d) Retention of Temperature	Bituminous materials shall not be held at temperatures within the ranges of Table C244.1 for periods in excess of 10 hours.	C244.14
4.	Spraying Temperature		
	(a) Pavement Temperature	Bituminous surfacing shall not be undertaken if the pavement temperature has not been at or above temperatures given in Table C244.1 for at least one hour before commencement of spraying.	C244.15
5.	Cutting Back Bitumen	Circulation of hot bitumen and cutter oil mixture in the sprayer shall be at the rate of 700 litres per minute for 20 minutes.	C244.16
6.	Bituminous Adhesion Agent	Circulation of bituminous adhesion agent with hot bitumen shall be at the rate of 700 litres per minute for 15 minutes.	C244.16
7.	Application of Bituminous Material		
	(a) Spray Area	Area to be sprayed shall be limited to area which can be covered by aggregate at target application rate within 15 minutes of spraying.	C244.17
	(b) Application Rates	Application rates and quantities shall apply to a temperature of 15°C.	C244.17
	(c) Primer	At least a 48 hour period shall elapse after spraying of primer before binder for a seal is	C244.17

SPRAYED BITUMINOUS SURFACING

Item	Activity	Limits/Tolerances	Spec Clause
		applied.	
	(d) Primerbinder	At least a 14 day period shall elapse after spraying of primerbinder before application of binder.	C244.17
	(e) Nonconformance	Areas not within 5 percent of the target application rate of primer, primerbinder or binder shall constitute 'nonconformance' under the Contract.	C244.17
8.	Application of Aggregate		
	(a) Spreading Time	Application of aggregate shall be completed within 15 minutes of spraying bitumen or cutback bitumen on each section.	C244.20
9.	Rolling		
	(a) Roller Numbers and Type	Initial rolling shall be carried out with two or more dual axle smooth pneumatic tyred multi-wheeled rollers. Minimum load of one tonne per tyre and minimum tyre pressure 550KPa.	C244.20
	(b) Backrolling	Backrolling shall be undertaken for minimum of one hour per roller per 1000 square metres sprayed.	C244.20

Table C244.2 - Summary of Limits and Tolerances

ANNEXURE C244A - DETAILS OF WORK

Section		Prime	Primer Seal		Seal or Reseal	
From	To		Binder	Aggregate	Binder	Aggregate

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C245

ASPHALTIC CONCRETE

Specification C245 Asphaltic Concrete

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

C245.01 GENERAL

1. This specification details requirements for asphalt paving of road, footpath and parking areas and includes the following work:

- a) Notification of residents,
- b) Supply of all materials for the manufacture of asphaltic concrete,
- c) Design of asphalt meeting the requirements of this specification,
- d) Heating and mixing in an approved plant,
- e) Sampling and testing,
- f) Sweeping and cleaning and tack coating of surfaces to be treated,
- g) Key in to existing pavement, kerbs and other fixtures,
- h) Hauling asphaltic concrete from plant to site of work,
- i) Spreading, compacting and finishing the asphaltic concrete,
- j) Removal and disposal of excess materials and waste.

C245.02 REFERENCE DOCUMENTS

1. Australian Standards and Roads and Traffic Authority Test Methods are referred to in abbreviated form; for example, AS1234 or T123. For convenience, the full titles are given below.

a. Australian Standards

AS1141	Sampling and Testing Aggregates
AS1160	Bituminous Emulsions for construction and maintenance of pavements
AS2008	Residual Bitumen for Pavements
AS2150	Asphalt (Hot Mixed)
AS2357	Mineral Fillers for Asphalt
AS2758.5	Aggregates and Rock for Engineering Purposes – Asphalt Aggregates
AS2734	Asphalt (Hot-Mixed) Paving – Guide to Good Practice
AS2891	Sampling and Testing of Asphalt
AS1742.3	Traffic control devices for works on roads

b. Council Specifications

C201 – Control of Traffic

c. Roads and Traffic Authority

RTA Traffic Control at Worksites Manual

C245.03 QUALITY ASSURANCE

1. Asphaltic concrete contractors shall have Third Party Quality Assurance Accreditation to Australian Standard AS 9001 for the manufacture, supply and laying of Asphaltic Concrete. Documentary evidence shall be provided to the PCA prior to placing any asphaltic concrete.
2. Records of quality assurance shall be maintained by the Contractor and be available for inspection on request.

C245.04 NOTIFICATION

1. Before commencing site operations, the Contractor shall notify all affected residents, businesses and the Principal Certifying Authority of the scheduled works.
2. Such notification shall consist of two parts:
 - a. Written notice delivered at least seven days in advance of proposed work; and
 - b. A further written or verbal confirmation delivered not less than 24 hours prior to commencement of work.
3. Such notices shall detail:
 - intended date of commencement;
 - duration of project;
 - hours of work;
 - name of street(s) affected and limits of work;
 - a contact phone number of Contractor's local representative;
 - description of work;
 - any precautions to be followed by the public.
4. A sample of proposed written notification for residents and businesses shall be submitted to the Principal Certifying Authority for approval prior to use.

C245.05 **SUPPLY OF ASPHALT**

1. **Materials for Asphalt**
 (a) **Aggregates**

(i) Coarse Aggregate

Coarse aggregate comprises all mineral matter retained on a 4.75mm Australian Standard sieve. Coarse aggregate shall consist of crushed rock, metallurgical slag or gravel which is clean, dry, hard, tough, sound and free from dust, clay, dirt or other matter deleterious to asphalt.

The coarse aggregate shall conform to the following requirements -

- **Wet Strength - AS 1141.22**

The wet strength shall not be less than 100kN for any fraction

- **Wet/Dry Strength Variation - AS1141.22**

The wet/dry strength variation shall not exceed 35 percent for any fraction or constituent.

- **Particle Shape - AS1141.14**

The proportion of misshapen particles in the fraction retained on the 9.50mm Australian Standard sieve shall not exceed 35 percent using a calliper ratio of 2:1.

- **Fractured Faces of Coarse Aggregate - Test Method T239**

Aggregate which is retained on a 6.70mm Australian Standard sieve shall consist of at least 80 percent by mass of particles with at least two fractured faces.

(ii) Fine Aggregate

Fine aggregate comprises all mineral matter passing a 4.75mm Australian Standard sieve and retained on a 0.075mm Australian Standard sieve. The fine aggregate shall generally consist of natural sand or material derived from the crushing of sound stone or gravel and be free of coatings or loose particles of clay, silt or other matter deleterious to asphalt.

(b) **Mineral Filler**

Mineral filler comprises all material passing a 0.075mm sieve.

Mineral filler shall comply with AS2357.

(c) Binder

1. The binder shall be bitumen conforming to the requirements of AS2008.
2. The class of bitumen to be used in the work shall be Class 320 unless otherwise specified.
3. The Contractor shall when directed by the Principal Certifying Authority provide documentary evidence of the binder quality for each delivery used in a particular work.

(d) Polymer Modified Bitumens

1. Polymer modified bitumens shall be used where the asphaltic concrete will be subjected to traffic loads which will cause shoving and/or rutting such as roundabouts and queueing areas.
2. Polymer modified bitumens shall comply with the limits shown in Table C245.1 as appropriate and the requirements set out below.
3. The binder shall be pumped and stored at the manufacturer's recommended temperatures.

**Table C245.1
Specified Properties for Polymer Modified Bitumens**

Test	A3L	Test Method
Elastic Recovery at 60°C (%)	90 min	MBT 21
Consistency on ER at 60°C (Pa.s)	5000 min	MBT 21
Torsional Recovery at 25°C (%)	50 min	MBT 22
Viscosity at 180°C (Pa.s)	0.6 max	MBT 11

NOTE: For the purpose of assessing compliance with this Table samples shall be heated to 135°C without high shear mixing and immediately cast into test moulds.

2. Proportioning of mixes

The suppliers shall design nominal size mixes to comply with the general limits in Table C245.2. These mixes shall be known as the Nominated Mix. Mix designs For AC14, AC20 and AC28 complying with Roads and Road Traffic Specification Part R116 will be deemed to comply to this specification.

TABLE C245.2

**ASPHALTIC CONCRETE MIX
GENERAL LIMITS**

	Mix Designation						
	AC 5	AC 7	GG10	AC10	AC14	AC20	AC28
Marshall Stability (50 blows) kN (Min)	5	5	4	6	6.5	6.5	
Flow (mm)	2-4	2-4	2-5	2-4	2-4	2-4	
Voids in Compacted Mix (%)	3-7	3-7	2-6	3-7	3-7	3-7	3-7
Binder Grade	Class 170 or 320			Class 320 Bitumen			
	Mix Designation						
	AC 5	AC 7	GG10	AC10	AC14	AC20	AC28
	General Limits of Aggregate Grading (job mix to be designed within these limits)						
Sieve Size	% Passing						
37.5mm	-	-	-	-	-		100
26.5mm	-	-	-	-		100	90-100
19.0mm	-	-	-		100	95-100	72-90
13.2mm	-		100	100	85-100	70-90	55-80
9.5mm	-	100	90-100	90-100	70-85	55-80	45-70
6.7mm	100	80-100	65-85	70-90	60-80	45-70	35-60
4.75mm	85-100	70-90	60-80	60-80	50-72	38-60	30-50
2.36mm	55-75	45-60	55-75	40-60	35-55	27-50	20-40
1.18mm	38-57	35-50	45-65	27-45	25-44	18-40	14-30
600µm	26-43	22-35	30-50	17-35	17-32	14-29	10-25
300µm	15-28	14-25	20-30	13-26	10-24	9-22	6-18
150µm	8-18	8-16	10-18	7-16	7-16	6-15	4-14
75µm	5-11	5-8	5-11	4-10	4-8	3-7	3-7
Binder Content as percentage by mass of total mix	5-7	5-7	5.5-7.5	5-7	4.5-6.5	4-6	3.5-5.5
Ratio Filler/Binder content (by mass)	0.8 – 1.5						

3. **Nominated Mixes**

(a) **Submission of Nominated Mixes**

The Contractor shall submit details of each asphalt mix proposed together with test Certificates from a laboratory with appropriate N.A.T.A. accreditation. Where mixes complying to the limits in Table C245.2 are already being produced, details of these mixes should be submitted in place of the design mix and be clearly defined as "Nominated Job Mix".

Work shall not commence until a nominated mix has been approved by the Principal Certifying Authority.

The aggregate grading and binder content of a nominated mix shall be known as the "nominated aggregate grading" and "nominated binder content" respectively.

The following details of nominated mixes shall be submitted to the Principal Certifying Authority :

(i) **Constituent Materials**

- . Aggregates - source, geological type
- . Mineral Filler - type, source.
- . Binder - source, class or grade.
- . Bitumen Adhesion Agent - name, type, source of supply.
- . Relevant test results verifying material properties for the abovementioned materials.

(ii) **Mix Design**

Test results of the following properties of each nominated mix are to be supplied.

- Aggregate Grading.
- Binder Content, by mass of total mix.
- Marshall Stability (50 blows).
- Voids in the compacted mix, expressed as percent by volume.
- Proportion of each constituent by percentage of mass of total asphalt mix

The required testing shall have been carried out within the twelve month period prior to the date of submission to Council. Notwithstanding this, materials tested shall be representative of those which will constitute the asphalt to be supplied. All phases of any particular test shall be performed at one laboratory.

(b) **Variations to Nominated Mixes**

If the Contractor proposes to vary the proportions of the constituents in a nominated mix or proposes to change the source of supply of any constituent, the Contractor shall submit a new nominated mix.

4. **Production of Asphalt**

(a) **Plant**

Mixing shall be undertaken in a manufacturing plant which complies with AS 2150. The plant shall have sufficient capacity to supply asphalt for continuous operation of the paver.

(b) Temperatures of Materials

Heating of aggregates shall be limited to such a temperature that, when mineral filler and binder are added, the temperature of the mixed asphalt shall be within the appropriate asphalt temperature range shown in Table C245.3.

TABLE C245.3

TEMPERATURE FOR PRODUCTION OF ASPHALT

Type of Binder	Class 170 Bitumen	Class 320 Bitumen
Binder Temperature	140°C - 165°C	145°C-170°C
Asphalt Temperature	140°C - 165°C	145°C-170°C

(c) Storage of Asphalt

Asphalt shall be stored in accordance with AS2150, Section 7.

5. Properties of Plant Mix

During production, any mix produced shall not vary from the nominated mix by more than the amounts listed in Table 3.

TABLE C245.4

VARIATIONS TO NOMINATED MIX

Sieve Size	Permissible Variation Percent by Mass of Total Aggregate
4.7mm and larger	±7
2.36mm and 1.18mm	±5
600mm and 300mm	±4
150µm	±2.5
75µm	±1.5
Binder Content	± 0.3%

Marshall Stability, voids and Filler/Binder ratio shall not vary from the limits given in Table C245.2.

6. Sampling and Testing Asphalt

(a) Sampling. Asphalt shall be sampled at either the point of loading or the point of delivery to the work. Sampling of each nominal size of asphalt supplied shall be undertaken by the Contractor in accordance with AS2891.1.

Council may take audit samples for testing by it's own staff or any NATA accredited organisation nominated by it.

(b) Testing. Asphalt supplied for the work shall be tested in accordance with Table C245.6 by, or on behalf of, the Contractor at his cost. Testing shall be carried out by a laboratory with appropriate N.A.T.A. accreditation.

- (c) **Minimum Frequency of Sampling and Testing.** The minimum frequency of sampling and testing of asphalt for the quantity of asphalt supplied to the work each day shall be as specified in Table C245.5.
- (d) **Test Results.** The Contractor shall provide copies of all test results prior to the release of the final plan of subdivision.

TABLE TABLE C245.5

MINIMUM FREQUENCY OF SAMPLING AND TESTING OF ASPHALT

Quantity of Asphalt Supplied Each Shift	Minimum Frequency of Sampling and Testing
Less than 100 tonnes	One per 50 tonnes, or part thereof
101 to 300 tonnes	One per 100 tonnes, or part thereof
301 to 600 tonnes	One per 150 tonnes, or part hereof
Over 600 tonnes	One per 200 tonnes, or part thereof

TABLE C245.6

TESTING OF ASPHALT

Characteristic Analysed	Test Method	Minimum Frequency of Sampling and Testing
Grading of combined aggregate	AS 2891.3.1	As set out in Table C245.5
Binder Content	AS 2891.3.1	As set out in Table C245.5
Voids in compacted asphalt	AS 2891.9.1	As set out in Table C245.5

C245.06 TRANSPORT

1. Delivery of the mix shall be at a uniform rate within the capacity of the spreading and compacting equipment. Transport shall be as expeditious as possible to minimise cooling of the asphaltic concrete.
2. Unless approval is given to other means of measurement, the mass of all truckloads of mix shall be measured on a weighbridge certified by the Department of Consumer Affairs.

C245.07 PREPARATION OF PAVEMENT

1. **Cleaning of Surface.** The existing surface shall be dry, clean and free of any loose stones, dirt and foreign matter. When sweeping is required it shall extend, if feasible, beyond the edge of the proposed asphaltic concrete layer by at least 300mm. Any foreign matter adhering to the pavement and not swept off by the broom shall be removed by other means. Any areas significantly affected by oil contamination shall be cleaned by an approved method.
2. **Key-in to Existing Fixtures and Surfaces.** Key-in to existing kerbs and fixtures shall be such that the total asphalt cover is not less than the pavement being surfaced
3. Where an existing pavement is being overlaid, transverse Key-in joints shall be provided at the start and finish of the overlay such that:-
 - a. the compacted thickness of new asphalt at the joint is not less than 2.5 times the nominal size of aggregate in the mix.
 - b. a smooth transition from the existing to new be at a grade not greater than 3%.

C245.08 TACK COAT

1. **General.** Except on unsealed surfaces or as otherwise directed by the Principal Certifying Authority, the whole of the area to be sheeted with asphaltic concrete shall be lightly and evenly coated with cationic rapid setting bitumen emulsion, conforming to the requirements of AS1160.
2. The application rate of residual bitumen shall be 0.1 to 0.2 litres per square metre and shall be applied by a mechanical sprayer with spray bar, unless the areas to be sprayed are small, irregular or inaccessible to mechanical sprayers, in which case application by hand spraying or brushing may be permitted.
3. All contact surfaces or kerbs and other structures and all cold joints shall be coated with a thin uniform application of tack coat. Adequate time is to be allowed for the tack coat to break or cure before asphaltic concrete is laid. Over application of tack coat, due to existing surface depressions, shall be removed or dispersed by brushing.
4. **Precautions.** Care shall be taken to ensure that bitumen emulsion is not sprayed on, or allowed to coat any concrete kerbs, guardrail or bridge handrails adjacent to the pavement or shoulder. Any material so sprayed shall be removed as directed by the Principal Certifying Authority.
5. In locations with heavy pedestrian traffic, such as shopping areas, extra care shall be taken to keep pedestrians off tack coated areas.

C245.09 SPREADING

1. The spreading procedure shall follow the guidelines as set out in Section 7 of AS 2734 for spreading by self propelled paving machines. The laying temperatures shall be according to Table C245.7 below.

TABLE C245.7

MIX LAYING TEMPERATURES

Road Surface Temperature in Shade (°C)	Mix Temperatures °C			
	Layer Thickness Less Than 30mm	Layer Thickness 30mm to 40mm	Layer Thickness 45mm to 100mm	Layer Thickness Over 100mm
5-10	Not Permitted	150*	145*	130-155
10-15	150*	145*	140*	125-150
15-25	145*	140*	135*	120-145
Over 25	140*	135*	130*	115-140

* Minimum laying temperature.

2. The laying of asphaltic concrete will not be permitted when the surface of the road is wet or when cold winds chill the mix to such an extent that, in the opinion of the Principal Certifying Authority, spreading and compaction are adversely affected. The Principal Certifying Authority may reject that part of any truck load which contains lumps of cooled asphaltic concrete which are liable to affect the quality of the finished surface. Payment at the scheduled rate will be made for the actual quantity of asphaltic concrete used.

C245.10 COMPACTION

- Plant and Equipment.** Plant and equipment shall be as described in AS 2734, excepting that pneumatic rollers shall be used for secondary or intermediate rolling
- Acceptance Criteria for Compaction.** The acceptance for compaction shall be on a statistical basis where each day's work is a lot. When a days work is less than 100 tonnes of asphaltic concrete then two successive day's work may be aggregated as one lot. Any defective areas which show cracking, or bony or fatty material shall be excluded from the lot and shall be rectified by the Contractor before being tested.
- For each lot the Contractor shall take the cores on a random basis from the whole area and perform density tests on the cores in accordance with AS2891.9.1.
- When the depth of the course is greater than 60mm, the Principal Certifying Authority may elect to use a nuclear density gauge to measure density insitu.
- For core tests the layer thickness shall be deemed to be the mean thickness of the cores. For nuclear tests the layer thickness is the nominal layer thickness.
- The results shall be expressed as % voids related to the mean maximum density of the lot determined in accordance with AS2891.7.
- The Characteristic value of in Situ Voids (SV) of a lot shall be calculated from the formula: -

$$SV = \bar{X} + ks$$

where \bar{X} and s are the mean and standard deviation respectively of the individual void test values of the lot and k is a constant depending on the number of test values in the lot as described in Table C245.8 :-

Table C245.8

k	No. of Tests
1.06	3
0.98	4
0.94	5
0.92	6
0.91	7
0.90	8
0.89	9
0.88	10

8. In general, the number of tests per lot shall be six for cores and ten for nuclear density gauges. A different number of tests may be taken at the discretion of the Principal Certifying Authority.

9. No cores or nuclear density measurements shall be taken within 150mm of a joint or free edge. Unless directed by the Principal Certifying Authority, layers less than 30mm in thickness shall not be cored.

10. The Characteristic value of in Situ Voids (SV) shall not fall outside the range designated for the mix in Table C245.2. Where the compacted layer thickness is less than 50mm the range may be increased by 1% in each direction.

C245.11 JOINTS

1. **General.** The location of longitudinal and transverse joints shall be as approved by the Principal Certifying Authority and at the spacing nominated in the drawings. The surface finish of the asphalt at joints shall by inspection be similar to that of the remainder of the layer.
2. **Longitudinal Joints.** An automatically controlled joint matching device shall be used to control the levels of adjacent runs. Care shall be taken to provide positive bond between adjoining runs. Longitudinal joints shall be:
 - a. continuous and parallel.
 - b. coincident within 150mm of line of change in crossfall.
 - c. offset by at least 150mm from joints in underlying layers.
 - d. located away from traffic wheel paths.
 - e. located beneath proposed traffic linemarkings in the case of a wearing course.
3. Work shall be arranged to avoid longitudinal joint faces being left exposed overnight.
4. When pavers are laying asphalt in echelon, the hot joint so produced shall be constructed by leaving an uncompacted strip approximately 150 mm wide along the edge of the first run, and after the adjoining run has been spread, both sides of the joint shall be rolled simultaneously.
5. A joint shall be considered 'cold' when the temperature of the asphalt has dropped below 80°C.
6. **Transverse Joints.** When the end of the asphalt layer has cooled due to disruption of the work, or when resuming work on the next day, a transverse joint shall be formed.
7. Transverse joints shall be at right angles to the direction of laying. They shall be staggered by at least 1.0 m between successive layers and between adjacent runs.
8. Runs shall end either against a timber bulkhead to ensure a straight vertical, well compacted edge or by feathering out and compacting. In the latter case, before continuing the run the feathered material shall be cut back to a line where the full layer thickness exists. The surface shape of the end of the run shall be checked by a straight edge to locate the line of cut. The end of the previous run shall be lightly tack coated before the laying of the next run proceeds.
9. When the asphalt layer is required to join and match the level of an existing pavement surface, bridge deck or other fixture, sufficient of the existing material shall be cut out to achieve the minimum layer thicknesses as set out in Table C245.9.

C245.12 LEVEL CONTROL AND FINISHED PAVEMENT PROPERTIES

1. For RTA classified roads, the riding quality of the finished surface as measured with a calibrated NAASRA (AUSTRROADS) roughness meter vehicle or laser profilometer, shall have a roughness value not exceeding 50 counts per kilometre.
2. Where the roughness value of an existing layer exceeds 70 counts per kilometre the resurfaced pavement shall have a value not exceeding the value (S)
3. The roughness value shall be determined as follows –

$$S = (A * 0.6) + 5 \text{ counts /km}$$

Where:

A= count prior to overlay, and S and A are reported to the nearest 1 count per km

- i) Each lane shall be divided into sections 100 metres long. Any length less than 100 metres shall be included with the section immediately preceding it. Start and finish joints of the entire work shall not be included in any section.
- ii) The Roughness Value, reported for each 100 metre section, shall be the average of three (3) repeat runs over each 100 metre section, reported in NAASRA (AUSTRROADS) roughness counts per kilometre.
- iii) Roundabouts and other traffic calming devices shall not be measured according to this clause

4. The Principal Certifying Authority may require that the requirements of clause 245.11 apply to local roads with a design AADT greater than 2000 (10% heavy) or where the speed limit will be greater than 60 km/h.

5. For residential streets the finished surface shall not deviate from a 3m straight edge by more than 5 mm.

C245.13 TRAFFIC CONTROL

1. Traffic Control for the works shall comply with AS1742.3 and be guided by the Roads and Traffic Authority's "Traffic Control at Worksites Manual". All traffic controllers shall be accredited to RTA Standards and shall carry their current RTA endorsed Traffic Controllers Certificate.

2. Traffic arrangement diagrams (Traffic Plans) and evidence of traffic controllers accreditation shall be submitted for the Principal Certifying Authority approval at least 2 days prior to commencement of work. Records of plans used at each site shall be retained by the Contractor.

C245.14 CLEANING UP

1. The contractor shall remove and dispose of all surplus materials and waste generated by the works at the completion of the project.

C245.15 DEFECTIVE WORK

1. Work for which either the mix and/or paving work fails to meet this specification shall be rejected.

2. If the mix and/or paving work falls within the tolerances outlined in Table C245.9, Table C245.10 and Table C245.11, the Principal Certifying Authority may consider accepting the mix and/or paving work subject to the Contractor performing such remedial works as required by and to the satisfaction of the Principal Certifying Authority.

3. **Voids.** The voids content of asphalt laid, when available, shall be used to determine whether the actions in Table C245.9 shall apply. In all other cases the voids in mix determined during plant control shall apply.

TABLE C245.9

LABORATORY DENSITY (50 BLOW MARSHALL) AIR VOIDS (%)	ACTION TO BE TAKEN FOR VARIATION IN SPECIFIED VOIDS (%)	
	DENSE GRADED	GAP GRADED
Less than 1	Material to be replaced	Material to be replaced
1	Contractor to show cause why the material should not be removed	Contractor to show cause why the material should not be removed
2	Contractor to show cause why the material should not be removed	Accept
3	Accept	Accept
4	Accept	Accept
5	Accept	Accept
6	Accept	Accept
7	Accept	Contractor to show cause why the material should not be removed
8	Contractor to show cause why the material should not be removed	Contractor to show cause why the material should not be removed
9	Contractor to show cause why the material should not be removed	Contractor to show cause why the material should not be removed
10	Contractor to show cause why the material should not be removed	Material to be replaced
11 or greater	Material to be replaced	Material to be replaced

Note: In testing for voids content, the percentage of voids will be taken to the nearest whole number.

4. **Compaction.** The actions scheduled in Table C245.9 shall apply based on density tests taken in accordance with Clause C245.10.

5. **Aggregate Grading and Binder Content.** For asphalt having aggregate grading or binder content outside the limits specified in Clause 245.05, the deduction points shown in Table C245.10 shall apply, and shall be cumulative. If the combined deduction points exceed 20, the Contractor shall remove the asphalt and replace it with asphalt conforming to this specification at no cost to Council.

TABLE C245.10

**DEDUCTION POINTS FOR
AGGREGATE GRADING AND BINDER CONTENT**

DESCRIPTION	VARIATIONS*	DEDUCTION POINTS
Aggregate Grading Element	(% by mass of total aggregate)	
Pass 37.5mm AS sieve	Each 2 or part thereof	1
Pass 26.5mm AS sieve	Each 2 or part thereof	1
Pass 19.0mm AS sieve	Each 2 or part thereof	1
Pass 13.2mm AS sieve	Each 2 or part thereof	1
Pass 9.50mm AS sieve	Each 2 or part thereof	1
Pass 6.70 mm AS sieve	Each 2 or part thereof	1
Pass 4.75mm AS sieve	Each 2 or part thereof	1
Pass 2.36mm AS sieve	Each 1 or part thereof	1
Pass 1.18mm AS sieve	Each 1 or part thereof	1
Pass 0.600mm AS sieve	Each 1 or part thereof	1
Pass 0.300mm AS sieve	Each 1 or part thereof	2
Pass 0.150mm AS sieve	Each 0.5 or part thereof	2
Pass 0.075mm AS sieve	Each 0.5 or part thereof	2
Binder Content for	(% by mass of total asphalt mix)	
20mm asphalt or smaller	Each 0.1 or part thereof	3
28mm and 40mm asphalt	Each 0.1 or part thereof	2
Filler/Binder Ratio	Each 0.1 or part thereof	1

Note* Outside the ranges for aggregate grading and binder content set out in Table C245.2.

6. **Riding Quality.** For sections having riding quality outside that specified in Clause C245.12, the actions in Table C245.11 shall apply.

TABLE C245.11

**ACTION TO BE TAKEN FOR VARIATIONS
IN RIDING QUALITY**

Tolerance	Action
Roughness Count Rate above specified count (counts/km) >10	Top 30mm to be removed and replaced providing remaining thickness of layer >25mm otherwise remove and replace whole depth of layer
Deviation from a 3 m straight edge > 7mm	Top 30mm to be removed and replaced providing remaining thickness of layer >25mm otherwise remove and replace whole depth of layer

C245.16 WORK RECORDS

1. Work records shall include the following for each street treated;
 - Date of treatment;
 - Road name;
 - Location of starting point from nearest intersection;
 - Location of finishing point from nearest intersection;
 - Length of work (m);
 - Nominal pavement width (m);
 - Area (including widenings) (m²);
 - Road temperature (°C);
 - Weather condition;
 - Details of any non conformances.

2. A copy of the work record shown in Annexure A shall be provided to the Principal Certifying Authority prior to the release of the final plan of subdivision.

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C247

MASS CONCRETE SUBBASE

**SPECIFICATION C247
MASS CONCRETE SUBBASE**

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Amendment Record for this Specification Part

This Specification is Council’s edition of the AUS-SPEC generic specification part and includes Council’s primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is ‘A’ for additional script ‘M’ for modification to script and ‘O’ for omission of script. An additional code ‘P’ is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

**SPECIFICATION C247
MASS CONCRETE SUBBASE**

GENERAL

C247.01 SCOPE

1. The work to be executed under this Specification consists of the construction, by mechanical or hand placement of mass concrete subbase including trial sections and subgrade beams to the dimensions and levels shown on the Drawings and in accordance with the provisions of the Contract.

C247.02 THICKNESS AND LEVELS OF SUBBASE

1. The subbase thickness and levels shall be as shown on the Drawings.

Levels

C247.03 PROVISION FOR BASE SLAB ANCHORS

1. During construction of the subbase, in advance of concrete base construction the Contractor shall make provision to permit construction of base slab anchors at the locations and to the dimensions shown on the Drawings. Excavation of material, trimming of trenches, compacting of the bottom of the trench, disposal of surplus material and construction of the concrete anchors shall be carried out in accordance with the Specification for PLAIN OR REINFORCED CONCRETE BASE as part of the concrete base construction.

**Base Slab
Anchors**

C247.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards
Test Methods**

(a) Council Specifications

- ~~_____ C248 _____ Plain or Reinforced Concrete Base~~
- ~~_____ C271 _____ Minor Concrete Works~~

(b) Australian Standards

- ~~_____ AS 1012.1 _____ Sampling of fresh concrete.~~
- ~~_____ AS 1012.3 _____ Determination of properties related to the consistence of concrete.~~
- ~~_____ AS 1012.4 _____ Determination of air content of freshly mixed concrete.~~
- ~~_____ AS 1012.8 _____ Making and curing concrete compression, indirect tensile and flexure test specimens, in the laboratory or in the field.~~
- ~~_____ AS 1012.9 _____ Determination of the compressive strength of concrete specimens.~~
- ~~_____ AS 1012.14 _____ Securing and testing cores from hardened concrete for compressive strength.~~
- ~~_____ AS 1141.11 _____ Particle size distribution by sieving.~~
- ~~_____ AS 1141.14 _____ Particle shape, by proportional calliper.~~
- ~~_____ AS 1141.22 _____ Wet/dry strength variation.~~
- ~~_____ AS 1160 _____ Bitumen emulsion for construction and maintenance of pavements.~~
- ~~_____ AS 1379 _____ The specification and manufacture of concrete.~~

AS 1478	Chemical admixtures in concrete.
AS 2758.1	Concrete aggregates.
AS 3582.1	Supplementary cementitious materials for use with portland cement - Flyash.
AS 3799	Liquid membrane - forming curing compounds for concrete.
AS 3972	Portland and blended cements.

(c) RTA Test Methods

T 321	Dry Shrinkage of 100 x 100 x 280mm Concrete Prisms.
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MATERIALS FOR CONCRETE

C247.05 CEMENT

- 1. Cement shall be Type GP Portland cement or Type GB blended cement complying with AS 3972. Cement shall be from a source included in the New South Wales Government Cement Quality Assurance Scheme. **NSW QA Scheme**
- 2. When submitting details of the nominated mix in accordance with Clause C247.15 the Contractor shall nominate the brand and source of the cement. On approval of a nominated mix by the Principal Certifying Authority, the Contractor shall use only the nominated cement in the work. **Nominated Brand and Source**
- 3. Documentary evidence of the quality and source of the cement shall be furnished by the Contractor to the Principal Certifying Authority upon request at any stage of the work. **Proof of Quality**
- 4. If the Contractor proposes to use cement which has been stored for a period in excess of three months from the time of manufacture, the Principal Certifying Authority may require a retest to ensure the cement complies with AS 3972, before the cement is used in the work. **Storage Time**
- 5. Cement shall be transported in watertight containers and shall be protected from moisture until used. Caked or lumpy cement shall not be used. **Transport and Storage**

C247.06 FLYASH

- 1. Flyash shall be from a source included in the New South Wales Government Cement Quality Assurance Scheme. The use and the quality of flyash shall comply with AS 3582.1. **NSW QA Scheme**
- 2. When submitting details of the nominated mix in accordance with Clause C247.15, the Contractor shall nominate the powerhouse source of the flyash. On approval of a nominated mix by the Principal Certifying Authority, the Contractor shall use only flyash from the nominated powerhouse. **Source**
- 3. Documentary evidence of the quality and source of the flyash shall be furnished by the Contractor to the Principal Certifying Authority upon request at any stage of the work. **Documentary Evidence**

C247.07 WATER

- 1. Water used in the production of concrete shall be potable, free from materials harmful to concrete or reinforcement, and be neither salty nor brackish. **Quality**

C247.08 ADMIXTURES

1. Chemical admixtures and their uses shall comply with AS 1478. Admixtures shall not contain calcium chloride, calcium formate, or triethanolamine or any other accelerator. Admixtures or combinations of admixtures other than specified below, shall not be used. An air-entraining agent may be included in the mix. If an air-entrainer is used, the air content of the fresh concrete shall comply with Clause C247.14.

Quality

2. Fresh concrete with an air content not complying with Clause C247.14 shall be rejected.

Excess Air Content

3. During the warm season (October to March inclusive), a lignin or lignin-based ('ligpol') set-retarding admixture (Type Re or Type WR Re) approved by the Principal Certifying Authority, shall be used to control slump within the limits stated in Clause C247.13. The dosage shall be varied to account for air temperature and haul time in accordance with the manufacturer's recommendations. A copy of the NATA endorsed Certificate of Compliance with AS 1478 for Type Re or Type WR Re shall be submitted to the Principal Certifying Authority, together with the proposed 'dosage chart' in accordance with Clause C247.15.

Retarder for Warm Season

4. During the cool season (April to September inclusive), only a lignin or lignin-based set retarding admixture containing not more than 6 per cent reducing sugars (Type WR Re complying with AS 1478) may be used in the mix or, alternatively, omitted altogether. If the Contractor proposes to vary the admixture between the warm and cool seasons such variation shall constitute a proposed change to an approved mix for the purposes of Clause C247.16.

Retarder for Cool Season

5. When submitting details of the nominated mix in accordance with Clause C247.15, the Contractor shall nominate the proprietary source, type and name of each admixture to be used. Documentary evidence of the quality shall be furnished by the Contractor to the Principal Certifying Authority upon request at any stage of the work.

Source and Type

C247.09 AGGREGATES

(a) General

1. When submitting details of the nominated mix in accordance with Clause C247.15, the Contractor shall nominate the sources of aggregate to be used and shall submit details of the geological type of each aggregate.

Source and Type

2. Aggregates shall all pass the 37.5 mm AS sieve and shall comply with AS 2758.1 in respect of bulk density, water absorption (maximum 5 per cent), material finer than 75 micrometres, impurities and reactive materials. The proportion of misshapen particles (2:1 ratio) determined by AS 1141.14 shall not exceed 35 per cent.

Quality

3. When submitting details of the nominated mix, the Contractor shall submit to the Principal Certifying Authority a NATA Certified Laboratory Test Report on the quality and grading of the aggregate proposed to be used. The grading shall be known as the "Proposed Grading".

Proposed Grading

4. If the Contractor proposes to blend two or more aggregates to provide the Proposed Grading the Test Reports for each constituent material shall be submitted separately and the Principal Certifying Authority advised of the proportions in which the various sizes and constituents are to be combined. The aggregate from each source and the combined aggregate shall comply with the requirements of this clause.

Blending of Aggregates

5. All aggregate used in the production of concrete shall be clean, hard, durable rock fragments free from the inclusion of mineral salts, oils, organic matter or other materials deleterious to the performance of concrete.

(b) Grading

1. The grading of the combined aggregate used in the work, determined by AS 1141.11, shall not deviate from that of the Proposed Grading by more than the amounts shown in Table C247.1.

Australian Standard Sieve	Maximum Deviation Per Cent Passing by Mass of Total Sample
37.5 mm	-5
19.0 mm	+ or -10
4.75 mm	+ or -10
1.18 mm	+ or -5
600 mm	+ or -5
150 mm	+ or -2

Table C247.1 - Aggregate Grading Deviation Limits

(c) Durability

1. Any fraction of any constituent and any fraction of combined aggregate shall conform to the following requirements:-

Tolerances

- (a) Wet Strength - AS 1141.22 - Shall not be less than 50 kN.
- (b) 10 per cent Fines Wet/Dry Variation - AS 1141.22 - Shall not exceed 35 per cent.

(d) Storage

1. Storage and handling facilities shall be such as to prevent the aggregates becoming intermixed or mixed with foreign materials, and to prevent segregation occurring.

Facilities Required

2. The area surrounding the storage facilities and mixing plant shall be so constructed that delivery vehicles, loaders and trucks shall not be capable of introducing foreign matter to the aggregates at any time. If foreign matter is introduced or the area reaches a condition where, in the opinion of the Principal Certifying Authority, foreign matter may be introduced to the aggregates, production of concrete and delivery of materials shall cease until the condition is corrected to the satisfaction of the Principal Certifying Authority.

Introduction of Foreign Matter

QUALITY REQUIREMENTS OF CONCRETE

C247.10 CEMENT AND FLYASH CONTENT

1. When a cement and flyash blend is nominated the minimum Portland cement content shall be 90 kilograms per yielded cubic metre of concrete and the minimum flyash content shall be 100 kilograms per yielded cubic metre of concrete.

Minimum Content

C247.11 COMPRESSIVE STRENGTH

1. The compressive strength of concrete shall be determined in accordance with AS1012.9. The minimum compressive strength at 7 days shall be 4MPa and at 28 days shall not be less than 5MPa for flyash blended cement. The maximum compressive strength at 28 days shall be less than 15MPa, with the exception that where the

Compressive Strength

nominated mix demonstrates a 28 day shrinkage less than 400 microstrains, then the concrete achieving a strength less than 20MPa shall be accepted.

C247.12 SHRINKAGE

1. The drying shrinkage of the nominated mix, determined by Test Method T321 shall not exceed 450 microstrain after three weeks air drying. The drying shrinkage at the nominated slump plus 10 mm shall be taken as the average of the reading or readings within 5 per cent of the median of the three readings obtained in accordance with Test Method T321.

***Shrinkage
Limit***

C247.13 CONSISTENCY

1. The Contractor's nominated slump, determined in accordance with AS 1012.3, Method 1, shall be neither less than 25 mm nor more than 40 mm for mechanically placed concrete and shall be neither less than 50 mm nor more than 65 mm for hand placed concrete.

***Slump
Tolerances***

C247.14 AIR CONTENT

1. If an air entraining agent is used, the air content of the fresh concrete, determined in accordance with AS 1012.4, Method 2, shall be neither less than 3 per cent nor more than 7 per cent when discharged from the transport vehicle ready for placement.

***Air Content
Tolerances***

DESIGN AND CONTROL OF CONCRETE MIXES

C247.15 GENERAL

1. The Contractor shall submit, for approval by the Principal Certifying Authority, details of the concrete mix or mixes and the materials, including source, to be used for each of mechanically placed and hand placed subbase, including nominated slump and moisture condition of the aggregates (oven dry, saturated surface dry, or other specified moisture content) on which the mix is based. Each such mix shall be known as a 'nominated mix'.

Nominated Mix

2. The Contractor shall provide a Certificate from a laboratory with appropriate NATA registration stating that each nominated mix and its constituents meet the requirements of this Specification. All relevant test results shall accompany the Certificate. All phases of any particular test must be performed at one laboratory. The certificate shall confirm that the required testing has been carried out in the twelve month period before the date of submission to the Principal Certifying Authority.

***Certificate of
Compliance
with
Specification***

3. In the tests supporting the above certification, the compressive strength gain curve shall be submitted showing the compressive strengths at ages 3, 7, 10 and 28 days determined in accordance with AS1012.9. Each of the results shall be based on three specimens of concrete produced from a batch of the nominated mix. The compressive strength shall be the average of individual results within 1.0 MPa of the median.

***Compressive
Strength
Determination***

4. These details shall be submitted at least 21 days before using the nominated mix in the work.

***Submission of
Details***

C247.16 VARIATIONS TO APPROVED MIXES

1. The Contractor shall not make any changes to the approved mix, its method of production or source of supply of constituents without the prior written approval of the Principal Certifying Authority.

Approval required to vary mix

2. Where changes to an approved mix are proposed, the Contractor shall provide details of the nominated mix and materials, in accordance with Clause C247.15. If the variations to the quantities of the constituents in the approved mix are less than 10 kilograms for Portland cement, 20 kilograms for other cementitious material and 5 per cent by mass for each other constituent, except admixtures, per yielded cubic metre of concrete, the Principal Certifying Authority may approve the changes without new trials being carried out.

Contractor's Responsibility

3. Notwithstanding these tolerances, the minimum cement content shall be 90 kilograms per yielded cubic metre of concrete, the minimum flyash content shall be 100 kilograms per yielded cubic metre of concrete.

Minimum Constituent Quantities

CONFORMANCE FOR CONCRETE STRENGTH AND THICKNESS

C247.17 CONCRETE CYLINDERS

(a) Test Specimens

1. Test specimens for determining the compressive strength of concrete shall be standard cylinders complying with AS 1012.8. The Contractor shall supply a sufficient number of moulds to meet the requirements for the frequency of testing specified in this Clause and shall also arrange for a laboratory with appropriate NATA registration to conduct the sampling of fresh concrete and the making, curing, delivery and testing of specimens. Copies of test results shall be forwarded to the Principal Certifying Authority.

Contractor's Responsibility

2. Samples of concrete for testing shall be taken in accordance with AS 1012.1. The selection of the batches to be sampled shall be taken randomly. The specimens shall be moulded from each sample so that they are as identical as practicable.

Sampling

3. The method of making and curing specimens shall be in accordance with AS 1012.8 with compaction by internal vibration.

4. The Contractor shall mark the specimens for identification purposes.

Marking

5. Specimens shall be inspected, capped and crushed in accordance with AS 1012.8 and AS 1012.9.

(b) Frequency of Moulding of Test Specimens

1. Test specimens shall be moulded as follows:-

Moulding of Cylinders

(i) For the determination of the compressive strength at twenty-eight days.

For each lot of up to 50 cubic metres of concrete placed at the one time:

One pair of specimens

(ii) For the determination of the compressive strength at seven days.

For each lot of up to 50 cubic metres
of concrete placed at the one time: One pair of specimens

(iii) For the determination of compressive strength for any early testing as deemed necessary by the Contractor.

For each lot of up to 50 cubic metres
of concrete placed at the one time: One pair of specimens

2. A lot is defined as a continuous pour of up to 50 cubic metres of concrete placed in the subbase. **Lot Size**

C247.18 COMPRESSIVE STRENGTH OF CONCRETE

(a) General

1. The compressive strength of the concrete represented by a pair of specimens moulded from one sample shall be the average compressive strength of the two specimens. **Determination of Strength**

2. At the time of approving the mix design, the Principal Certifying Authority shall nominate whether 7 day or 28 day compressive strength or both shall be the acceptance criteria for strength.

(b) Adjustment of Test Compressive Strength for Age of Specimen

1. Should any specimen be tested more than 28 days after moulding the equivalent 28 day compressive strength shall be the test compressive strength divided by the factor applying to the age of the specimen at the time of the test shown in Table C247.2. For intermediate ages the factor shall be determined on a pro-rata basis. **Strength Age Factor**

Age of Specimen at time of test (days)	Factor
28	1.00
35	1.02
42	1.04
49	1.06
56	1.08
70	1.10
84	1.12
112	1.14
140	1.16
168	1.18
196	1.20
224	1.22
308	1.24
365 or greater	1.25

Table C247.2 - Concrete Age Conversion Factors

(c) Conformance for Compressive Strength

1. If the compressive strength of test cylinders for any lot is less than the criteria specified in Clause C247.11, the lot represented by the test cylinders shall be removed and replaced. **Limits**

2. In case of non-conformance the Contractor may request permission of the Principal Certifying Authority to core the in situ subbase for testing of the actual compressive strength to represent the particular lot. The locations for testing shall be nominated by the Principal Certifying Authority. Such locations may be determined by the use of a nuclear density meter, or any alternative method. Testing shall be carried out at the request of the Contractor. Subbase concrete failing to reach the required in situ compressive strength shall not be retested for at least 72 hours after the determination of the value of the in situ compressive strength.

Non-conformance and Coring

C247.19 SPECIMENS CUT FROM THE WORK

1. Specimens cut from the work shall be tested in a NATA registered laboratory nominated by the Contractor. Specimens shall be in the form of cylindrical cores of hardened concrete.

Test Specimens

2. Cores shall be secured, accepted, cured, capped and tested in accordance with AS 1012. 14 with the following amendments:-

Specimen Characteristics

- (a) The requirement that the concrete shall be at least 28 days old before the core is removed shall not apply. However, concrete must have hardened enough to permit removal without disturbing the bond between the mortar and the coarse aggregate.
- (b) The preferred dimension for cores shall be 100 mm diameter but in no case shall the diameter be less than 75 mm or two and one half times the nominal size of the coarse aggregate, whichever is the greater.
- (c) When inspected in the uncapped state, cores shall be rejected if any diameter departs by more than 5 mm from the mean diameter.
- (d) Cores shall be rejected where the length of the core when ready for capping is less than the diameter. The test strength determined shall be adjusted for form by a factor in accordance with Table C247.3.
- (e) Wet Conditioning only shall be used.

Length/Diameter Ratio of Core	Adjustment Factor
1 :1	0.89
1.5:1	0.965
2 :1	1.00

NOTE:
For intermediate form ratios, the factor shall be determined by interpolation

Table C247.3 - Core Strength Factor

3. Core cutting shall be carried out by the Contractor in the presence of and at the locations nominated by the Principal Certifying Authority. The frequency of coring shall be such that a core is taken to represent each lot or the area of subbase placed between any two consecutive construction joints whichever is the lesser. The lot represented by each core shall be nominated by the Contractor at the time of sampling and duly recorded prior to testing.

Frequency of Coring

4. Cores shall be despatched to arrive at the testing laboratory within 24 hours of the core being cut from the subbase. Wet curing shall commence within 24 hours of the receipt of the cores. **Curing of Cores**
5. The method of restoration shall be approved by the Principal Certifying Authority.

C247.20 ACCEPTANCE OF CORED CONCRETE FOR COMPRESSIVE STRENGTH

1. Concrete shall achieve an in situ compressive strength of 5MPa within 28 days of placement. **Strength Requirement**
2. If the specimen cut from the subbase reaches 4MPa for in situ compressive strength, base paving may proceed. **Core Strength**

C247.21 CONFORMANCE FOR THICKNESS

(a) General

1. No thickness measurements will be carried out if the surface of the subbase is within the level tolerances as specified in Clause C247.32(b). **Conforming Tolerances**
2. If scabbling is required to achieve the level tolerance limits, the Principal Certifying Authority may order thickness checks to be carried out. Where the survey ground model of the subgrade is available, subbase thickness shall be calculated from levels taken on a 5m grid on the plan area. Alternatively, the Principal Certifying Authority may authorise coring and measurement at the edges of the layer. **Thickness Measurement**
3. Thickness measurements shall be rounded off to the nearest 5mm.

(b) Thickness Below Specification

1. After making due allowance for the tolerances, subbase which is more than 20mm below the theoretical thickness shall be rejected and removed from the site. **Remove and Replace**
2. Subbase which is 20mm or less below the theoretical thickness may be accepted by the Principal Certifying Authority providing that it represents isolated sections within a lot and such sections comprise less than 10 per cent of the area of the lot. **Acceptance**

PRODUCTION, TRANSPORT AND CONSISTENCY OF CONCRETE

C247.22 PRODUCTION AND TRANSPORT OF CONCRETE

1. At least four weeks before commencing work under this Specification, the Contractor shall submit, for the information of the Principal Certifying Authority, details of the proposed methods of handling, storing and batching materials for concrete, details of proposed mixers and methods of agitation, mixing and transport. **Contractor's Responsibility**

C247.23 HANDLING, STORAGE AND BATCHING MATERIALS

1. The methods of handling, storing and batching materials for concrete shall be in accordance with AS 1379, with the following additional requirements:- **Methods**
- (a) Certificates of Calibration issued by a recognised authority shall be made available for inspection by the Principal Certifying Authority, as evidence of the accuracy of the scales.

- (b) Cementitious material shall be weighed in an individual hopper, with the cement weighed first.
- (c) The moisture content of the aggregates shall be determined at least daily immediately prior to batching. Corresponding corrections shall be made to the quantities of aggregates and water.
- (d) Where a continuous type mixer is employed, the components shall be measured by a method of continuous weighing approved by the Principal Certifying Authority, except for liquids which may be measured by volume or flow rate meter.

C247.24 MIXERS AND AGITATION EQUIPMENT

1. Details of proposed mixers and agitation methods shall be in accordance with the plant and equipment sections of AS 1379, with the following additional requirement that in Appendix A of AS 1379 the maximum permissible difference in slump shall be 10mm.

Requirements

C247.25 MIXING AND TRANSPORT

1. Mixing and transport methods shall be in accordance with the production and delivery sections of AS 1379, with the following additional requirements:-

Methods

- (a) The mixer shall be charged in accordance with the manufacturer's instructions.
- (b) For the purpose of conducting mixer uniformity tests in accordance with Appendix A of AS 1379 on a split drum mixer producing centrally mixed concrete, the whole of the batch shall be discharged into the tray of a moving vehicle. The concrete shall then be sampled from the tray of the vehicle at points approximately 15 per cent and 85 per cent along the length of the tray.
- (c) For truck-mixed concrete, addition of water in accordance with the batch production section of AS 1379 shall be permitted only within ten minutes of completion of batching and within 200m of the batching facilities. The delivery docket must clearly indicate the amount of water added, but in no circumstance shall the water : cement ratio be exceeded. Mixing of the concrete shall be completed at that location.
- (d) After addition of the cement to the aggregate, concrete shall be incorporated into the work within:-
 - (i) One and a half hours, where transported by truck mixer or agitator
 - (ii) One hour, where transported by non-agitating trucks

Means of verification, satisfactory to the Principal Certifying Authority, of the times of addition of cement to the aggregate shall be provided.

The times within which the concrete shall be incorporated into the work may be reduced if the Principal Certifying Authority considers the prevailing weather, mix type, or materials being used warrant such a change.

- (e) The size of the batch in an agitator vehicle shall not exceed the manufacturer's rated capacity nor shall it exceed 80 per cent of the gross volume of the drum of the mixer

C247.26 MAXIMUM MIXING TIME

1. Where by reason of delay, it is necessary to hold a batch in the mixer, mixing

Batch in Mixer

may be continued for a maximum of ten minutes except for split drum mixers where the maximum shall be five minutes.

2. For longer periods, the batch may be held in the mixer and turned over at regular intervals, subject to the time limits specified for incorporation of the concrete into the work not being exceeded.

Long Delays

C247.27 CONSISTENCY

1. The consistency of the concrete shall be such as to allow the production of a dense, non-segregated mass with bleeding limited so as to prevent bleed water flowing over the slab edge under the conditions of placement. If bleed water does so flow, the Contractor shall cease paving until the consistency of the mix is adjusted to prevent flow or the mix is redesigned and approved by the Principal Certifying Authority. The edge produced shall maintain its shape and shall not sag or tear.

Requirements

2. The Contractor shall provide all equipment, materials and labour for consistency testing and shall carry out tests in the presence of the Principal Certifying Authority.

3. The consistency of the concrete shall be checked by use of a slump cone in accordance with AS 1012.3, Method 1. The test shall be made on concrete samples obtained in accordance with AS 1012.1.

Test Method

4. Check tests shall be done on each truckload of concrete.

Check Tests

PLACING AND FINISHING CONCRETE SUBBASE

C247.28 GENERAL

1. At least one week before commencing work under this Specification, the Contractor shall submit as part of the Quality Plan, for the information of the Principal Certifying Authority, full details of the equipment and methods proposed for placing and finishing the concrete subbase together with a paving plan showing proposed paving widths, sequence and estimated daily outputs.

Contractor's Responsibility

2. The Contractor shall give the Principal Certifying Authority two days written notice of the intention to commence construction of the subbase on any section of work.

Written Notice

3. The surface on which concrete subbase is to be placed shall be clean and free of loose or foreign matter and in damp condition.

Surface Conditions

4. Concrete shall not be placed either during rain or when the air temperature in the shade is below 5°C or above 38°C.

Air Temperature Limits

5. The temperature of the concrete placed in the work shall be neither less than 10°C nor more than 32°C.

Concrete Temperature Limits

C247.29 RATE OF EVAPORATION

1. Should the Contractor elect to use an evaporation retarder to prevent excessive moisture loss, application shall be by fine spray after all finishing operations, except minor manual bull-floating, are complete.

Evaporation Retarder

2. The Contractor shall be responsible for measuring and recording concrete temperature and wind velocity at the point of concrete placement, and for continuously measuring and recording air temperature and relative humidity daily, at the site throughout the course of the work. The Contractor shall provide and maintain all

Contractor's Responsibility

equipment and shall provide suitable personnel necessary for all such measuring and recording.

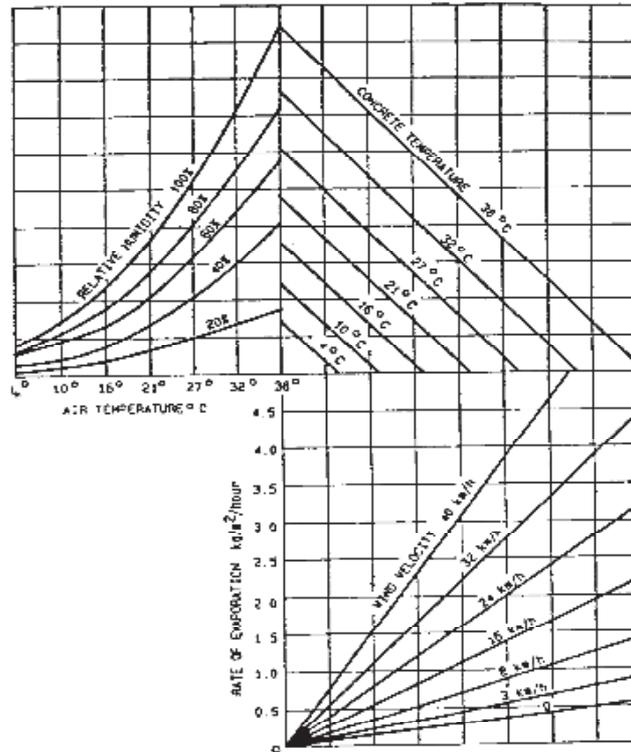


Figure C247.1 - Rate of Evaporation

The graph shows the effects of air temperature, humidity, concrete temperature and wind velocity together on the rate of evaporation of water from freshly placed and unprotected concrete.

Example:

- with air temperature at 27°C
- with relative humidity at 40%
- with concrete temperature at 27°C
- with a wind velocity of 26km/h the rate of evaporation

would be 1.6 kg/m²/hour.

To determine the evaporation rate from the graph, enter the graph at the air temperature (in this case 27°C), and move vertically to intersect the curve for relative humidity encountered - here 40%. From this point move horizontally to the respective line for concrete temperature - here 27°C. Move vertically down to the respective wind velocity curve - in this case interpolating for 26km per hour - and then horizontally to the left to intersect the scale for the rate of evaporation.

C247.30 MECHANICAL PAVING

1. The mechanical paver shall be a self-propelled machine with a gross operating mass of not less than 4 tonnes per lineal metre of paved width. It shall be capable of paving at a speed of one metre per minute or less as required to enable the continuous operation of the paver and obtain the required degree of compaction. It shall include the following features:-

Paving Machine Requirements

- (a) An automatic control system with a sensing device to control line and level to the specified tolerances.
- (b) Means of spreading the mix uniformly and regulating the flow of mix to the vibrators without segregation of the components.
- (c) Internal vibrators capable of compacting the full depth of the concrete.
- (d) Adjustable extrusion screed and/or conforming plate to form the slab profile and produce the required finish on all surfaces.
- (e) Capability of paving in the slab widths or combination of slab widths and slab depths shown on the Drawings.

2. The mechanical paver shall spread, compact, screed and finish the freshly placed concrete in such a manner that a minimum of finishing by hand will be required. A dense and homogeneous concrete with a surface exhibiting low permeability shall be provided.

Concrete Finish

3. Surface texture shall be steel screed or float finish except that a hessian dragged finish shall be provided where the subbase is to be overlain by asphaltic concrete.

4. The supporting surface for the tracks of the paver, curing machine and any other equipment in the paving and curing train shall be in a smooth and firm condition.

Supporting Surface

5. Once spreading commences, the concrete paving operation shall be continuous. The mechanical paver shall be operated so that its forward progress shall not be stopped due to lack of concrete. If disruptions occur for any reason, the Principal Certifying Authority may direct that a construction joint be formed before the recommencement of paving operations.

Continuity of Paving Operation

C247.31 HAND PLACING

1. Forms shall be so designed and constructed that they can be removed without damaging the concrete and shall be true to line and grade and braced in a substantial and unyielding manner. Forms shall be mortar tight and debonded to ensure non-adhesion of concrete to the forms.

Formwork

2. Concrete shall be delivered in agitator trucks and shall be deposited uniformly in the forms without segregation. The concrete shall be compacted by poker vibrators and by at least two passes of a hand-guided vibratory screed traversing the full width of the slab on each pass. Any build up of concrete between the forms and vibratory screed shall be prevented.

Placing in Forms

3. If disruptions occur for any reason, the Principal Certifying Authority may direct that a construction joint be formed before the recommencement of paving operations.

Disruption,

4. A dense and homogeneous concrete with a surface exhibiting low permeability shall be provided.

Concrete Finish

5. Surface texture shall be steel screed or float finish except that a hessian dragged finish shall be provided where the subbase is to be overlain by asphaltic concrete.

C247.32 ALIGNMENT AND SURFACE TOLERANCES

(a) Horizontal Alignment Tolerance

1. The outer edges of the subbase shall be square to the subgrade and shall be constructed 50mm wider than the plan position of the base formation with a tolerance of "25mm.

Outer Edge Location

2. Where an edge of a slab is to form a longitudinal construction joint line, the allowable horizontal alignment tolerances shall comply with Clause C247.36

Longitudinal Construction Joint

(b) Surface Tolerances

1. The level at any point on the top of the subbase shall not vary by more than 0 mm above or 20 mm below that shown on the Drawings or as directed by the Principal Certifying Authority. Where the concrete is found to be above the level tolerance, it shall be removed. Where the concrete is found to be below level tolerance, it shall be made up with base concrete.

Surface Levels

2. The top surface of the subbase shall also not deviate from a 3 m straightedge, laid in any direction, by more than 5 mm.

Surface Levels

C247.33 CURING

1. The subbase shall be cured by the use of one of the following:

Curing Compounds

- (a) Chlorinated rubber curing compound complying with AS 3799 Class C Type 1D or resin-based curing compound complying with AS 3799 Class B, Type 1D or Type 2, if an asphalt base is used, or
- (b) White pigmented wax emulsion curing compound complying with AS 3799 Class A Type 2, if a concrete base is used, or
- (c) Bitumen emulsion Grade CRS/170 complying with AS 1160 for either asphalt or concrete base.

2. The Contractor shall submit, for the information of the Principal Certifying Authority, a current Certificate of Compliance for the curing compound from an Australian Laboratory, approved by the Principal Certifying Authority, showing an Efficiency Index of not less than 90 per cent when tested in accordance with Appendix B of AS 3799.

Efficiency Index

3. The curing compound shall be applied using a fine spray immediately following texturing at the rate stated on the Certificate of Compliance or at a minimum of 0.2 litres per square metre, whichever rate is the greater. Bitumen emulsion shall be applied at a minimum rate of 0.35 litres of residual bitumen per square metre. When applied with a hand lance the rates should be increased by 25 per cent.

Application

4. The average application rate shall be checked by the Contractor and certified to the Principal Certifying Authority by calculating the amount of curing compound applied to a measured area representative of a lot and nominated by the Principal Certifying Authority.

Application Rate

5. The curing membrane shall be maintained intact for seven days after placing the concrete. Any damage to the curing membrane shall be made good by hand spraying of the affected areas.

Curing Period

6. Equipment and materials for curing operations shall be kept on site at all times during concrete pours.

Equipment on Site

C247.34 PROTECTION OF WORK

1. The Contractor shall ensure that the temperature of the concrete does not fall below 5°C during the first twenty-four hours after placing. The Contractor shall provide, for the information of the Principal Certifying Authority, details of procedures and equipment proposed to be used for the protection of sections recently placed in the event of low air temperatures. If the Contractor fails to maintain the temperature of the concrete at or above 5°C and if, in the opinion of the Principal Certifying Authority, the concrete exhibits any deficiencies, due to failure to comply with this Specification, the concrete shall be rejected.

Temperature Control

2. The Contractor shall protect the work from rain damage and shall provide, for the information of the Principal Certifying Authority, detailed proposals of procedures and equipment to be used for such protection.

Rain Protection

3. Neither traffic nor construction equipment, other than that associated with testing, shall be allowed on the subbase until the strength of the subbase has reached at least 4.0 MPa. Thereafter, only construction equipment necessary for the following operations shall be permitted to traffic the subbase:-

Traffic Restrictions

- (a) Bond-breaker and spall treatment and
- (b) Concrete or asphalt paving.

4. Notwithstanding the above, any damage caused to the subbase by the Contractor's operations shall be rectified to the Principal Certifying Authority's satisfaction.

Damage Restoration

JOINTS

C247.35 TRANSVERSE CONSTRUCTION JOINTS

1. Transverse construction joints shall:

- be provided only at discontinuities in the placement of concrete determined by the Contractor's paving operations.
- be constructed normal to the edge line and to the dimensions shown on the Drawings.
- not deviate from a 3 m straightedge placed along the joint by more than 10 mm.
- be smooth across the joint.

C247.36 LONGITUDINAL CONSTRUCTION JOINTS

1. Longitudinal construction joints shall:
 - be formed no closer than 300mm of the base longitudinal joints as shown in the Drawings, unless directed otherwise by the Principal Certifying Authority.
 - not deviate from the plan or nominated position at any point by more than 20 mm.
 - not deviate from a 3 m straightedge placed along the joint by more than 10 mm, having made due allowances for any planned curvature.
 - be smooth across the joint.

BOND BREAKER AND SPALL TREATMENT

C247.37 GENERAL

1. Subbase to be covered by concrete base shall be provided with a wax emulsion bond breaker. The wax emulsion shall comply with AS 3799 Class A Type 2. **Bond Breaker**
2. Where the base consists of asphaltic concrete, no bond breaker shall be used. In this case bond is essential and wax emulsion curing compounds shall not be permitted. **No Bond Breaker**
3. Subbase with spalled areas shall be treated, where directed by the Principal Certifying Authority, prior to application of the bond breaker or asphaltic concrete. **Spalled Areas**

C247.38 PREPARATION OF SUBBASE

1. Immediately prior to any spalled area treatment and the application of bond breaker, the subbase surface shall be cleaned to the satisfaction of the Principal Certifying Authority of all loose, foreign and deleterious material. **Subbase Preparation**

C247.39 TREATMENT OF SPALLING

1. Where directed by the Principal Certifying Authority, spalled areas shall be treated before the application of the bitumen bond breaker or asphaltic concrete by infilling with 6 : 1 sand/cement mortar to provide a surface flush with the surrounding concrete. The area shall be wetted and sprinkled with neat cement before screeding the mortar into the patches. **Method**
2. A spalled area, if directed to be treated, shall have such treatment completed no earlier than five working days before the application of the bond breaker. Treated spalled areas damaged by the Contractor or others shall be made good by the Contractor. **Spalling Repair Time**

C247.40 APPLICATION OF BOND BREAKER

1. The wax emulsion used as bond breaker should be the same as used for curing compound. This second application shall be applied at a minimum rate of 0.2 litres per square metre and not earlier than 72 hours before the placement of the base concrete. **Wax Emulsion**
2. The method of application shall conform to the requirements of Clause C247.33.

C247.41 TREATMENT OF UNPLANNED CRACKS

1. The Principal Certifying Authority shall direct treatment of unplanned cracks whose width exceeds 0.3mm. This may take the form of applying an approved 300mm minimum width geotextile backed polymer modified bitumen strip (reference AUSTRROADS Guide to Geotextiles) over the crack prior to placement of the first asphalt base layer or concrete base, or an extra application of wax emulsion for a width of 300mm along the crack when a concrete base is required.
2. The Contractor shall install the Stress Alleviating Membrane strip in accordance with the manufacturer's instructions.

SUBGRADE BEAMS

C247.42 GENERAL

1. Subgrade beams shall be provided below the subbase at expansion joints and isolation joints in the concrete base as shown in the Drawings or as directed by the Principal Certifying Authority. They shall extend the full length of joints unless otherwise indicated on the Drawings.

Scope

C247.43 EXCAVATION

1. Excavation for subgrade beams shall be to the dimensions shown on the Drawings. All loose material shall be removed and the vertical faces trimmed to neat lines. The bottom of the trench shall be recompact, where required, to the degree of consolidation of the adjacent undisturbed material.
2. Excavated material shall be legally disposed of by the Contractor.

Excavation Standards

Disposal of Excavated Materials

C247.44 CONCRETE

1. Concrete in subgrade beams shall comply with the requirements of the Specification for MINOR CONCRETE WORKS. The minimum compressive strength at 28 days shall be 32MPa.

Compressive Strength

C247.45 STEEL REINFORCEMENT

1. Steel reinforcement shall be of the type and size shown on the Drawings and shall be supplied and installed in accordance with the Specification for PLAIN OR REINFORCED CONCRETE BASE.

Type and Size

C247.46 CONSTRUCTION AND PROTECTION

1. Subgrade beams shall be constructed before construction of the subbase. The top surface of the subgrade beam shall be level with the top of the subgrade. Any loose subgrade material shall be recompact to the correct level. If the contractor elects to remove any loose material, the voids shall be filled with mortar or concrete and screeded to provide a surface flush with the top of the subgrade beam and the surrounding subgrade.

Timing and Type of Finish

- 2. A steel float shall be used to produce a smooth surface finish, free of any texture.
- 3. The subgrade beams shall be protected from damage by plant, motor vehicles and the paving operation. Any damage shall be made good by the Contractor.. **Damage Protection**

C247.47 CURING

- 1. The top surface of the subgrade beam shall be cured in accordance with Clause C247.33 before placing the subbase. **Curing**

C247.48 BOND BREAKER

- 1. The top surface of the subgrade beam shall be treated with a bond breaker which shall consist of a further application of curing compound neither less than twenty-four hours nor more than seventy-two hours before placing of subbase concrete. **Time of Placement**

LIMITS AND TOLERANCES

C247.50 SUMMARY OF LIMITS AND TOLERANCES

- 1. The tolerances applicable to the various clauses in this Specification are summarized in Table C247.4 below:

Item	Activity	Tolerances	Spec Clause
1.	Materials for Concrete		
	a. Misshapen Particles	2 : 1 ratio < 35 percent	C247.09a
	b. Aggregates Grading	Deviation from submitted sample not greater than Table C247.1	C247.09b
	c. Durability	Wet Strength > 50 kN 10% Fines < 35 percent	C247.09c
2.	Concrete		
	a. Shrinkage	Drying Shrinkage <450 microstrain	C247.12
	b. Consistency	Mechanically placed: >25mm<40mm Hand Placed: >50mm <65mm	C247.13
	c. Air Content	Min 3, Max 7 percent	C247.14
	d. Thickness	Concrete shall be removed if thickness >20mm below specified thickness.	C247.21
	e. Mixing and Transport	After addition of cement to the aggregate, concrete shall be incorporated into the work within:	C247.25

Item	Activity	Tolerances	Spec Clause
		(i) One and a half hours where transported by truck mixer or agitator. (ii) One hour where transported by non agitating trucks.	
	f. Placing	Concrete shall not be placed when the air temperature in the shade is less than 5°C or >38°C. Temperature of concrete shall be >10°C but <32°C.	C247.28
		Concrete shall not be placed when the Rate of Evaporation exceeds 0.5kg per square metre per hour.	C247.29
3.	Alignment and Surface Tolerances		
	a. Horizontal Alignment	Outer edges not to deviate from plan position by more than 25mm.	C247.32
	b. Surface	Level on top surface to be no more than +0mm or -20mm to that shown on the drawings.	C247.32
		The top surface shall not deviate from a 3m straightedge laid in any direction by more than 5mm.	C247.32
4.	Joints		
	a. Transverse Construction	Shall not deviate from a 3m straight-edge placed along the joint by more than 10mm.	C247.35
	b. Longitudinal Joint	(i) Shall not deviate from the plan or nominated position at any point by more than 20mm. (ii) Shall not deviate from a 3m straightedge placed along the joint by more than 10mm after allowing for any curvature.	C247.36
5.	Bond Breaker		
	a. Wax Emulsion	Minimum 0.2 litres per square metre, not earlier than 72 hours before placement of base.	C247.40

Table C247.4 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C248

**PLAIN OR REINFORCED
CONCRETE BASE**

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

**SPECIFICATION C248
PLAIN OR REINFORCED CONCRETE BASE**

GENERAL

C248.01 SCOPE

1. The work to be executed under this Specification consists of the construction, by mechanical or hand placement of plain or reinforced concrete base, slab anchors and terminal slabs to the dimensions and levels shown on the Drawings and in accordance with the provisions of the Contract.

2. The work also includes the construction of reinforced concrete approach slabs at bridge abutments and traffic signal approach slabs where specified on the Drawings.

***Approach
Slabs***

C248.02 THICKNESS AND LEVELS OF BASE

1. The base thickness and levels shall be shown on the Drawings.

C248.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

***Documents
Standards
Test Methods***

(a) Council Specifications

C224	Open Drains including Kerb and Gutter
C231	Subsoil and Foundation Drains
C247	Mass Concrete Subbase

(b) Australian Standards

AS 1012.1	Sampling fresh concrete.
AS 1012.3	Determination of properties related to the consistence of concrete.
AS 1012.4	Determination of air content of freshly mixed concrete.
AS 1012.8	Making and curing concrete compression, indirect tensile and flexure test specimens in the laboratory or in the field.
AS 1012.9	Determination of the compressive strength of concrete specimens.
AS 1012.12	Determination of mass per unit volume of hardened concrete.
AS 1012.13	Determination of the drying shrinkage of concrete for samples prepared in the field or in the laboratory.
AS 1012.14	Securing and testing cores from hardened concrete for compressive strength or indirect tensile strength.
AS 1141.11	Particle size distribution by dry sieving.
AS 1141.14	Particle shape by proportional calliper.
AS 1141.18	Crushed particles of coarse aggregates.
AS 1141.22	Wet/dry strength variation.
AS 1141.24	Soundness (by use of sodium sulphate solution).
AS 1160	Bitumen emulsions for construction and maintenance of pavements.
AS 1302	Steel reinforcing bars for concrete.
AS 1303	Steel reinforcing wire for concrete.

AS 1304	Welded wire reinforcing fabric for concrete.
AS 1379	The specification and manufacture of concrete.
AS 1478	Chemical admixtures in concrete.
AS 1554.3	Welding of reinforcing steel.
AS 2758.1	Concrete aggregates.
AS 3582.1	Supplementary Cementitious materials – flyash.
AS 3799	Liquid membrane forming curing compounds for concrete.
AS 3972	Portland and blended cement.

(c) RTA Test Methods

T 1160	Low Temperature Recovery of Preformed Polychloroprene Elastomeric Joint Seals for Bridge Structures.
T 1161	High Temperature Recovery of Polychloroprene Elastomeric Joint Seals for Bridge Structures.
T 1163	Resistance of Vulcanised Rubber to the Absorption of Oil.
T1192	Adhesion of Sealant.
T1193	Accelerated Ageing of Cured Sealant.

(d) ASTM Standards

D792	Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement.
C793	Test Method for Effects of Accelerated Weathering on Elastomeric Joint Sealants.
C794	Test Method for Adhesion in Peel of Elastomeric Joint Sealants.
D2240	Test Method for Rubber Property Durometer Hardness.
D2628	Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete.
D2835	Specification for Lubricant for Installation of Preformed Compression Seal in Concrete Pavements.

(e) US Military Specifications

MIL-S-8802	Sealing Compound, Temperature Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High Adhesion.
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MATERIALS FOR CONCRETE

C248.04 CEMENT

1. Cement shall be Type GP Portland cement complying with AS 3972 and shall be from a source included in the New South Wales Government Cement Quality Assurance Scheme. **NSW QA Scheme**
2. When submitting details of the nominated mix in accordance with Clause C248.19 the Contractor shall nominate the brand and source of the cement. On approval of a nominated mix by the Principal Certifying Authority, the Contractor shall use only the nominated cement in the work. **Nominated Brand and Source**
3. Documentary evidence of the quality and source of the cement shall be furnished by the Contractor to the Principal Certifying Authority upon request at any stage of the work. **Proof of Quality**
4. If the Contractor proposes to use cement which has been stored for a period in excess of three months from the time of manufacture, a re-test shall be required to ensure the cement still complies with AS 3972, before the cement is used in the work. **Storage Time**

6. Cement shall be transported in watertight containers and shall be protected from moisture until used. Caked or lumpy cement shall not be used. **Transport and Storage**

C248.05 FLYASH

1. Flyash shall be from a source included in the New South Wales Government Cement Quality Assurance Scheme. The use and quality of flyash shall comply with AS 3582.1. **NSW QA Scheme**

2. When submitting details of the nominated mix in accordance with Clause C248.19, the Contractor shall nominate the powerhouse source of the flyash. The Contractor shall use only flyash from the nominated powerhouse. **Source**

3. Documentary evidence of the quality and source of the flyash shall be furnished by the Contractor to the Principal Certifying Authority. **Documentary Evidence**

C248.06 WATER

1. Water used in the production of concrete shall be potable and free from materials harmful to concrete or reinforcement. **Quality**

C248.07 ADMIXTURES

1. Chemical admixtures and their use shall comply with AS 1478. Admixtures shall not contain calcium chloride, calcium formate, or triethanolamine or any other accelerator. Admixtures or combinations of admixtures other than specified below, shall not be used. An air-entraining agent shall be included in the mix and the air content of the concrete shall comply with Clause C248.13. **Quality and Use**

2. Fresh concrete with an air content not complying with Clause C248.13 shall be rejected. **Excess Air Content**

3. During the warm season, (October to March inclusive), a lignin or lignin-based ('ligpol') set-retarding admixture (Type Re or Type WR Re) approved by the Principal Certifying Authority shall be used to control slump within the limits stated in Clause C248.12. The dosage shall be varied to account for air temperature and haul time in accordance with the manufacturer's recommendations. A copy of the NATA endorsed Certificate of Compliance with AS 1478 for Type Re or Type WR Re shall be submitted to the Principal Certifying Authority, together with the proposed 'dosage chart' in accordance with Clause C248.19. **Retarder for Warm Season**

4. During the cool season, (April to September inclusive), only a lignin or lignin based set-retarding admixture containing not more than 6 per cent reducing sugars (Type WR Re complying with AS 1478) may be used in the mix. If the Contractor proposes to vary the admixture between the warm and cool seasons such variation shall constitute a proposed change to an approved mix for the purposes of Clause C248.21. **Retarder for Cool Season**

5. When submitting details of the nominated mix in accordance with Clause C248.19, the Contractor shall nominate the proprietary source, type and name for each admixture to be used. Documentary evidence of the quality shall be furnished by the Contractor to the Principal Certifying Authority upon request at any stage of the work. **Source and Type**

C248.08 AGGREGATES

(a) General

1. At least 40 per cent by mass of the total aggregates in the concrete mix shall be quartz sand. Quartz sand is aggregate having a nominal size of less than 5 mm and shall contain at least 70 per cent quartz, by mass. Where present, chert fragments will be regarded as 'quartz' for the purpose of this specification, but the ratio of chert to quartz shall not exceed unity.

Quartz Sand Content

2. When submitting details of the nominated mix in accordance with Clause C248.19, the Contractor shall nominate the sources of aggregate to be used in the concrete and shall submit details of the geological type of each aggregate.

Source and Type

(b) Fine Aggregate

1. Fine aggregate shall consist of clean, hard, tough, durable, uncoated grains uniform in quality. Fine aggregate shall comply with AS 2758.1 in respect of bulk density, water absorption (maximum 5 per cent), material finer than 2 micrometres, and impurities and reactive materials. The sodium sulphate soundness, determined by AS 1141.24, shall not exceed the limits in Table C248.1.

Quality

Australian Standard Sieve	Per Cent Loss by Mass
4.75mm to 2.36mm	4
2.36mm to 1.18mm	6
1.18mm to 600mm	8
600mm to 300mm	12

Table C248.1 - Sodium Sulphate Soundness Limits

2. In the case of a blend of two or more fine aggregates, the above limits shall apply to each constituent material.

Blending

3. The grading of the fine aggregate, determined by AS 1141.11, shall be within the limits given in Table C248.2.

Grading

4. When submitting details of the nominated mix the Contractor shall submit to the Principal Certifying Authority a NATA Certified Laboratory Test Report on the quality and grading of the fine aggregate proposed to be used. The grading shall be known as the "proposed fine aggregate grading".

Proposed Grading

5. If the Contractor proposes to blend two or more fine aggregates to provide the proposed grading then Test Reports for each constituent material shall be submitted separately and the Principal Certifying Authority advised of the proportions in which the various sizes and constituents are to be combined. The fine aggregate from each source and the combined aggregate shall comply with the requirements of this clause.

Test for Each Constituent

6. The grading of the fine aggregate used in the work shall not deviate from that of the proposed grading by more than the amounts in Table C248.2.

Grading Deviation

Australian Standard Sieve	Proportion Passing (% of Mass of Sample)
9.50mm	100
4.75mm	90 - 100
2.36mm	65 - 95
1.18mm	40 - 80
600mm	24 - 52
300mm	8 - 25
150mm	1 - 8
75mm	0 - 3

Table C248.2 - Fine Aggregate Grading

(c) Coarse Aggregate

1. Coarse aggregate shall consist of clean, crushed, hard durable rock, metallurgical furnace slag or gravel. Coarse aggregate shall comply with AS 2758.1 in respect of particle density, bulk density, water absorption (maximum 2.5 per cent), material finer than 75 micrometres, weak particles, light particles, impurities and reactive materials, iron unsoundness and falling or dusting unsoundness. In all other respects, the coarse aggregate shall comply with this Specification. If required, coarse aggregate shall be washed to satisfy these requirements. **Quality**

2. The grading of the coarse aggregate, determined by AS 1141.11, shall be within the limits given in Table C248.3. **Grading**

3. When submitting details of the nominated mix the Contractor shall submit to the Principal Certifying Authority a NATA Certified Laboratory Test Report on the quality and grading of the coarse aggregate proposed to be used. The grading shall be known as the "proposed coarse aggregate grading". **Proposed Grading**

4. If the Contractor proposes to blend two or more coarse aggregates to provide the proposed grading then Test Reports for each constituent material shall be submitted separately and the Principal Certifying Authority advised of the proportions in which the various sizes and constituents are to be combined. The coarse aggregate from each source and the combined aggregate shall comply with the requirements of this clause. **Test for Each Constituent**

5. The grading of the coarse aggregate used in the work shall not deviate from that of the proposed grading by more than the amounts in Table C248.3. **Grading Deviation**

Australian Standard Sieve	Proportion Passing (% of Mass of Sample)
26.50 mm	100
19.00 mm	95 - 100
13.20 mm	(Design)
9.50 mm	25 - 55
4.75 mm	0 - 10
2.36 mm	0 - 2

Table C248.3 - Coarse Aggregate Grading

6. The coarse aggregate shall also conform to the following requirements:- **Additional Tests**

- (i) Wet Strength - AS 1141.22.
Shall not be less than 80 kN for any fraction and/or constituent.
- (ii) 10 per cent Fines Wet/Dry Variation - AS 1141.22.
Shall not exceed 35 per cent for any fraction and/or constituent.
- (iii) Soundness - AS 1141.24
The loss in mass when tested with sodium sulphate shall not exceed 9 per cent for any constituent.
- (iv) Particle Shape - AS 1141.14
The proportion of misshapen particles (2:1 ratio) shall not exceed 35 per cent.
- (v) Fractured Faces - AS 1141.18.
At least 80 per cent by mass of the particles shall have two or more fractured faces.

(d) Storage

1. Storage and handling facilities shall be such as to prevent the aggregates becoming intermixed or mixed with foreign materials, and to prevent segregation occurring.

Facilities

2. The area surrounding the storage facilities and mixing plant shall be so constructed that delivery vehicles, loaders and trucks shall not be capable of introducing foreign matter to the aggregates at any time. If foreign matter is introduced or the area reaches a condition where, in the opinion of the Principal Certifying Authority, foreign matter may be introduced to the aggregates, production of concrete and delivery of materials shall cease until the condition is corrected to the satisfaction of the Principal Certifying Authority.

Introduction of Foreign Matter

QUALITY REQUIREMENTS OF CONCRETE

C248.09 CEMENT AND FLYASH CONTENT

1. The minimum Portland cement content shall be 270 kilograms per yielded cubic metre of concrete. The maximum flyash content shall be 50 kilograms per yielded cubic metre of concrete.

Cement and Flyash

C248.10 COMPRESSIVE STRENGTH

- 1. The compressive strength of concrete shall be determined in accordance with AS 1012.9.
- 2. For accessways within private property, the minimum compressive strength at twenty-eight days shall be 25 MPa.
- 3. For public roads, the minimum compressive strength at twenty-eight days shall be 32 MPa.

Compressive Strength

C248.11 SHRINKAGE

1. The drying shrinkage of the nominated mix, determined by AS 1012.13, shall not exceed 450 microstrain after three weeks air drying. The drying shrinkage at the nominated slump plus 10 mm shall be taken as the average of the reading or readings within 5 per cent of the median of the three readings obtained in accordance with AS 1012.13.

***Shrinkage
Limit***

C248.12 SLUMP (CONSISTENCY)

1. The Contractor's nominated slump, determined in accordance with AS 1012.3, Method 1, shall be neither less than 30 mm nor more than 40 mm for mechanically placed concrete and shall be neither less than 55 mm nor more than 65 mm for hand placed concrete.

***Slump
Tolerance***

C248.13 AIR CONTENT

1. The air content of the concrete, determined in accordance with AS 1012.4, Method 2, shall be neither less than 4 per cent nor more than 7 per cent, when discharged from the transport vehicle ready for placement.

Tolerances

STEEL REINFORCEMENT

C248.14 MATERIAL

1. Steel reinforcement shall comply with the requirements of the appropriate following Australian Standards:-

Standards

- (a) AS 1302 Steel Reinforcing Bars for Concrete.
- (b) AS 1303 Steel Reinforcing Wire for Concrete.
- (c) AS 1304 Welded Wire Reinforcing Fabric for Concrete.

2. The type and size of bars shall be as shown on the Drawings.

Type and Size

3. Steel reinforcement shall be free from loose or thick rust, grease, tar, paint, oil, mud, millscale, mortar or any other coating, but shall not be brought to a smooth polished condition.

Quality

4. The Contractor shall supply evidence satisfactory to the Principal Certifying Authority that steel reinforcement complies with AS 1302, AS 1303 or AS 1304, as appropriate. Test certificates shall show the results of mechanical tests and chemical analysis.

***Documentary
Evidence***

5. Where the material cannot be identified with a test certificate, samples shall be taken and testing arranged by the Contractor. The samples shall be selected randomly and consist of three specimens each at least 1.2 m in length.

Sampling

6. Plastic bar chairs or plastic tipped wire chairs shall be capable of withstanding a load of 200kg mass on the chair for one hour at 23 ± 5°C without malfunction. The Contractor shall demonstrate that the proposed chairs conform with these requirements.

Wire Chairs

C248.15 BENDING

1. Reinforcement shall be formed to the dimensions and shapes shown on the Drawings. Reinforcement shall not be bent or straightened in a manner that will damage the material. Bars with kinks or bends not shown on the Drawings shall not be used. Heating of reinforcement for purposes of bending will only be permitted if uniform heat is applied. Temperature shall not exceed 450°C and the heating shall extend beyond the portion to be bent. Heated bars shall not be cooled by quenching.

Bending

C248.16 SPLICING

1. All reinforcement shall be furnished in the lengths indicated on the Drawings. Except where shown on the Drawings, splicing of bars shall only be permitted with the approval of the Principal Certifying Authority as to the location and method of splicing.

Plan Lengths

The length of lapped splices not shown on the Drawings shall be as follows for unhooked bars:-

Plain bars, Grade 250	- 40 bar diameters
Deformed bars, Grade 400	- 35 bar diameters
Hard-drawn wire	- 50 bar diameters

2. Splices in reinforcing fabric shall be measured as the overlap between the outermost wire in each sheet of fabric transverse to the direction of splice. This overlap shall not be less than the pitch of the transverse wires plus 25 mm.

Splice Dimensions

3. In welded splices, bars shall only be welded by an approved electrical method. Grade 400 deformed bars shall not be welded.

Welded Splice

4. Welding shall comply with AS 1554.3. The welded splice shall meet requirements of tensile and bend tests specified for the parent metal.

Welding Standard

C248.17 STORAGE

1. Reinforcement, unless promptly incorporated into the concrete, shall be stored under a waterproof cover and supported clear of the ground, and shall be protected from damage and from deterioration due to exposure.

Protection of Reinforcement

C248.18 PLACING

1. Reinforcing bars and wire reinforcing fabric shall be accurately placed to the dimensions and details shown on the Drawings. They shall be securely held by blocking from the forms, by supporting on concrete or plastic chairs or metal hangers, as approved by the Principal Certifying Authority, and by wiring together where required using annealed iron wire not less than 1.25 mm diameter. These supports shall be in a regular grid not exceeding 1 m and steel shall not be supported on metal supports which extend to any surface of the concrete, on wooden supports, nor on pieces of aggregate.

Position

Spacing of bar chairs

2. Tack welding instead of wire ties may be used on reinforcing steel. Cold-worked reinforcing bars shall not be tack welded.

Tack Welding

3. The minimum cover of any bar to the nearest concrete surface shall be 50 mm unless otherwise shown on the Drawings.

Bar Cover

4. Tie bars shall be placed in the pavement such that after placement they remain in their specified location. Tie bars shall not be placed through the finished upper surface of the pavement. Tie bars shall be placed either ahead of paving or by a bar vibrator into the edge of the joint or by an automatic tie bar inserter on the mechanical paver.

Tie Bars

Irrespective of the method of placement, tie bars extending from any side face of base concrete or gutter shall be anchored in a manner which will develop 85 per cent of the yield strength of the bar in tension.

5. Placing and fastening and support of all reinforcement in the work shall be inspected and approved by the Principal Certifying Authority before concrete is placed and adequate time shall be allowed for inspections and any corrective work which the Principal Certifying Authority may require. Notice for inspection shall not be less than twenty four hours before the intended time of commencement of concrete placement or such time as determined by the Principal Certifying Authority.

Inspection

DESIGN AND CONTROL OF CONCRETE MIXES

C248.19 GENERAL

1. The Contractor shall submit, for approval by the Principal Certifying Authority, details of the concrete mix (or mixes) and the materials, including source, to be used for each of mechanically placed and hand placed base, including nominated slump and moisture condition of the aggregates (oven dry, saturated surface dry, or other specified moisture content) on which the mix is based. Each such mix shall be known as a 'nominated mix'.

Nominated Mix

2. Also, the Contractor shall provide a Certificate from a laboratory with appropriate NATA registration stating that each nominated mix and its constituents meet the requirements of this Specification. All relevant test results shall accompany the Certificate. All phases of any particular test must be performed at one laboratory. The certificate shall confirm that the required testing has been carried out in the twelve month period before the date of submission to the Principal Certifying Authority.

Certified Test Results

3. In the tests supporting the above certification, the compressive strength gain curve shall be submitted showing the compressive strengths at ages 3, 7, 10 and 28 days determined in accordance with AS1012.9. Each of the results shall be based on three specimens of concrete produced from a batch of the nominated mix. The compressive strength shall be the average of individual results within 2.0 MPa of the median. The compressive strength for 28 days shall not be less than the strength nominated.

Compressive Strength

4. These details shall be submitted at least 7 days before using the nominated mix in the work.

Submission of Details

C248.20 VARIATIONS TO APPROVED MIXES

1. The Contractor shall not make any changes to the approved mix, its method of production or source of supply of constituents without the prior written approval of the Principal Certifying Authority.

Approval for Mix Variation

2. Where changes to an approved mix are proposed, the Contractor shall provide details of the nominated mix and materials, in accordance with Clause C248.19. If the variations to the quantities of the constituents in the approved mix are less than 10 kg for Portland cement and flyash and 5 per cent by mass for each other constituent, except admixtures, per yielded cubic metre of concrete the Principal Certifying Authority may approve the changes without new trials being carried out.

Contractor's Responsibility

3. Notwithstanding these tolerances the minimum Portland cement content shall be 270 kilograms per yielded cubic metre of concrete and the maximum flyash content shall be 50 kilograms per yielded cubic metre of concrete.

Content per Cubic Metre

CONFORMANCE OF CONCRETE STRENGTH, COMPACTION AND THICKNESS

C248.21 CONCRETE CYLINDERS

(a) Test Specimens

1. Test specimens for determining the compressive strength of concrete shall be standard cylinders complying with AS 1012.8. The Contractor shall supply a sufficient number of moulds to meet the requirements for the frequency of testing specified in this Clause and shall also arrange for a laboratory with appropriate NATA registration to conduct the sampling of fresh concrete and the making, curing, delivery and testing of specimens. Copies of test results shall be forwarded to the Principal Certifying Authority. **Contractor's Responsibility**

2. Samples of concrete for testing shall be taken in accordance with AS1012.1. The selection of the batches to be sampled shall be taken randomly. The specimens shall be moulded from each sample so that they are as identical as practicable. **Sampling**

3. The method of making and curing specimens shall be in accordance with AS1012.8 with compaction by internal vibration. **Curing**

4. The Contractor shall mark the specimens for identification purposes. **Marking**

(b) Frequency of Moulding of Test Specimens **Moulding of Cylinders**

1. Test specimens shall be moulded as follows:-

(i) For the determination of the compressive strength at twenty-eight days.

For each lot of up to 50 cubic metres of concrete placed at the one time: One pair of specimens

(ii) For the determination of the compressive strength at seven days.

For each lot of up to 50 cubic metres of concrete placed at the one time: One pair of specimens

(iii) For the determination of compressive strength for any early testing as deemed necessary by the Contractor.

For each lot of up to 50 cubic metres of concrete placed at the one time: One pair of specimens

2. A lot is defined as a continuous pour of up to 50 cubic metres of concrete placed. **Lot Size**

(c) Inspection, Capping and Crushing of Specimens

1. Specimens required by this Specification shall be tested at the NATA registered laboratory nominated by the Contractor.

2. Specimens shall be inspected, capped and crushed in accordance with AS1012.9. **Standards**

3. Before crushing, the mass per unit volume of the seven day specimens shall also be determined in accordance with AS1012.12 Method 2, so that the relative compaction of cores taken from the same lot of concrete base can be determined. **Mass Unit Volume**

C248.22 COMPRESSIVE STRENGTH OF CONCRETE

(a) General

1. The compressive strength of the concrete represented by a pair of specimens moulded from one sample shall be the average compressive strength of the two specimens unless the two results differ by more than 3.0 MPa, in which case the lower result shall be taken to represent the compressive strength of the lot of concrete.

Determination of Strength

(b) Adjustment of Test Compressive Strength for Age of Specimen

1. Should any specimen be tested more than twenty-eight days after moulding the equivalent twenty-eight day compressive strength shall be the test compressive strength divided by the factor applying to the age of the specimen at the time of the test shown in Table C248.4. For intermediate ages the factor shall be determined by interpolation.

Strength Age Factor

Age of Specimen at time of test (days)	Factor
28	1.00
35	1.02
42	1.04
49	1.06
56	1.08
70	1.10
84	1.12
112	1.14
140	1.16
168	1.18
196	1.20
224	1.22
308	1.24
365 or greater	1.25

Table C248.4 - Concrete Age Conversion Factors

(c) Conformance for Compressive Strength

1. If the 28 day compressive strength of test cylinders:

Limits

a. for private accessways is less than 25 MPa the lot represented by the test cylinders shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

b. for public roads is less than 32 MPa the lot represented by the test cylinders shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

2. In case of non-conformance the Contractor may elect to core the in situ base concrete for testing of the actual compressive strength to represent the particular lot. The locations for testing shall be nominated by the Principal Certifying Authority. Such locations may be determined by the use of a nuclear density meter, or any alternative method. Testing shall be carried out at the request of the Contractor. Base concrete failing to reach the required in situ compressive strength shall not be retested for at least 72 hours after the determination of the value of the in situ compressive strength.

Coring

3. After testing for compressive strength of cores, where required, the Principal Certifying Authority shall consider the test results and shall at his absolute discretion

Superintendent's

determine the compressive strength of the concrete to be either:-

Absolute Discretion

- (i) The average of the twenty-eight day compressive strength of the pair of specimens moulded at the time of placing; or
- (ii) The equivalent twenty-eight day compressive strength of the core.

4. A lot is defined as a continuous pour of up to 50 cubic metres of base represented by a pair of test specimens cast from a sample of the concrete used in its construction.

Lot Size

C248.23 CONFORMANCE FOR THICKNESS

1. Thickness measurements of the concrete base shall be determined by survey, measurements at the edges or by coring. Audit checks using a suitable probe may be carried out whilst the concrete is being placed. The readings shall be rounded off to the nearest 5mm.

Thickness Measurement

2. Base which is below the specified thickness shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

Remove and Replace

3. Base which is thicker than the design thickness will be acceptable provided the finish satisfies the requirements of Clause C248.31.

C248.24 RELATIVE COMPACTION OF CONCRETE

(a) Test Specimens

1. Test specimens for determining the relative compaction of the concrete placed in the work shall be cores cut from the work. Cores shall be cut from the full depth of the concrete base to the requirements of AS 1012.14, with the following exceptions:-

Cores

- (i) The requirement that the concrete shall be at least 28 days old before the core is removed shall not apply. However concrete must be not less than three days old in the warm season and six days old in the cool season, before removal.
- (ii) The nominal diameter of the cores shall not be less than 75 mm.

2. The location of coring shall be chosen to exclude joints, steel reinforcement or tie bars from the core. The locations are not intended to be random, but are intended to ensure that the whole of the concrete base conforms to the minimum requirements of the Specification. Cores shall be marked for identification.

Location of Cores

3. Cores shall be placed immediately either in a tank of lime saturated water or in an individual plastic bag and sealed to prevent water loss. Cores stored in plastic bags shall be kept in the shade.

Storage

4. Cores shall not be subjected to temperatures in excess of either ambient temperature or 23°C whichever is the higher and they shall not be subjected to temperature less than 10°C, until delivered to the testing laboratory.

Temperature Control

(b) Frequency of Coring

1. The Contractor shall take a minimum of one core specimen from each lot of concrete base represented by standard cylinders moulded in accordance with Clause C248.21.

Minimum

2. In the case of hand-placed base concrete, two cores shall be taken to represent a section of work. A section of work shall be confined between construction joints.

Hand Placed Concrete

Hand-worked or placed base that is cast with machine-placed concrete and not separated from the machine-placed concrete shall be deemed to be part of the machine-placed concrete, and be cored and tested as part of the machine-placed concrete base.

(c) Repair of Core Holes

1. The Contractor shall clean and restore all core holes taken in the base with non-shrink cementitious concrete having a compressive strength of not less than that in the base and a maximum nominal aggregate size of 10 mm.

Contractor's Responsibility

2. The surface of the restored hole shall be similar to the surrounding surface in texture and colour.

Surface Condition

(d) Testing of Cores for Compaction

1. The core specimens shall be wet conditioned in accordance with AS 1012.14 for not less than 24 hours immediately prior to testing for compaction. Testing to determine mass per unit volume shall be carried out on specimens at age seven days.

Curing

2. The relative compaction of a core specimen shall be the ratio, expressed as a percentage, of the mass per unit volume of the core specimen to the average mass per unit volume of the standard cylinders used to determine the seven day compressive strength from the same lot of concrete base. The mass per unit volume of both standard cylinders and cores shall be determined in accordance with AS 1012.12 Method 2.

Relative Compaction

(e) Conformance for Compaction

1. If the relative compaction is less than 97.0 per cent, the lot represented by the core shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

Rejection Percentage

2. Core specimens for compressive strength testing shall be wet-conditioned, prepared and tested in accordance with AS 1012.14. Cores obtained for compaction shall not be re-used for compressive strength testing.

Core Preparation

3. The test strength shall be adjusted for age at test in accordance with Clause C248.22 and for length/diameter ratio in accordance with Table C248.5 by multiplying by the correction factor in Table C248.5.

Adjustment for Age

4. If the 28 day compressive strength of the core:

Core Compressive Strength

a. for private accessways is less than 25 MPa the lot represented by the test cylinders shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

b. for public roads is less than 32 MPa the lot represented by the test cylinders shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52..

Length/Diameter Ratio	Correction Factor
2.00	1.00
1.75	0.98
1.50	0.96
1.25	0.93
1.00	0.89

Table C248.5 - Correction Factors

PRODUCTION, TRANSPORT AND CONSISTENCY OF CONCRETE

C248.25 PRODUCTION AND HANDLING OF CONCRETE

1. At least one week before commencing work under this Specification, the Contractor shall submit, for the information of the Principal Certifying Authority, details of the proposed methods of handling, storing and batching materials for concrete, details of proposed mixers and methods of agitation, mixing and transport.

***Contractor's
Responsibility***

2. The methods of handling, storing and batching materials for concrete shall be in accordance with AS 1379, with the following additional requirements:-

***Handling and
Batching
Methods***

- (a) Certificates of Calibration issued by a recognised authority shall be made available for inspection by the Principal Certifying Authority, as evidence of the accuracy of the scales.
- (b) Cementitious material shall be weighed in an individual hopper, with the Portland cement weighed first.
- (c) The moisture content of the aggregates shall be determined at least daily immediately prior to batching. Corresponding corrections shall be made to the quantities of aggregates and water.

3. Details of proposed mixers and agitation methods shall be in accordance with the plant and equipment sections of AS 1379, with the additional requirement that in Appendix A of AS 1379 the maximum permissible difference in slump shall be 10 mm.

***Mixer
Requirements***

C248.26 MIXING AND TRANSPORT

1. Mixing and transport methods shall be in accordance with the production and delivery sections of AS 1379, with the following additional requirements:-

Methods

- (a) The mixer shall be charged in accordance with the manufacturer's instructions.
- (b) For the purpose of conducting mixer uniformity tests in accordance with Appendix A of AS 1379 on a split drum mixer producing centrally mixed concrete, the whole of the batch shall be discharged into the tray of a moving vehicle. The concrete shall then be sampled from the tray of the vehicle at points approximately 15 per cent and 85 per cent along the length of the tray.
- (c) For truck-mixed concrete, addition of water in accordance with the batch production section of AS 1379 shall be permitted only within ten minutes of completion of batching and within 200 m of the batching facilities. The delivery docket must clearly indicate the amount of water added, but in no circumstance shall the water : cement ratio be exceeded. Mixing of the concrete shall be completed at that location.
- (d) Admixtures shall be separately prediluted with mixing water and shall be incorporated by a method which ensures that no adverse interaction occurs.
- (e) After addition of the cement to the aggregate, concrete shall be incorporated into the work within:-

- One and a half hours, where transported by truck mixer or agitator;
- One hour, where transported by non-agitating trucks.

Means of verification, satisfactory to the Principal Certifying Authority, of the times of addition of cement to the aggregate shall be provided. The times within which the concrete shall be incorporated into the work may be reduced if the Principal Certifying Authority considers the prevailing weather, mix type, or materials being used warrant such a change.

- (f) The size of the batch in an agitator vehicle shall not exceed the manufacturer's rated capacity nor shall it exceed 80 per cent of the gross volume of the drum of the mixer.

C248.27 MIXING TIME

1. Minimum mixing time will be as determined for the approved mix and verified when trial concrete base is constructed.

2. Where by reason of delay, it is necessary to hold a batch in the mixer, mixing may be continued for a maximum of ten minutes except for split drum mixers where the maximum shall be five minutes.

Batch in Mixer

3. For longer periods, the batch may be held in the mixer and turned over at regular intervals, subject to the time limits specified for incorporation of the concrete into the work not being exceeded.

Long Delays

C248.28 CONSISTENCY

1. At all times between mixing and discharge, the slump shall be within 10mm of the Contractor's nominated slump for the nominated mix for mechanically placed concrete and within 15mm thereof for hand placed concrete.

Tolerances

2. The consistency of the concrete shall be checked by use of a slump cone in accordance with AS1012.3 Method 1. The test shall be made on concrete samples obtained in accordance with AS1012.1.

Test Method

3. The consistency of the concrete shall be checked within 30 minutes of adding cement to the aggregate. If the actual haul time exceeds 45 minutes, the consistency shall also be checked immediately prior to discharge. Concrete which is non-conforming in relation to consistency shall not be incorporated into the work.

Timing of Testing

4. Check tests shall be done on each truckload of concrete.

Check Tests

PLACING AND FINISHING CONCRETE BASE

C248.29 GENERAL

1. At least two weeks before commencing work under this Specification, the Contractor shall submit for the information of the Principal Certifying Authority, full details of the equipment and methods proposed for placing and finishing the concrete base together with a paving plan showing proposed paving widths, sequence and estimated daily outputs.

Contractor's Responsibility

2. The Contractor shall give the Principal Certifying Authority seven days written notice of the intention to commence construction of the base on any section of work.

Written Notice

3. The subbase surface shall be clean and free of loose or foreign matter and

Subbase

prepared in accordance with the Specification for MASS CONCRETE SUBBASE.	<i>Condition</i>
4. Concrete shall not be placed nor shall any concreting work be carried out either during rain or when the air temperature in the shade is below 5°C or above 38°C.	<i>Air Temperature</i>
5. The temperature of the concrete at the point of discharge from transport vehicles shall be neither less than 10°C nor more than 32°C.	<i>Concrete Temperature</i>
6. Where required, slab anchors shall be constructed prior to construction of the base.	<i>Slab Anchors</i>

C248.30 RATE OF EVAPORATION

1. When the value of Rate of Evaporation, determined from the graph in Figure C248.1, exceeds 0.50 kilograms per square metre per hour the Contractor shall take precautionary measures satisfactory to the Principal Certifying Authority for the prevention of excessive moisture loss. If, in the opinion of the Principal Certifying Authority, such precautionary measures prove to be unsatisfactory, the Contractor shall cease work while the evaporation rate is in excess of 0.50 kilograms per square metre per hour.	<i>Evaporation Limit</i>
2. Should the Contractor elect to use an evaporation retarder to prevent excessive moisture loss, application shall be by fine spray after all finishing operations, except minor manual bull-floating, are complete.	<i>Use of Retarder</i>
3. The Contractor shall be responsible for measuring and recording concrete temperature and wind velocity at the point of concrete placement, and for continuously measuring and recording air temperature and relative humidity at the site throughout the course of the work. The Contractor shall provide and maintain all equipment and shall provide suitable personnel necessary for all such measuring and recording.	<i>Contractor's Responsibility</i>

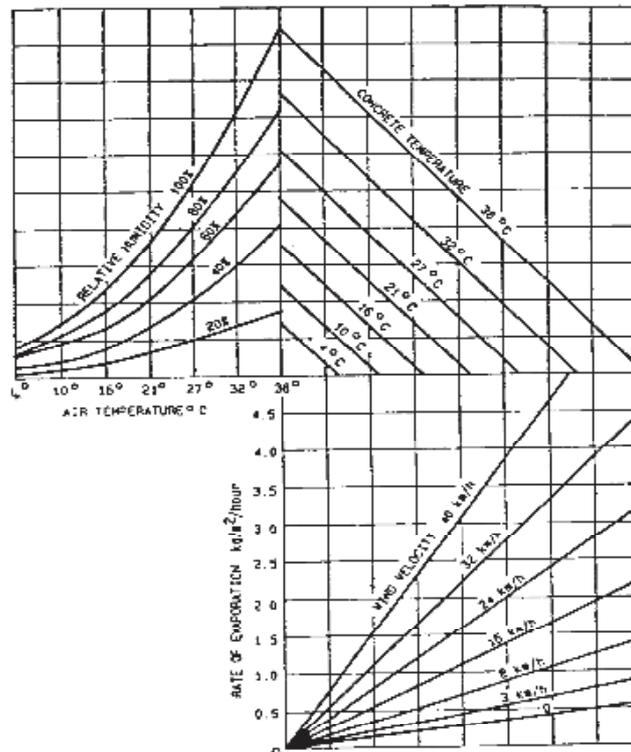


Figure C248.1 - Rate of Evaporation

The graph shows the effects of air temperature, humidity, concrete temperature and wind velocity together on the rate of evaporation of water from freshly placed and unprotected concrete.

Example:

- with air temperature at 27°C
- with relative humidity at 40%
- with concrete temperature at 27°C
- with a wind velocity of 26km/h the rate of evaporation would be 1.6 kg/m²/hour.

To determine the evaporation rate from the graph, enter the graph at the air temperature (in this case 27°C), and move vertically to intersect the curve for relative humidity encountered - here 40%. From this point move horizontally to the respective line for concrete temperature - here 27°C. Move vertically down to the respective wind velocity curve - in this case interpolating for 26km per hour - and then horizontally to the left to intersect the scale for the rate of evaporation.

C248.31 MECHANICAL PAVING

1. The mechanical paver shall be a self-propelled machine with a gross operating mass of not less than 4 tonnes per lineal metre of paved width. It shall be capable of paving at a speed of one metre per minute or less as required to enable the continuous operation of the paver and obtain the required degree of compaction. It shall include the following features:-

Paving Machine

- (a) An automatic control system with a sensing device to control line and level to the specified tolerances.
- (b) Means of spreading the mix uniformly and regulating the flow of mix to the vibrators without segregation of the components.
- (c) Internal vibrators capable of compacting the full depth of the concrete.
- (d) Adjustable extrusion screed and/or conforming plate to form the slab profile and produce the required finish on all surfaces.
- (e) Capability of paving in the slab widths or combination of slab widths and slab depths shown on the Drawings.

2. The mechanical paver shall spread, compact, screed and finish the freshly placed concrete in such a manner that a minimum of finishing by hand will be required. A dense and homogeneous concrete with a surface exhibiting low permeability, shall be provided. It shall be textured in accordance with Clause C248.34.

Concrete Finish

3. The supporting surface for the tracks of the paver, curing machine and any other equipment in the paving and curing train shall be in a smooth and firm condition.

Supporting Surface

4. Once spreading commences, the concrete paving operation shall be continuous. The mechanical paver shall be operated so that its forward progress shall not be stopped due to lack of concrete. If disruptions occur for any reason, the Principal Certifying Authority may direct that a construction joint be formed before the recommencement of paving operations.

Continuity of Paving Operation

5. Where an interruption to paving occurs, which is likely to result in a non-monolithic concrete mass, the Contractor shall form a transverse construction joint in accordance with Clause C248.41.

Interruption to Paving

6. Should subsequent testing at the location of an interruption indicate the presence of non-monolithic concrete, such concrete shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.

Non-monolithic Concrete

C248.32 HAND PLACING

1. Hand placement shall only be used in areas where mechanical placement is impracticable or where it has been approved by the Principal Certifying Authority prior to commencement of work.

Restriction

2. Forms shall be so designed and constructed that they can be removed without damaging the concrete and shall be true to line and grade and braced in a substantial and unyielding manner. Forms shall be mortar tight and debonded to ensure non-adhesion of concrete to the forms.

Formwork

3. Concrete shall be delivered in agitator vehicles and shall be deposited uniformly in the forms without segregation. The concrete shall be compacted by poker vibrators and by at least two passes of a hand-guided vibratory screed traversing the full width of the slab on each pass. Any buildup of concrete between the forms and vibratory screed shall be prevented.

Placing in Forms

- | | |
|---|--|
| <p>4. If disruptions occur for any reason, the Principal Certifying Authority may direct that a construction joint be formed before the recommencement of paving operations.</p> | <p><i>Disruption</i></p> |
| <p>5. A dense and homogeneous concrete with a surface exhibiting low permeability, shall be provided. It shall be textured in accordance with Clause C248.34.</p> | <p><i>Concrete Finish</i></p> |
| <p>6. Where an interruption to placing occurs, which is likely to result in a non-monolithic concrete mass, the Contractor shall form a transverse construction joint in accordance with Clause C248.41.</p> | <p><i>Transverse Construction Joint</i></p> |
| <p>7. Should subsequent testing at the location of an interruption indicate the presence of non-monolithic concrete, such concrete shall be removed and replaced in accordance with Clauses C248.50, C248.51 and C248.52.</p> | <p><i>Non-Monolithic Concrete</i></p> |

C248.33 ALIGNMENT AND SURFACE TOLERANCES

(a) Horizontal Alignment Tolerance

- | | |
|---|--|
| <p>1. The outer edges of the base shall be square to the subbase and shall not deviate from the plan position at any point by more than 10 mm.</p> | <p><i>Outer Edge</i></p> |
| <p>2. Where an edge of a slab is to form a longitudinal joint line the horizontal alignment shall not deviate from a 3 m straightedge by more than 10 mm.</p> | <p><i>Longitudinal Joint Line</i></p> |

(b) Tolerances and Rideability

- | | |
|---|--|
| <p>1. The tolerance on thickness of the base shall be zero below the specified thickness and in accordance with Clause C248.23 for excess thickness.</p> | <p><i>Top of Base Level</i></p> |
| <p>2. The top surface of the base shall also not deviate from a 3 m straightedge, laid in any direction, by more than 5 mm. Notwithstanding this requirement, the surface shall not pond water.</p> | <p><i>Surface Level</i></p> |

C248.34 TEXTURING OF SURFACE

1. Texturing of the concrete surface may be effected by use of a fine broom or hessian-drag. The Contractor shall submit to the Principal Certifying Authority details of the proposed texturing method and equipment.

C248.35 CURING

- | | |
|--|---------------------------------------|
| <p>1. The base shall be cured by the use of one of the following:</p> <ul style="list-style-type: none"> (a) Chlorinated rubber curing compound complying with AS 3799 Class C Type 1D or resin-based curing compound complying with AS 3799 Class B, Type 1D or Type 2, if an asphalt wearing surface is used, or (b) White pigmented wax emulsion curing compound complying with AS 3799 Class A Type 2, if no asphalt wearing surface is used, or (c) Bitumen emulsion Grade CRS/170 complying with AS 1160 for either asphalt wearing or non asphalt wearing surface. | <p><i>Compounds</i></p> |
| <p>2. The Contractor shall submit, for the information of the Principal Certifying Authority, a current Certificate of Compliance from an Australian laboratory, approved by the Principal Certifying Authority, showing an Efficiency Index of not less than 90 per cent when tested in accordance with Appendix B of AS 3799.</p> | <p><i>Efficiency Index</i></p> |

3. The curing compound shall be applied using a fine spray immediately following texturing at the rate stated on the Certificate of Compliance or at a minimum of 0.2 litres per square metre, whichever rate is the greater. Bitumen emulsion shall be applied at a minimum rate of 0.5 litres per square metre. When applied with an hand lance the rates shall be increased by 25 per cent.

4. The average application rate shall be checked by the Contractor and certified to the Principal Certifying Authority by calculating the amount of curing compound applied to a measured area representative of a lot and nominated by the Principal Certifying Authority.

Application Rate

5. The curing membrane shall be maintained intact for seven days after placing the concrete. Any damage to the curing membrane shall be made good by handspraying of the affected areas.

Curing Period

6. Equipment and materials for curing operations shall be kept on site at all times during concrete pours.

Equipment on Site

C248.36 PROTECTION OF WORK

1. The Contractor shall ensure that the temperature of the concrete does not fall below 5°C during the first twenty-four hours after placing. The Contractor shall provide, for the information of the Principal Certifying Authority, details of procedures and equipment proposed to be used for the protection of sections recently placed in the event of low air temperatures. If the Contractor fails to maintain the temperature of the concrete at or above 5°C and if, in the opinion of the Principal Certifying Authority, the concrete exhibits any deficiencies, due to failure to comply with this Specification, the concrete shall be rejected.

Temperature Control

2. The Contractor shall protect the work from rain damage and shall provide, for the information of the Principal Certifying Authority, detailed proposals for procedures and equipment to be used for such protection.

Rain Protection

3. Neither traffic nor construction equipment, other than that associated with testing, sawcutting, groove cleaning or joint sealing, shall be allowed on the finished base until the joints have been permanently sealed and at least 10 days have elapsed since placing concrete, and the concrete has reached a compressive strength of at least 20MPa.

Traffic Restrictions

JOINTS

C248.40 GENERAL

1. Joints shall be provided at locations indicated on the Drawings or as approved by the Principal Certifying Authority.

Location

C248.41 TRANSVERSE CONSTRUCTION JOINTS

1. Transverse construction joints shall:

Location

- be provided only at discontinuities in the placement of concrete determined by the Contractor's paving operations.
- not be placed closer than 1.5 m to a transverse contraction joint. Where necessary, the Principal Certifying Authority shall authorise a change in the spacing and/or skew of transverse contraction joints to ensure that sufficient clearance is obtained.

- be constructed normal to the control line and to the dimensions and details shown on the Drawings. The tie bars shall comply with Clauses C248.14 and C248.18.
- be smooth across the joint before texturing.
- not deviate from a 3 m straightedge placed along the joint by more than 10 mm.

2. Prior to placing adjacent concrete the surface of the concrete shall be roughened to expose coarse aggregate. The roughened surface and the projecting reinforcement shall be washed clean and all excess water and loose material removed.

***Placing
Adjoining
Concrete***

C248.42 TRANSVERSE CONTRACTION JOINTS

(a) General

1. Transverse contraction joints shall be continuous across the full width of the base and shall be sawn unless otherwise approved by the Principal Certifying Authority.

Details

2. Where the concrete base is to be overlaid with asphalt wearing course, the Principal Certifying Authority may approve the joint to be formed with a suitable plastic joint inducing system.

3. Transverse contraction joints shall be constructed normal to the control line and to the dimensions and details shown on the Drawings. Where necessary, the joint may be skewed to a maximum 1 in 12 to accommodate construction joints and slab anchors.

Skewed Joints

(b) Sawcutting

1. The Contractor shall ensure that sawcutting be conducted between 6 and 24 hours after initial paving so as not to cause excessive ravelling of aggregate adjacent to the cut and so as to prevent cracking of the base concrete other than at the bottom of the 3 mm sawcut. The Contractor shall use the type of blade and equipment and the method of control best suited to the hardness of the concrete being sawn and shall have sufficient standby equipment available on site to maintain continuity of sawing.

***Timing and
Equipment***

2. The line of the transverse contraction joint shall be without any discontinuities. No edge shall deviate from a 3 m straight edge by more than 10 mm.

Tolerances

3. The surface of the transverse contraction joint shall not exhibit more than 5 mm of vertical or horizontal edge ravelling. The length of edge ravelling shall not be more than 300 mm in any 1 m length of joint on each edge. Saw debris shall be washed from the joint and pavement immediately after sawing.

4. Sawcuts, which do not conform to the requirements of this Clause, shall be rejected by the Principal Certifying Authority. Rejected sawcuts may be repaired by a method approved by the Principal Certifying Authority.

***Rejected
Sawcuts***

(c) Cleaning

1. Immediately after any sawing, the sawcut shall be cleaned of all debris. The cleaning method used shall not damage the sawcut nor leave any substance deleterious to the concrete or to the adhesion of the joint sealants to be used. The method shall incorporate a pressurised liquid or liquid/air jet. Cleaning liquid shall not be gravity fed from tanks.

***Debris
Removed***

(d) Temporary Sealing

1. Immediately after cleaning following the second sawcut, if the transverse contraction joint is produced by a two-cut operation, the joint shall be temporarily sealed by a continuous closed-cell polyethylene backer rod of diameter shown on the Drawings or as required by the Principal Certifying Authority. **Material**

2. The top of the sealant shall be neither higher than nor more than 10 mm below the concrete surface. The backer rod shall pass over any longitudinal joint seal already in place. **Tolerance**

3. The temporary sealant shall be maintained by the Contractor until the joint is sealed permanently. Damaged or disturbed temporary sealants shall be removed, the transverse contraction joint recleaned to the satisfaction of the Principal Certifying Authority and a new temporary sealant inserted. **Maintenance**

(e) Permanent Sealing

(i) General

1. Within ten days of initial sawing and immediately on removal of the temporary sealant, the permanent sealant shall be placed in the joint. **Timing**

2. The permanent sealant shall be either a neoprene compression seal or an in situ cast silicone sealant. The Contractor shall submit for the approval of the Principal Certifying Authority, a full technical description of the proposed sealant, including its operating parameters and the method of installation recommended by its manufacturer. **Sealant Quality**

(ii) Neoprene Compression Sealants

1. Neoprene compression sealants shall comply with all the requirements of ASTM 2628. Test methods used to determine compliance with these requirements shall include Test Methods T1160, T1161 and T1163. **Standards**

2. At least two weeks before installation of the sealant, the Contractor shall submit to the Principal Certifying Authority a Certificate of Compliance from a NATA registered laboratory showing that the sealant meets all the requirements of ASTM 2628. **Certification of Compliance**

3. At the time of installation, the sides of the neoprene sealant shall be coated with a clear or concrete-coloured lubricant compound approved by the Principal Certifying Authority and complying with ASTM D-2835. The sealant shall be inserted into the joint by means of suitable equipment which shall not damage the sealant during its insertion. The maximum increase in length of the sealant after installation shall be 5 per cent of original length. Any sealant exceeding 5 per cent extension shall be rejected. The sealant shall be located in the transverse contraction joint in the design orientation without twist or buckle. **Installation**

4. The sealant shall be continuous between formed longitudinal joints. Where such a discontinuity occurs, the sealant shall be angle butt jointed by a method approved by the Principal Certifying Authority. The top of the sealant shall be neither less than 5 mm nor more than 7 mm below the surface of the base and shall overlay any longitudinal sealants. **Tolerances**

(iii) Silicone Sealants

1. Silicone sealants shall be formed using a silicone joint sealant complying with the requirements listed in Table C248.6. At least four weeks before the installation of the sealant, the Contractor shall submit to the Principal Certifying Authority a Certificate of Compliance, from a NATA registered laboratory, showing that the sealant meets all the requirements of Table C248.6. **Certificate of Compliance**

2. The silicone joint sealant shall be grey in colour and shall be stored and installed **Installation**

in accordance with the manufacturer's written instructions. Installation of a silicone sealant shall take place only when the side walls of the groove have been grit blasted and are surface dry.

3. Immediately before introducing the silicone sealant into the groove, any foreign or disturbed material shall be cleaned from the joint and from the top of the backer rod by dry air jet. The backer rod shall then be depressed to the depth such that the bottom of the silicone sealant shall be at the planned location and of the correct shape.

Action Before Sealing

4. If the backer rod is damaged in any way it shall be replaced for the full length of the joint.

5. The method to be used for permanent sealing with silicone sealant shall be approved by the Principal Certifying Authority before permanent sealing commences. Notwithstanding any approval given by the Principal Certifying Authority to a proposed method, the Contractor shall be responsible for producing a permanent seal complying with all requirements of this Specification.

Contractor's Responsibility

Test Method	Test	Requirements
ASTM-D-792	Specific Gravity	1.1 to 1.55
MIL-S-8802	Extrusion Rate	90 to 250 g per min
MIL-S-8802	Tack Free Time	30 to 70 min
ASTM D 2240	Durometer	10 to 25
T1192 T1193	Durability	Extension to 70% Compression to 50%
ASTM C794	Adhesion to Concrete	35N minimum average peel strength
ASTM C 793-7	Accelerated Weathering at 5,000 hours	No cracks, blisters or bond loss

Table C248.6 - Silicone Joint Sealant Requirements.

C248.43 TRANSVERSE ISOLATION JOINTS

1. Transverse isolation joints shall be provided at bridge approach slabs and at slab anchors where shown on the Drawings and where directed by the Principal Certifying Authority.

Location

2. Transverse isolation joints shall be continuous across the full width of the base normal to the control line and shall be constructed in accordance with the Drawings.

Construction

3. Transverse isolation joints shall not be placed closer than 2.0 m to other transverse joints. Where necessary, the Principal Certifying Authority shall authorise a change in the spacing and/or skew of adjacent transverse contraction joints to ensure that sufficient clearance is obtained.

Spacing

4. Joint filler shall consist of preformed jointing material of bituminous fibreboard and the joint sealant shall comply with the silicone sealant requirements of Clause C248.42. They shall be installed in accordance with the Drawings and in a manner conforming to the manufacturers recommendations except that reference to backer rods shall not apply.

Standards

5. The line of the isolation joint shall not deviate from a 3m straightedge more than 10mm.

Tolerance

C248.44 LONGITUDINAL TIED JOINTS

(a) General

- | | | |
|----|--|------------------------------|
| 1. | Longitudinal tied joints shall be provided at the locations shown on the Drawings or where directed by the Principal Certifying Authority. The joints shall be parallel to the control line and/or to the dimensions and details shown on the Drawings. | Location |
| 2. | Longitudinal tied joints shall be formed or induced either by sawing or by machine insertion of a crack inducer ribbon. | Formation |
| 3. | The ties shall be 12mm diameter deformed steel bars Grade 400Y, 1m long and shall be inserted in accordance with Clause C248.18. Tie bars shall be located and spaced as shown on the Drawings. All parts of any tie bar shall lie within 50mm of its designed position. Tie bars shall be omitted within 500mm of a transverse joint. The epoxy to be used when installing tie bars in existing concrete shall be hydrophilic epoxy resin. The setting system used shall develop an anchorage strength at least 85 per cent of the yield strength of the bar. | Ties |
| 4. | The line of longitudinal tied joints shall not deviate from the designed position at any point by more than 10mm. The line shall also not deviate from a 3m straightedge by more than 10mm having made due allowance for any planned curvature. | Tolerances |
| 5. | Where the longitudinal tied joint is formed or slipformed, the joint face shall be corrugated in accordance with the details shown on the Drawings. | Corrugated Joint Face |
| 6. | Where the multi-lane width is greater than 18m, a longitudinal isolation joint shall be constructed at each location shown on the Drawings and in accordance with Clause C248.46. | Isolation Joint |

(b) Sawn-Induced Joints

- | | | |
|----|---|--------------------------|
| 1. | Sawn longitudinal tied joints shall be provided to the dimensions shown on the Drawings. Sawcutting shall comply with Clause C248.42(b). | Location |
| 2. | Within twenty-four hours of sawing, the longitudinal tied joint shall be thoroughly cleaned of all debris and a neoprene backing rod, shall be inserted in accordance with the details shown on the Drawings. | Sealant Quality |
| 3. | The sealant shall be coated with a lubricant-adhesive compound approved by the Principal Certifying Authority. The compound shall have a colour compatible with the pavement colour. The sealant shall be inserted into the groove by means of suitable equipment which shall not damage the sealant during insertion. The maximum increase in length of the sealant after installation shall be 10 per cent of the original length, otherwise the sealant shall be rejected. | Sealant Insertion |
| 4. | Joints in the sealant shall be kept to a minimum and shall be cemented together by an adhesive recommended by the Manufacturer. The top of the sealant shall be neither less than 5 mm nor more than 7 mm below the surface of the base, except where the sealant is depressed to lie under the transverse joint sealant. | Sealant Joints |

(c) Ribbon-Induced Joints

- | | | |
|----|--|-------------------------------|
| 1. | Ribbon-induced longitudinal tied joints shall be provided to the dimensions and details shown on the Drawings. The inducer ribbon shall be machine-inserted so that the top of the ribbon does not protrude above the surface of the base, nor shall it lie below the surface of the base by more than 3 mm. | Location and Insertion |
| 2. | The inducer ribbon shall be a minimum of 0.5 mm thick. When placed, it shall be | Finish |

within 5° of the vertical plane. Inducer ribbon which curls on placement and when cut in the base is found to be curved in transverse section by more than 3 mm from straight shall be rejected.

3. At transverse construction joints, the inducer ribbon shall be carried through the joint sufficiently to allow a connection by strong stapling, or other method approved by the Principal Certifying Authority, to the inducer ribbon to be used on the other side of the joint. When a joint is necessary in the inducer ribbon during paving, the inducer ribbon on the new spool shall be similarly joined to the tail of the inducer ribbon on the old spool.

Join in Ribbon

(d) Treatment of Sawn Longitudinal Tied Joints Prior to Asphalt Overlay

1. Where asphalt surfacing over sawn longitudinal tied joints is specified, the sealant shall be depressed to a depth below the concrete surface of not less than 10 mm and, following thorough cleaning, the joint shall be sealed flush with the concrete surface with a bituminous rubber compound, approved by the Principal Certifying Authority, compatible with the narrow groove.

Bituminous Rubber Compound

C248.45 LONGITUDINAL JOINT WITH KERB AND/OR GUTTER

1. Where kerbs and/or gutters are to be constructed within the shoulder of a concrete base, they shall be formed directly onto the concrete subbase and they may be cast either integrally with the concrete base or separately.

Form

2. Where constructed separately, they shall be tied to the concrete base by 12mm diameter deformed steel tie bars Grade 250S or 400Y, 1000mm long at 1m centres.

Tie Bars

3. The longitudinal joint shall be constructed parallel to the control line (parallel to the centre line for ramps) and to the dimensions shown on the Drawings. The tie bars shall be inserted in accordance with the Drawings and Clause C248.18.

Location

4. The face of the longitudinal joint need not be scabbled and the joint need not be sealed.

Face of Joint

5. The line of the longitudinal joint shall be constructed to the tolerances specified for longitudinal tied joints in accordance with Clause C248.44.

Tolerances

6. The construction of kerb and/or gutter shall be in accordance with the Specification for OPEN DRAINS INCLUDING KERB AND GUTTER regardless of method of construction except that the strength of the concrete used in the kerb and/or gutter shall be 32 MPa.

Specification

C248.46 LONGITUDINAL ISOLATION JOINTS

1. Longitudinal isolation joints shall be provided where shown on the Drawings and where directed by the Principal Certifying Authority.

Location

2. The line of the longitudinal isolation joint shall not deviate from the specified position by more than 10 mm. The line of the joint shall not deviate from a 3 m straightedge by more than 10 mm.

Tolerances

3. The joint filler shall consist of preformed jointing material of bituminous fibreboard and the joint sealant shall comply with the silicone sealant requirements of Clause C248.42. They shall be installed in accordance with the Drawings and in a manner conforming to the manufacturer's recommendations except that reference to backer rods shall not apply.

Filler and Sealant

SLAB ANCHORS

C248.47 GENERAL

- 1. Slab anchors shall be constructed normal to the control line, to the dimensions and at the locations shown on the Drawings. **Location**
- 2. Slab anchors shall extend over the full width of the base and the associated transverse expansion joint shall not be placed closer than 2.0 m to other transverse joints. **Transverse Joint**

C248.48 EXCAVATION

- 1. Excavation of trenches for slab anchors shall be to the dimensions and details shown on the Drawings. **Dimensions**
- 2. All loose material shall be removed and the vertical faces trimmed to neat lines. The bottom of the trench shall be recompacted, where required, to the degree of consolidation of the adjacent undisturbed material. **Trim and Consolidate**
- 3. The Contractor shall dispose of excavated material at locations approved by the Principal Certifying Authority. **Spoil**
- 4. Where a slab anchor is required at the junction of an existing flexible pavement, a straight sawcut to the full depth of the asphaltic concrete or bituminous seal shall be made in the flexible pavement along the joint line. Excavation of the trench shall then take place as described above without disturbance or damage to the existing flexible pavement. Any disturbance or damage to the flexible pavement shall be made good as directed by the Principal Certifying Authority. **Adjacent to Flexible Pavement**
- 5. A subsoil drain shall be provided at the bottom of the trench, in accordance with the Specification for SUBSOIL AND FOUNDATION DRAINS and details shown on the Drawings. **Sub-Soil Drains**

C248.49 CONCRETE

- 1. Concrete for slab anchors shall be produced, transported and placed in accordance with the requirements for hand-placed base concrete. **Slab Anchors**
- 2. Slab anchors shall be poured separately from the base slabs to the dimensions and details shown on the Drawings up to the top surface of the subbase. **Detail**
- 3. A transverse isolation joint shall be provided on the downhill side of the slab anchor. **Isolation Joint**
- 4. Steel reinforcement in slab anchors shall be of the type and size shown on the Drawings and shall be supplied and fixed in accordance with Clauses C248.14 and C248.18 of the Specification. **Steel Reinforcement**
- 5. Bridge approach slabs, if not in the bridge contract, shall be constructed at bridge abutments to the dimensions and details shown on the Drawings and in accordance with the requirements for base concrete. **Bridge Approach Slabs**

REMOVAL AND REPLACEMENT OF BASE

C248.50 GENERAL

1. Where directed by the Principal Certifying Authority, rejected base shall be removed and replaced in accordance with this Clause. Rejected base, which extends more than 25 m longitudinally, shall be replaced by mechanical means unless the slabs are odd-shaped or mismatched. Replacement shall be in full slab widths between longitudinal joints and/or external edges. **Replacement Method**

2. At least seven days before the commencement of base removal, the Contractor shall submit, for the approval of the Principal Certifying Authority, details of the proposed methods of carrying out the work which shall be such as to prevent damage to the adjoining base and the underlying subbase. **Details**

C248.51 REMOVAL AND DISPOSAL OF BASE

1. At each end of the section of base to be removed, a transverse sawcut shall be made for the full depth of the base layer. Such transverse sawcuts shall be normal to the control line and not closer than 1.5 m to an existing contraction joint in the base. No oversawing into the adjoining base or underlying subbase shall be permitted. **Transverse Sawcut**

2. Longitudinal sawcuts shall be made along existing longitudinal joints to define the edges of the base section to be removed. Such longitudinal sawcuts shall not extend more than 250 mm past the transverse sawcut at each end of the section to be removed and shall not extend into the underlying subbase. **Longitudinal Sawcuts**

3. No oversawing shall be permitted on any additional internal sawcuts the Contractor may make to aid the removal of the base. **Oversawing**

4. The Contractor shall dispose of the removed base slabs at locations of his choice acceptable to the Principal Certifying Authority. **Disposal**

5. Any slab, adjoining the removed slabs, damaged by the Contractor's operations shall also be removed and replaced in accordance with this Clause. **Contractor's Responsibility**

C248.52 REPLACEMENT OF BASE

1. Before construction of the replacement base, the subbase shall be prepared and debonded in accordance with the Specification for MASS CONCRETE SUBBASE. **Subbase Preparation**

2. All work involved in the replacement of base shall comply with the Specification, including the following additional requirements: **Additional Requirements**

- (a) The joint faces on the adjoining slab at the transverse sawcuts shall be deeply scabbled below the top 25 mm which shall be left smooth. Tie bars shall be provided to form a transverse construction joint in accordance with Clause C248.41.
- (b) Transverse contraction joints shall be continuous across the full width of the base containing the replaced section. The length of the joint across the full width of the base shall be sealed with the same sealant as in adjacent work and in accordance with Clause C248.42.
- (c) The lower two-thirds of the depth of the longitudinal joint faces shall be deeply scabbled and any concrete considered to be unsound by the Principal Certifying Authority shall be removed. A crack inducer ribbon

shall be attached to the surface of any formed longitudinal joint in the replacement base and tie bars provided to form a longitudinal tied joint in accordance with Clause C248.44.

- (d) Tie bars placed into hardened concrete shall be set by the use of a hydrophilic epoxy resin. The setting system used shall develop an anchorage strength at least 85 per cent of the yield strength of the bar.
- (e) Neither traffic nor construction equipment other than that associated with testing, sawcutting, groove cleaning or joint sealing shall be allowed on the section of base containing the replacement base until the joints have been permanently sealed and at least ten days have elapsed since placing replacement base concrete or the concrete has reached a compressive strength of at least 20MPa.

LIMITS AND TOLERANCES

C248.53 SUMMARY OF LIMITS AND TOLERANCES

1. The tolerances applicable to the various clauses in this Specification are summarized in Table C248.7 below:

Item	Activity	Tolerances	Spec Clause
1.	Aggregates		
	a. General	Mass of the total aggregates in concrete mix shall consist of at least 40% quartz sand	C248.08a
	b. Fine Aggregate		
	(i) Grading	To be within the limits as per Table C248.2 and shall not deviate from Proposed Grading by more than amounts in Table C248.2	C248.08b
	(ii) Wet Strength	Not less than 80kN for any fraction and/or constituent	C248.08c
	(iii) 10% Fines Wet/Dry Variation	Not to exceed 35% for any fraction and/or constituent	C248.08c
	(iv) Soundness	The loss in mass when tested with sodium sulphate to be less than 9% for any constituent	C248.08c
	(v) Particle Shape	The proportion of misshapen particles (2:1 ratio) to be less than 35%	C248.08c
	(vi) Fractured Faces	At least 80% by mass of the particles shall have two or more fractured faces	C248.08c
2.	Concrete Quality		
	a. Cement Content	At least 270kg per yielded cubic metre of concrete	C248.09
	b. Flyash	Not greater than 50kg per yielded cubic metre of concrete	C248.09
	c. Compressive Strength	The minimum 28 day compressive strength shall be: 32 MPa for public roads 25 MPa for accessways	C248.10
	d. Shrinkage	Not to exceed 450 microstrain after 3 weeks of air drying	C248.11
	e. Consistency	Nominated slump shall be neither less than 30mm nor more than	C248.12

Item	Activity	Tolerances	Spec Clause
		40mm for mechanically placed concrete. It shall be neither less than 55mm nor more than 65mm for hand placed concrete.	
	f. Air content	Shall not be less than 4% nor more than 7% when discharged from the transport vehicle ready for placement	C248.13
3.	Concrete Mixing and Transport	After addition of cement to the aggregate, concrete shall be incorporated into the work within: (i) One and a half hours where transported by truck mixer or agitator. (ii) One hour where transported by non-agitating trucks.	C248.26
4.	Concrete Placing	Concrete shall not be placed when the air temperature in the shade is below 5°C or above 38°C. The temperature of the concrete shall be neither less than 10°C nor more than 32°C.	C248.29
		Where the value of Rate of Evaporation exceeds 0.50kg per square metre per hour, the Contractor shall cease work.	C248.30
5.	Alignment and Surface		
	a. Horizontal Alignment	The outer edges of the base shall not deviate from the plan position at any point by more than 10mm.	C248.33a
	b. Surface Level	The level at any point on the top of the base shall not vary by more than +10mm or -0mm from that shown on the Drawings or as directed by the Principal Certifying Authority. The top surface of the base shall not deviate from a 3m straightedge, laid in any direction, by more than 5mm.	C248.33b
6.	Concrete Protection		
	a. Temperature	The temperature of the concrete shall not be permitted to fall below 5°C during the first twenty-four hours after placing.	C248.36
7.	Joints		
	a. Transverse Construction	The line of the transverse construction joints shall not deviate from a 3m straightedge placed along the joint by more than 10mm.	C248.41
	b. Transverse	(i) May be reduced locally to a	C248.42

Item	Activity	Tolerances	Spec Clause
	Contraction	<p>skew of 1 in 12 to accommodate construction joints and slab anchors.</p> <p>(ii) No edge shall deviate from a 3m straightedge by more than 10mm.</p> <p>(iii) The surface of the transverse contraction joint shall not exhibit more than 5mm of vertical or horizontal edge ravelling. The length of edge ravelling shall not be more than 300mm in any 1m length of joint on each edge.</p> <p>(iv) Temporary Sealing - the top of the sealant shall be neither higher than nor more than 10mm below the concrete surface.</p> <p>(v) Permanent Sealing The top of the sealant shall be neither less than 5mm nor more than 7mm below the surface of the base.</p>	
c.	Transverse Isolation	The line of the transverse expansion joint shall not deviate from a 3m straight edge more than 10mm.	C248.43

Item	Activity	Tolerances	Spec Clause
7.	d. Longitudinal Tied Joints	<ul style="list-style-type: none"> (i) All parts of any tie bar shall be within 50mm of its designed position. (ii) The line of longitudinal tied joints shall not deviate from the designed position at any point by more than 10mm. The line shall also not deviate from a 3m straightedge by more than 10mm having made due allowance for any planned curvature. (iii) For Sawn-Induced joints, the maximum increase in length of the sealant after installation shall be 10% of the original length. The top of the sealant shall be neither less than 5mm nor more than 7mm below the surface of the base. (iv) For Ribbon-Induced joints, the inducer ribbon shall be a minimum of 0.5mm thick and when placed it shall be within 5° of the vertical plane. 	C248.44
	e. Longitudinal Isolation Joints	The line of the longitudinal isolation joint shall not deviate from the specified position by more than 10mm. The line of the joint shall not deviate from a 3m straightedge by more than 10mm.	C248.46
8.	Slab Anchors	Not placed closer than 2.0m to transverse joints (other than associated transverse expansion joints).	C248.47

Table C248.7 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C254

SEGMENTAL PAVING

SPECIFICATION C254 - SEGMENTAL PAVING

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Deletion of reference to 'Edge Strip'</i>	254.14	M	MB	10/10/07

SPECIFICATION C254 - SEGMENTAL PAVING

GENERAL

C254.01 SCOPE

1. This Specification covers the construction of segmental paving for road pavements, medians, traffic islands, driveways, cycleways, footpaths and other pedestrian areas.
2. The work to be executed under this Specification consists of the supply, placement and compaction of segmental paving units including the provision of a sand bedding course and joint filling sand, over bound or unbound base and/or subbase layer/s.
3. This Specification should be read in conjunction with the appropriate Specifications for the construction of the base and subbase layers beneath the segmental paving, ie. FLEXIBLE PAVEMENTS, MASS CONCRETE SUBBASE.

C254.02 TERMINOLOGY

1. Concrete segmental paving units are units of not more than 0.10 square metres in gross plan area, manufactured from concrete, with plain or dentated sides, with top and bottom faces parallel and with or without chamfered edges.

Size

2. Concrete paving units are identified by shape as being one of the following types:

Concrete Pavers

Shape Type A

Dentated chamfered units which key into each other on four sides, are capable of being laid in herringbone bond, and by their plan geometry, when interlocked, resist the spread of joints parallel to both the longitudinal and transverse axes of the units.

3. Clay pavers shall only be used where specifically approved in the Notification of Determination of Development Consent.

Clay Pavers

4. Clay pavers are manufactured from clay, shale or argillaceous materials which may be mixed with additives. Clay pavers may have square, bevelled (chamfered), rounded or rumbled edges. They are generally rectangular in shape, with the length twice the width, plus 2mm.

5. Clay pavers shall be Class 4.

Classification

6. Unless otherwise approved by the Principal Certifying Authority the laying pattern of segmental paving units shall be Herringbone pattern.

Pattern

C254.03 CHOICE OF PAVER TYPE, SHAPE, CLASS AND LAYING PATTERN

1. Unless otherwise approved by the Principal Certifying Authority, paving units for road pavements shall be Shape Type A concrete paving units, 80mm thick, and placed in Herringbone laying pattern.

Thickness

3. If not otherwise approved by the Principal Certifying Authority, clay pavers shall be Class 4, minimum 65mm nominal thickness, and placed in a herringbone laying pattern.

C254.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards
Test Methods**

(a) Council Specifications

C213	Earthworks
C224	Open Drains including Kerb and Gutter
C241	Stabilisation
C242	Flexible Pavements
C247	Mass Concrete Subbase
C271	Minor Concrete Works

(b) Australian Standards

AS 1141.11	Particle size distribution by dry sieving.
AS/NZS 4455	Masonry units and segmental pavers.

(c) Concrete Masonry Association of Australia Specifications

MA20	Specification for Concrete Segmental Paving Units.
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(d) Clay Brick and Paver Institute Specifications

Paver Note 1	Specifying and Laying Clay Pavers
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MATERIALS**C254.05 GENERAL**

1. The Contractor shall submit details of all proposed segmental paving materials, including bedding sand and joint filling sand. These details shall be submitted to the Principal Certifying Authority for approval supported with test results from a nominated NATA registered laboratory, confirming that the constituents comply with the requirements of this Specification.

**Details
Required**

2. No material shall be delivered until the Principal Certifying Authority has approved the sources of supply. Such approval shall not relieve the Contractor of any responsibility for supplying materials that comply with this Specification.

**Superinten-
dent's
Approval**

C254.06 CONCRETE SEGMENTAL PAVING UNITS

1. Concrete segmental paving units shall comply with the requirements of MA2057 - Specification for Concrete Segmental Paving Units and with the requirements of AS/NZS 4455. The category of paver shall be as shown on the Drawings.

Specification

2. Unless otherwise approved by the Principal Certifying Authority, concrete paving units shall be 80mm thick with a minimum 28 day characteristic compressive strength of 45MPa, as determined in accordance with MA5720.

Strength

3. The abrasion resistance, tested in accordance with MA20 - Appendix D, shall conform to the recommended minimum abrasion indices contained in MA5720.

**Abrasion
Resistance**

C254.07 CLAY SEGMENTAL PAVING UNITS

1. Clay segmental pavers shall comply with the requirements of Part 1 - Specifying Clay Pavers of Paver Note 1 - 'Specifying and Laying Clay Pavers' and with the requirements of AS/NZS 4455. **Specification**
2. The abrasion resistance as determined by the SCC Abrasion Test (Paver Note1) shall conform to the recommended characteristic abrasion losses contained in Paver Note 1. **Abrasion Resistance**

C254.08 BEDDING SAND

1. The bedding sand shall be a well-graded sand, consisting of clean, hard, uncoated grains uniform in quality, generally passing a 4.75mm sieve. The bedding sand shall be from a single source or blended to achieve, when tested in accordance with AS 1141.11, the following grading: **Grading**

<u>AS Sieve</u>	<u>% Passing</u>
9.52mm	100
4.75	95 - 100
2.36	80 - 100
1.18	50 - 85
600mm	25 - 60
300	10 - 30
150	5 - 15
75	0 - 10

2. The sand shall be of uniform moisture content when spread. It shall be covered when stored on site to protect it from rain penetration. **Protection**
3. The bedding sand shall be free of deleterious soluble salts or other contaminants which may cause, or contribute to, efflorescence. **Cleanliness**

C254.09 JOINT FILLING SAND

1. The joint filling sand shall be well graded passing a 2.36mm sieve, and when tested in accordance with AS 1141.11, having the following grading: **Grading**

<u>AS Sieve</u>	<u>% Passing</u>
2.36mm	100
1.18	90 - 100
600mm	60 - 90
300	30 - 60
150	15 - 30
75	5 - 10

2. The sand shall be dry when spread. It shall be covered when stored on site to protect it from rain penetration. **Protection**
3. The sand shall be free of deleterious soluble salts or other contaminants. **Cleanliness**
4. Sand used for bedding is not suitable for joint filling.

C254.10 CONCRETE FOR EDGE RESTRAINTS

1. Concrete supplied and placed for the construction of edge strips shall comply with the Specification for MINOR CONCRETE WORKS. **Specification**

2. Unless otherwise indicated on the Drawings, or where the edge restraint is provided by kerb and/or gutter, the concrete used for edge restraints shall have a minimum 28-day characteristic compressive strength of 32MPa for edge restraints to paving units on road pavements and trafficable areas and 25MPa for edge restraints elsewhere. **Strength**

CONSTRUCTION

C254.11 SUBGRADE PREPARATION

1. The subgrade shall be formed to the required depth below finished surface level as shown on the Drawings in accordance with the Specification for EARTHWORKS. **Levels**
2. The finished subgrade foundation for the provision of subbase and/or base shall be subject to the approval of the Principal Certifying Authority. **Superintendent's Approval**

C254.12 SUBBASE

1. Where shown on the Drawings a subbase or working platform shall be constructed in accordance with the relevant Specification for STABILISATION, FLEXIBLE PAVEMENTS, or MASS CONCRETE SUBBASE. **Specifications**
2. The subbase shall be constructed to the specified thickness, compaction and depth below finished surface level and to the design grade and crossfalls of the finished surface. **Levels**
3. The finished subbase shall be subject to the approval of the Principal Certifying Authority. **Superintendent's Approval**

C254.13 BASE

1. The base shall be constructed to the specified thickness and depth below finished surface level, and to the design grade and crossfalls of the finished surface, as shown on the Drawings in accordance with the Specification for CONCRETE BASE. **Levels**
2. The base course shall extend in width to at least the rear face of all new edge restraints. **Extent**
3. The finished surface of the base course for road pavements to be overlain with segmental paving shall be trimmed to within + 10mm or - 10mm of design levels. The deviation from a 3m long straight edge placed anywhere and laid in any direction on the top surface of the base course for all segmental paving shall not exceed 5 mm. Sand bedding material shall not be used as a levelling material to compensate for base finishing outside the above tolerances. **Tolerances**
4. The finished surface of the base shall drain freely without ponding. **Free Drainage**
5. The finished base shall be subject to the approval of the Principal Certifying Authority. **Superintendent's Approval**

C254.14 EDGE RESTRAINTS

1. Edge restraints in the form of Kerb and/or Gutter shall be constructed along the **Requirements**

perimeter of all segmental paving as shown on the Drawings. Concrete Kerb and/or Gutter shall be constructed in accordance with the Specifications for OPEN DRAINS INCLUDING KERB AND GUTTER and MINOR CONCRETE WORKS.

2. Faces of edge restraints abutting paving units shall be vertical. Alternatively a silicone joint filler complying with Clause 248.42 (e)(iii) shall be applied between the paving unit and edge restraint.

3. Edge restraints shall be supported on compacted base and/or subbase of the thickness as shown on the Drawings. Where not otherwise specified or indicated, the minimum thickness of compacted base beneath the edge restraints shall be 100mm adjacent to road pavements and medians, and 50mm adjacent to footpaths, cycleways and driveways.

Support

4. Unless otherwise shown on the Drawings, contraction joints, 20mm depth shall be formed every 5m of edge restraint length.

Joints

5. After the concrete has hardened (but not less than three days after placing the spaces) the back of the edge restraint shall be backfilled with earth, compacted in layers not greater than 150mm thick, then topsoiled to meet surrounding design levels.

Back

Filling

C254.15 SAND BEDDING COURSE

1. The sand bedding course shall be spread in a single uniform layer and screeded in a loose condition to the nominated design profile and levels plus that necessary to achieve a uniformly thick nominal 20-25mm layer following final compaction of the segmental paving.

Allowance Levels

2. Any depressions in the screeding sand exceeding 5mm shall be loosened, raked and rescreeded before laying paving units.

Depressions

3. For the manual placing of paving units, the bedding sand shall be maintained at a uniform loose density. For mechanised laying, the bedding sand shall be uniformly and firmly, but not fully, compacted.

Compaction

4. Screeded sand left overnight or subject to rain shall be checked for level and rescreeded where necessary before paving units are placed. The sand shall not be screeded more than two metres in advance of the laying face at the completion of work on any day.

Screeding

C254.16 LAYING PAVING UNITS

1. Paving units shall be uniformly placed on the screeded sand bedding to the nominated laying pattern. Paving units shall be placed so that they are not in direct contact with each other and shall have uniform 3mm nominal joint widths.

Joints

2. The first row shall be located next to an edge restraint or an established straight line, and laid at a suitable angle to achieve the required orientation of paving units in the completed pavement.

Sequence

3. In each row, full units shall be laid first. Edge or closer units shall be neatly cut using a paver scour, or mechanical or hydraulic guillotine, and fitted subsequently. Cut pieces of paving units which are smaller in size than one quarter of a full block shall not be used.

Odd Shapes

4. Access chambers, drainage gullies and similar penetrations through the pavement shall be finished against the paving with a concrete surround or apron designed to suit and fit the laying pattern, otherwise complying with the requirements for edge restraints.

Penetrations

5. Where pavers are placed over an isolation, contraction or expansion joint in an underlying concrete pavement, a joint is to be provided in the pavers. The joint shall consist of 10mm thick preformed jointing material of bituminous fibreboard. **Formed Joints**

6. Any foot or barrow traffic shall use boards overlaying paving to prevent disturbance of units prior to compaction. No other construction traffic shall be allowed on the pavement prior to compaction and provision of joint filling sand. **Construction Traffic**

7. On completion of subsequent bedding compaction and joint filling operations, no more than 10 per cent of joints along any 10 metre line along a major axis of the laying pattern shall have widths outside the range 2-4mm. **Tolerance**

C254.17 BEDDING COMPACTION

1. After laying the paving units the sand bedding shall be fully compacted and the surface brought to design levels and surface profiles by not less than two passes of a high frequency low amplitude plate compactor which covers at least 12 units. Compaction shall continue until lipping between adjoining units has been eliminated. **Compaction**

2. Any units which are structurally damaged during bedding compaction shall be removed and replaced. The pavement shall then be recomacted for at least one metre surrounding each replacement unit. **Damage**

3. The paving operations shall be arranged so that the use of the plate compactor proceeds progressively behind the laying face without undue delay, and such that compaction is completed prior to cessation of construction activity on any day. Compaction shall not be attempted within one metre of the laying face except on completion of the pavement against an edge restraint. **Progressive Compaction**

4. The finished surface level shall not vary from the design level at any point laid in any direction, by more than 5 mm. Notwithstanding this, the finished surface of the segmental paving, including where the paving abuts an edge restraint other than a drainage inlet, shall not deviate from the bottom of a 3m straight edge laid in any direction, except at grade changes, by more than 5 mm. **Finished Levels**

5. All compaction shall be complete and the pavement shall be brought to design profiles before spreading or placing sand filling in the joints. **Joint Filling**

C254.18 FILLING JOINTS

1. As soon as practicable after bedding compaction, and in any case prior to termination of work on any day, dry sand for joint filling shall be spread over the pavement and the joints filled by brooming. **Timing**

2. To ensure complete filling of the joints, both the filling sand and paving units shall be as dry as practicable when sand is spread and broomed into the joints. **Condition**

3. The pavement shall then receive one or more passes of a plate compactor and the joints then refilled with sand, with the process then repeated sufficiently to ensure that the joints are completely filled. **Process**

C254.19 PROTECTION OF WORK

1. Other than wheeled trolleys, forklifts and cluster-clamp vehicles, construction and other traffic shall not use the pavement until bedding compaction and joint filling operations have been completed. **Restricted Use**

C254.20 OPENING TO TRAFFIC

- 1. As soon as practicable after the filling of joints, construction vehicles may use the pavement, and should be encouraged to traverse the greatest possible area of pavement to assist in the development of 'lock-up'. **No Tracking**
- 2. Excess joint filling sand shall be removed prior to opening to traffic. **Excess Sand**
- 3. The pavement shall then be inspected by the Contractor at regular intervals up until the expiration of the Defects Liability Period to ensure that all joints remain completely filled. **Inspections**

LIMITS AND TOLERANCES

C254.21 SUMMARY OF LIMITS AND TOLERANCES

Item	Activity	Tolerances	Spec Clause
1.	Base (a) Surface Level	Finished level of base for road pavements to be within +10mm or - 0mm of design levels.	C254.13
		Finished level of base other than for road pavements, to be within ±10mm of design levels.	C254.13
		The top surface of the base for all segmental paving shall not deviate from a 3m straight edge, laid in any direction, by more than 5 mm.	C254.13
2.	Laying Paving Units (a) Joint widths	No more than 10% of joints along any 10 metre line of joints along a major axis of the laying pattern shall have widths outside the range 2 - 4mm.	C254.16
3.	Completed Segmental Paving (a) Surface level	Finished surface level of pavers shall not vary from design levels by more than ±5 mm.	C254.17
		Finished surface of pavers shall not deviate from a 3m straight edge, laid in any direction, by more than 5mm.	C254.17

Table C254.1 – Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C261

PAVEMENT MARKINGS

SPECIFICATION C261 - PAVEMENT MARKINGS

CLAUSE	PAGE
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C261.19 APPLICATION OF PAVEMENT MARKING TAPE	<u>308302303</u>
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C261.23 GENERAL	<u>309303304</u>
LIMITS AND TOLERANCES	<u>310304305</u>
C261.24 SUMMARY OF LIMITS AND TOLERANCES	<u>310304305</u>

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C261 : PAVEMENT MARKINGS

GENERAL

C261.01 SCOPE

1. The work to be executed under this Specification consists of the setting out, supply and application of pavement marking paint, thermoplastic pavement marking material, pavement marking tape and raised pavement markers as shown on the Drawings and in accordance with this Specification.

~~C261.02 REFERENCE DOCUMENTS~~

~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated..~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

~~— C201 — Control of Traffic~~

~~(b) Australian Standards~~

~~— AS 1742.2 — Traffic control devices for general use.
— AS 1906.3 — Raised pavement markers (retroreflective and non-retroreflective).
— AS 2009 — Glass beads for road marking materials.
— AS 4049.1 — Solvent borne paint - For use with drop on beads.
— AS 4049.2 — Thermoplastic road marking materials.
— AS 4049.3 — Waterborne paint - For use with drop on beads.~~

C261.03 TYPE OF MARKINGS

1. Details of the various types of pavement markings and devices are generally in accordance with the requirements of as 1742.2.

Standard

C261.04 TYPES OF MATERIALS TO BE APPLIED

1. The materials shall be applied as follows:

**Locations for
Use**

- (a) Pavement Marking Paint
Permanent markings on all wearing surfaces. Temporary markings, other than on the final wearing surfaces. Traffic islands and kerbs where specified.
- (b) Thermoplastic Pavement Marking Material
Permanent markings where explicitly indicated on the Drawings.

- (c) Pavement Marking Tape
Temporary markings on final wearing surfaces.
- (d) Reflective Glass Beads
To be applied to all painted and thermoplastic markings.
- (e) Raised Pavement Markers
To be installed as permanent and temporary markings as shown on the Drawings.

C261.05 MATERIAL QUALITY

- 1. The Contractor shall submit to the Principal Certifying Authority NATA Registered Laboratory Test Reports, at least seven days before work is scheduled to commence, on the quality of the materials, including paint, glass beads, raised pavement markers and thermoplastic material proposed for use. **Contractor's Responsibility**
- 2. Only materials conforming to the requirements of the referenced Specifications/Standards shall be used. **Quality Requirements**

C261.06 SETTING OUT

- 1. The Contractor shall set out the work to ensure that all markings are placed in accordance with the Drawings. **Contractor's Responsibility**
- 2. The locations of pavement markings shall not vary by more than 20mm from the locations shown on the Drawings. **Tolerance**

C261.07 SURFACE PREPARATION

- 1. Pavement markings shall only be applied to clean dry surfaces. The Contractor shall clean the surface to ensure a satisfactory bond between the markings and wearing surface of the pavement. **Clean Dry Surface**
- 2. Pavement marking shall not be carried out during wet weather or, if in the opinion of the Principal Certifying Authority, rain is likely to fall during the process. **Wet Weather**
- 3. Where raised pavement markers are specified for pavements having a concrete wearing surface, the full area under each raised pavement marker shall be lightly scabbled to remove fine mortar material (laitance).. **Scabbling**

C261.08 PROVISION FOR TRAFFIC AND PROTECTION OF WORK

- 1. The Contractor shall provide for traffic, in accordance with the Specification for CONTROL OF TRAFFIC, while undertaking the work and shall protect the pavement markings until the material has hardened sufficiently so that traffic will not cause damage. **Contractor's Responsibility**

C261.09 MAINTENANCE OF PAVEMENT MARKINGS

1. The Contractor shall be responsible for the maintenance, and replacement if necessary, of raised pavement markers and all pavement marking during the contract period and the contract defects liability period.

*Responsibility
in Contract
Period*

PAVEMENT MARKING PAINT**C261.10 MATERIALS**

1. Paint shall comply with the requirements of AS 4049.1 or AS 4049.3 as directed by the Principal Certifying Authority. In this Specification, the term 'paint' shall mean 'pavement marking paint'.

Paint Quality

2. Glass beads shall comply with the requirements of AS 2009 for drop-on beads..

*Glass Beads
Quality`*

C261.11 MIXING OF PAINT

1. All paint shall be thoroughly mixed in its original container before use to produce a smooth uniform product consistent with the freshly manufactured product.

*Uniform
Product*

C261.12 APPLICATION OF PAINT AND BEADS

1. All longitudinal lines shall be sprayed by an approved self propelled machine. The two sets of lines forming a one-way or two-way barrier line pattern shall be sprayed concurrently.

*Longitudinal
Lines*

2. Hand spraying with the use of templates to control the pattern and shape shall be permitted for transverse lines, symbols, legends, arrows and chevrons.

Hand Spraying

3. The paint shall be applied uniformly and the wet film thickness shall be neither less than 0.35 mm nor more than 0.40 mm.

*Paint
Thickness*

4. Glass beads shall be applied by air propulsion to the surface of all longitudinal lines at a net application rate of 0.30 kilograms per square metre immediately after application of the paint. The actual application rate shall be set to overcome any loss of beads between the bead dispenser and the sprayed line.

*Beads for
Longitudinal
Lines*

5. Glass beads shall be similarly applied to all other paint markings at a net application rate of 0.30 kilograms per square metre immediately after application of the paint by a method approved by the Principal Certifying Authority.

*Beads for
other Markings*

6. Pavement markings shall be straight or with smooth, even curves where intended. All edges shall have a clean, sharp cut off. Any marking material applied beyond the defined edge of the marking shall be removed leaving a neat and smooth marking on the wearing surface of the pavement.

*Pavement
Marking Finish*

7. The lengths of longitudinal lines shall not vary by more than 20mm from the lengths shown in AS 1742.2. The widths of longitudinal lines shall not vary by more than 10mm from the widths shown in AS 1742.2.

*Longitudinal
Line
Tolerances*

8. The lengths and widths of transverse lines shall not vary by more than 10mm from the lengths and widths shown in AS 1742.2.

*Transverse
Line Tolerance*

9. The dimensions of arrows, chevrons, painted medians, painted left turn islands and speed markings shall not vary by more than 50mm from the dimensions shown on the Drawings or in AS 1742.2 as appropriate. Arrows and speed markings shall be placed square with the centreline of the traffic lane. **Arrows, Chevrons Tolerance**

C261.13 FIELD TESTING

1. The thickness of the wet film applied to the road pavement shall be checked by the method described in C261.12. **Paint Application**

2. The application rate of glass beads applied to the surface of the markings shall be checked by the method described in C261.12. **Beads Application**

Volume of glass beads (ml) required in 10 seconds of operation

Road Speed km/h	Line Widths			
	75mm	100mm	125mm	150mm
8	371	495	619	742
13	603	804	1006	1207
16	742	990	1238	1484

1. Tolerance of +10% shall be permissible when measuring the above volume.
2. 2. When two or more glass bead dispensers are to be used, each dispenser shall be checked separately to make up the totals shown.
3. 3. Glass beads weigh approximately 1.53 grams per millilitre.

THERMOPLASTIC PAVEMENT MARKING MATERIAL

C261.14 MATERIALS

1. Thermoplastic pavement marking material shall comply with the requirements of AS 4049.2. **Thermoplastic Quality**

2. In this Specification, the term 'thermoplastic material' shall mean 'thermoplastic pavement marking material'. **Definition**

3. Glass beads shall be incorporated in thermoplastic material, in the proportion of 10 per cent of the total mass, as part of the aggregate constituent and shall comply with the requirements of AS 2009, Intermix type. **Glass Bead Proportion**

4. Glass beads for surface application shall comply with the requirements of AS 2009, Drop-on beads.. **Glass Bead Quality**

5. Tack coat material shall be to the manufacturer's specification as approved by the Principal Certifying Authority. **Tack Coat**

C261.15 PREPARATION OF THERMOPLASTIC MATERIAL ON SITE

1. Immediately before application, the thermoplastic material shall be uniformly heated in a suitable oil bath kettle to the temperature recommended by the manufacturer. The thermoplastic material shall not be heated above the temperature recommended by the manufacturer. The thermoplastic material shall not remain molten for more than six hours for hydrocarbon resins and four hours for wood and gum resins. Should over-heating occur and/or the time expire for molten materials, then the thermoplastic material shall be discarded.

Heating**C261.16 APPLICATION OF THERMOPLASTIC MATERIAL AND BEADS**

1. Where the wearing surface of the pavement is smooth or polished, a tack coat of material may be required by the Principal Certifying Authority and shall be applied in accordance with the recommendations of the thermoplastic manufacturer. The tack coat shall be applied immediately before the application of the thermoplastic material in accordance with the directions of the manufacturer of the thermoplastic material and the manufacturer of the tack coat material.

Tack Coat Requirement

2. All longitudinal lines shall be sprayed by a self propelled machine approved by the Principal Certifying Authority. The two sets of lines forming a one-way or two-way barrier line shall be sprayed concurrently. The thermoplastic material shall be applied uniformly and the cold film thickness shall be 2.0mm with a tolerance of plus or minus 0.5mm.

Longitudinal Lines

3. Glass beads shall be applied by air propulsion to the surface of all longitudinal lines at a net application rate of 0.30 kilograms per square metre immediately after application of the thermoplastic material. The actual application rate shall be set to overcome any loss of beads between the bead dispenser and the sprayed line.

Beads for Longitudinal Lines

4. All transverse lines, symbols, legends and arrows shall be screeded. The screeded thermoplastic material shall be applied using a mobile applicator, approved by the Principal Certifying Authority, and templates to control the pattern.

Screed

5. The thermoplastic material for transverse lines, symbols, legends and arrows shall be applied uniformly and the cold film thickness shall be 3.5mm with a tolerance of plus or minus 1.5mm. The surface finish shall be smooth.

Tolerance

6. Glass beads for other than longitudinal lines shall be uniformly applied to screeded markings at a net application rate of 0.30 kilograms per square metre immediately after application of the thermoplastic material by a method approved by the Principal Certifying Authority.

Beads for Other Markings

7. Pavement marking shall be straight or with smooth, even curves where intended. All edges shall have a clean, sharp cut off. Any marking material applied beyond the defined edge of the marking shall be removed leaving a neat and smooth marking on the wearing surface of the pavement.

Pavement Marking Finish

8. The lengths of longitudinal lines shall not vary by more than 20mm from the lengths shown in AS 1742.2. The widths of longitudinal lines shall not vary by more than 10mm from the widths shown in AS 1742.2.

Longitudinal Line Tolerances

9. The lengths and widths of transverse lines shall not vary by more than 10mm from the lengths and widths shown in AS 1742.2.

Transverse Line Tolerances

10. The dimensions of arrows, chevrons, painted medians, painted left turn islands and speed markings shall not vary by more than 50mm from the dimensions shown on the Drawings or in AS 1742.2 as appropriate. Arrows and speed markings shall be

Arrows, Chevrons, Tolerance

placed square with the centreline of the traffic lane.

C261.17 FIELD TESTING

1. The thickness of the cold film of thermoplastic material applied to the road pavement shall be checked by measurement, using a micrometer, of the thickness of thermoplastic material applied to a metal test plate.
2. The application rate of glass beads applied to the surface of the markings shall be checked by the method described in Annexure C261B.

Thickness of Thermoplastic Material

Glass Beads Application Rate

PAVEMENT MARKING TAPE

C261.18 MATERIALS

1. Pavement marking tape shall be a strippable type of tape, such as 'Staymark - Detour Grade', or equivalent tape approved by the Principal Certifying Authority.

Brands

C261.19 APPLICATION OF PAVEMENT MARKING TAPE

1. The method of application of pavement marking tape, including surface preparation, shall be in accordance with the manufacturer's recommendations.

Manufacturer's Recommendation

C261.20 REMOVAL OF PAVEMENT MARKING TAPE

1. When directed by the Principal Certifying Authority, the Contractor shall remove pavement marking tape in accordance with the manufacturer's recommendations.

Manufacturer's Recommendation

RAISED PAVEMENT MARKERS

C261.21 MATERIALS

1. Raised pavement markers, both reflective and non-reflective, shall comply with AS 1906.3 and shall have the dimensions shown on the Drawings.
2. The adhesive used for attaching the raised pavement markers to the wearing surface of the pavement shall be a hot melt bitumen adhesive or an equivalent product approved by the Principal Certifying Authority.

Standard

Bitumen Adhesive

C261.22 INSTALLATION OF RAISED PAVEMENT MARKERS

1. Raised pavement markers shall be fixed to the wearing surface of the pavement using a hot melt bitumen adhesive or an equivalent product. The adhesive shall be freshly heated to the Manufacturer's instructions and thoroughly mixed. The adhesive shall not be allowed to cool and be reheated prior to use.
2. The adhesive shall be spread uniformly over the underside of the raised pavement marker to a depth of approximately 10 mm. The raised pavement marker shall be pressed down onto the pavement surface in its correct position and shall be rotated slightly until the adhesive is squeezed out around all edges of the marker. The raised pavement marker shall not be disturbed until the adhesive has set.

Adhesive Quality

Method

3. On rough surfaces, such as newly laid coarse sprayed bituminous seals, and where directed by the Principal Certifying Authority, an initial pad of adhesive of diameter 20mm larger than the diameter of the base of the raised pavement marker, shall be provided. The adhesive shall be applied to fill the irregularities in the pavement surface to produce a flat, smooth surface flush with the upper stone level. The adhesive pad shall be allowed to set. Additional adhesive shall be applied to the pavement, as described above, and then the raised pavement marker shall be pressed down onto the adhesive pad on the pavement surface to ensure good adhesion.

***Rough
Surfaces***

REMOVAL OF PAVEMENT MARKINGS

C261.23 GENERAL

1. The Contractor shall remove pavement markings, no longer required, from the wearing surface of pavements without significant damage to the surface.

***Undamaged
Pavement***

2. The method of removal shall be approved by the Principal Certifying Authority before commencement of the work.

***Removal
Method***

LIMITS AND TOLERANCES

C261.24 SUMMARY OF LIMITS AND TOLERANCES

1. The tolerances applicable to the various clauses of this Specification are as follows:

Item	Activity	Tolerances	Spec Clause
1.	Location of Markings	± 20mm from specified location	C261.06
2.	Longitudinal Lines		C261.12
	(a) Length	± 20mm from lengths shown in AS 1742.2	C261.16
	(b) Width	± 10mm from widths shown in AS 1742.2	C261.12 C261.16
3.	Transverse Lines		
	(a) Length)	± 10mm from lengths and widths shown in AS 1742.2	C261.12
	(b) Width)		C261.16
4.	Arrows, Chevrons, Painted Medians, Speed Markings etc.	± 50mm from the dimensions shown in AS 1742.2	C261.12 C261.16
5.	Application of Paint		
	(a) Film Thickness	>0.35mm <0.40mm	C261.12
6.	Application of Thermoplastic		
	(a) Longitudinal Lines - Cold Film Thickness	2.0mm ± 0.5mm	C261.16
	(b) Transverse Lines, Symbols, Arrows etc. Cold Film Thickness	3.5mm ± 1.5mm	C261.16
7.	Glass Beads		
	(a) Volume used in operation	0.30 kg/sq m + 10%	C261.12 C261.16

Table C261.2 - Summary of Limits and Tolerances

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C263

GUIDE POSTS

SPECIFICATION C263 - GUIDE POSTS

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C263 : GUIDE POSTS

GENERAL

C263.01 SCOPE

1. The work to be executed under this Specification consists of the setting out, supply of all materials and erection of guide posts at the locations shown on the Drawings or as directed by the Principal Certifying Authority in areas where street lighting is not provided.

C263.02 REFERENCE DOCUMENTS

~~1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.~~

**Documents
Standards
Test Methods**

~~(a) Council Specifications~~

~~— C201 — Control of Traffic~~

~~(b) Australian Standards~~

~~— AS 1143 — High temperature creosote for the preservation of timber.
— AS 1580 — Paints and related materials – Methods of test.
— AS 1580.101.1 — Air drying conditions.
— AS 1580.481.1.11 — Exposed to weathering – Degree of chalking.
— AS 1580.481.1.12 — Exposed to weathering – Degree of colour change.
— AS 1580.483.1 — Resistance to artificial weathering (carbon arc type instruments)
— AS 1580.602.2 — Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85°.
— AS 1906.2 — Retroreflective devices (non-pavement application).
— AS 2082 — Visually stress-graded hardwood for structural purposes.~~

C263.03 MATERIALS

(a) General

1. Guide Posts shall be of timber or flexible (driveable or non-driveable) post conforming to the requirements of this specification. The Contractor shall supply details of the proposed flexible guidepost including the manufacturer's recommended installation procedure, technical specifications and test certificates for approval by the Principal Certifying Authority.

Posts

(b) Timber Posts

1. Timber posts shall be cut from Select Grade hardwood and conform with AS 2082. All surfaces shall be smooth and free from obvious saw marks.

Quality

2. The posts shall be of rectangular cross-section having dimensions of 100mm x 50mm and shall be 1,400mm in length. The tops of the guide posts shall be sloped so that one 100mm edge is 10mm lower than the opposite edge.

Dimensions

(c) Flexible Posts

1. Flexible guide posts shall be made to a design, and from a material, which

Properties

provides the properties of strength, flexibility, impact resistance and durability. The material shall be mould resistant, solvent resistant, heat resistant and fire retardant.

2. The surface of the posts shall have a gloss or semi-gloss white finish. The surface shall be smooth and easily cleaned. **Surface Finish**

3. The flexible posts shall be 1400mm in length and shall have one face of 100mm width. **Dimensions**

4. Flexible posts shall have certification of compliance with the following physical properties and performance characteristics when subjected to the referenced tests:

- the composition of the posts shall not vary beyond commercially accepted limits from the composition stated by the manufacturer at the time of tendering. Testing, in accordance with AS 1580.101.1, shall be carried out under standard ambient conditions of temperature $23 \pm 2^{\circ}\text{C}$ and relative humidity 45 per cent to 75 per cent.
- the mass of any individual post shall not vary more than ± 3 per cent from the mass of 20 sample posts.
- resistance to accelerated weathering - when tested in accordance with AS 1580.483.1, shall be free from crazing and blistering. The degree of chalking and colour change shall not fall below a rating of 6 when tested in accordance with AS 1580.481.1.11 and 12, and the loss of gloss shall not exceed 20 gloss units (egg shell gloss) when evaluated in accordance with AS 1580.602.2.
- resistance to heat - the post shall be conditioned at $60^{\circ}\text{C} \pm 1\text{C}$ for 2 hours in an oven. The conditioned post shall be bent 180° at the midpoint four times within 2 minutes of removal from oven. The deflection of the top of the post shall be no greater than 50mm, 30 seconds after the fourth bend.
- resistance to impacts after accelerated ageing - the test post shall be kept in an oven for 28 days at 50°C , then removed and allowed to cool. The test post shall then be conditioned in a cold box for 2 hours at 10°C , then removed and placed in a suitable holder and supported horizontally by both ends. Using a guide tube, a steel ball of mass 1.03kg is allowed to fall on the test post in 5 successive impacts on the same spot within one minute of removal from the cold box. The post shall show no evidence of fracture, cracking or splitting.
- resistance to vehicle impacts - the posts shall be manufactured from an impact resistant material and be so designed that an installed post is capable of returning to its original shape and remaining serviceable after being subjected to the following series of direct impacts by a typical passenger sedan at temperatures between 15°C and 30°C .

Posts shall be capable of withstanding a series of 10 bumper bar impacts at 60km/h and 5 bumper bar impacts at 100km/h directed at 90° to the front face of the guidepost. The impacting vehicle shall suffer little or no damage during the impact test series.

The posts to be tested shall be installed in accordance with the recommendations of the manufacturer, and shall be furnished complete with attached delineators.

Standard

(d) Delineators

1. Corner-cubed delineators, conforming to AS 1906.2 shall be attached to each post.

Diameter

2. The delineators shall be neither less than 80mm nor more than 85mm diameter.

CONSTRUCTION

C263.04 GENERAL

1. The Contractor shall at all times conform to the requirements of the Specification for CONTROL OF TRAFFIC. **Traffic Control**
2. Where the shoulder is in embankment or at natural surface level, the guide posts shall be placed near the outer edge of the shoulder and at a uniform distance, minimum 1m, from the pavement edge line. Where the shoulder is located in a cutting, the guide posts shall be placed on the road pavement side of the table drain, and minimum 1m from the pavement edge line, in such a manner as not to impede the flow of water in the drain. **Positioning**
3. Guide posts shall be erected at the locations shown on the Drawings. **Location**
4. Underground services laid in proximity to the guide posts shall be located prior to erection of posts, all care shall be taken not to damage such services.

C263.05 PROTECTIVE TREATMENT OF TIMBER GUIDE POSTS

1. The portion of the guide post below ground level shall be dipped in creosote, conforming to AS 1143, heated to 90°C for a minimum period of one hour. **Creosote**
2. All timber above ground level shall be painted with pink primer and any holes, cracks, or other surface imperfections in the timber, shall be stopped with white putty. This work shall be followed by painting with a white undercoat and a white enamel finishing coat. **Painting**
3. Painted surfaces shall be thoroughly dry before the second coat is applied. Paints shall be handled and applied in accordance with the manufacturer's directions. **Dry Surfaces**
4. All paints shall be of the best quality, durable and suitable for exterior application on timber surfaces. **Paint Quality**

C263.06 ERECTION OF GUIDE POSTS

1. Guide posts shall be set vertically in the ground to a depth of approximately 500mm. In order to offset shoulder irregularities this depth shall be varied so as to give uniform display of guide posts to a height of approximately 900mm above ground level, with the tops evenly graded. Each guide post shall be erected with the 100mm axis at right angles to the centre line of the road. **Details**
2. Allowance shall be made in the height of guide posts above the ground for the effects of superelevation and other road geometry in order to keep the guide posts within the range of the beam of vehicle headlights. **Vertical Alignment**
3. Backfilling shall be compacted in layers of depth not more than 150mm for the full depth of the guide posts up to ground level. The density of the compacted backfilling shall not be less than that of the adjacent undisturbed ground. Guide posts shall be firm in the ground to the satisfaction of the Principal Certifying Authority. **Backfilling**
4. Flexible guideposts, when installed in the ground in accordance with the recommendations of the manufacturer, shall resist overturning, twisting and displacement from wind and impact forces. **Flexible Guideposts**
5. All necessary steps shall be taken to prevent people and stock from stepping into **Contractor's**

the post holes during the erection of the guide posts.

Responsibility

C263.07 DELINEATORS

1. 'Corner Cubed' delineators, complying with AS 1906.2, shall be attached to each guide post using one way, anti-theft screws. In the case of Flexible posts, the delineators shall be glued or otherwise fastened to the post in such a manner that they are not dislodged or rendered inactive under vehicular impact.

Fixing

2. The delineators shall be mounted so that the top of the reflector is 50mm below the top of the guide post.

Position

3. The delineators shall be so arranged that drivers approaching from either direction will see only red delineators on their left side and white delineators on their right side.

Arrangement

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C271

MINOR CONCRETE WORKS

**SPECIFICATION C271
MINOR CONCRETE WORKS**

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Amendment Record for this Specification Part

This Specification is Council’s edition of the AUS-SPEC generic specification part and includes Council’s primary amendments.

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Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date

SPECIFICATION C271 MINOR CONCRETE WORKS

GENERAL

C271.01 SCOPE

1. The Work to be executed under this Specification consists of the supply and placement of concrete, including sprayed concrete, and ancillary requirements like excavation, preparation of foundations, forming up, placement of reinforcement and backfilling for work shown on the Drawings but not having individual Specifications. These works include New Jersey type barriers, drainage pits and other supplementary structures, headwalls, box culverts, box culvert base slabs, driveways, footpaths, median toppings, retaining walls, footings, paving edge strips and works of a similar nature.

2. The work also includes supply and placement of sprayed concrete and miscellaneous minor concrete work for water and sewerage construction such as valve chambers, thrust and anchor blocks, bulkheads, pumping stations, bedding, encasement and cast-in-situ access chambers.

C271.02 REFERENCE DOCUMENTS

Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.:

*Documents
Standards
Test Methods*

(a) Australian Standards

AS 1012.1	Sampling fresh concrete
AS 1012.3	Determination of properties related to the consistency of concrete
AS 1012.8	Making and curing concrete compression, indirect tensile and flexure test specimens in the laboratory or in the field.
AS 1012.9	Determination of the compressive strength of concrete specimens.
AS 1012.14	Securing and testing cores from hardened concrete for compressive strength.
AS 1141.14	Particle shape by proportional calliper.
AS 1141.21	Aggregate crushing value.
AS 1141.23	Los Angeles value.
AS 1141.24	Soundness (by use of sodium sulphate solution).
AS 1289.3.3.1	Calculation of the plasticity index of a soil.
AS 1289.5.1.1	Determination of the dry density/moisture content relation of a soil using standard compactive effort.
AS 1289.5.2.1	Determination of the dry density/moisture content relation of a soil using modified compactive effort.
AS 1289.5.4.1	Compaction control test - Dry density ratio, moisture variation and moisture ratio.
AS 1302	Steel reinforcing bars for concrete.
AS 1303	Steel reinforcing wire for concrete.
AS 1304	Welded wire reinforcing fabric for concrete.
AS 1379	The specification and manufacture of concrete.
AS 1478	Chemical admixtures for concrete.
AS/NZS 1859	Reconstituted wood-based panels.
AS 2082	Visually stress graded hardwood for structural purposes.
AS 2271	Plywood and blockboard for exterior use.

AS 2758.1	Concrete aggregates
AS 3600	Concrete structures
AS 3610	Formwork for concrete
AS 3799	Liquid membrane-forming-curing compounds for concrete
AS 3972	Portland and blended cements

EXCAVATION AND FOUNDATIONS

C271.03 GENERAL

1. The subgrade, or subbase where specified, shall be formed at the required depth below the finished surface levels shown on the Drawings. Rock foundations shall be neatly excavated to form a bed for the concrete, and shall be thoroughly scraped and cleaned. Soil foundation shall, as far as possible, be excavated neatly from the solid material to coincide with the under-surface of the concrete, or of the subbase material (where specified). **Foundations**
2. All soft, yielding or other unsuitable material shall be replaced with sound material approved by the Principal Certifying Authority, and the subgrade shall be compacted to provide a minimum relative compaction of 100 per cent as determined by AS 1289.5.4.1 for standard compactive effort. If the subgrade is dry it shall be sprinkled with as much water as it will readily absorb, before the concrete is placed. **Unsuitable Material**
3. The Contractor shall supply all necessary sheeting and bracing to safely support the excavation in accordance with Statutory requirements. The excavation shall be kept free of water. **Shoring**

C271.04 NEW JERSEY TYPE BARRIERS, DRIVEWAYS AND FOOTPATHS

1. For New Jersey type barriers, driveways and footpaths a subbase of approved quality and of minimum 150mm compacted thickness, unless otherwise shown on the Drawings, shall be placed over the subgrade. The surface shall then be checked for uniformity, line and level, and all irregularities shall be made good. **Subbase**
2. The subbase material shall be compacted to provide a minimum relative compaction as determined by AS 1289.5.4.1 of 95 per cent for compactive effort or 95 per cent for modified compactive effort as appropriate. **Compaction**
3. The finished subbase shall not deviate more than 12mm under a straight edge 3 metres long, subject to any necessary allowance on vertical curves. **Subgrade and Subbase Tolerances**

C271.06 RETAINING WALLS, HEADWALLS AND WINGWALLS

1. In the case of rock foundations for retaining walls, headwalls and wingwalls, the excavation shall be carried into the rock for a minimum depth of 150mm. Where cut-off walls are to be provided, the depth of cut-off in rock foundations may be reduced to 100mm. **Rock Foundations**
2. Prior to the construction of cast-in-situ concrete walls on earth foundations, the latter shall be covered by a mass concrete bedding layer at least 50mm thick and finished to a uniform surface. No forms or other materials shall be placed upon the bedding layer within a period of 48 hours after the concrete has been placed. **Earth Foundations**
3. Unless otherwise specified, precast concrete wall sections shall be placed on a fresh concrete bedding layer while it is still in plastic state. In the case of soil foundations, the concrete shall be not less than 50mm thick, and where the foundation is in rock, the concrete shall be of such thickness as is required to provide a uniform **Pre-cast Concrete**

surface at least 50mm above the highest points of rock.

FORMWORK

C271.07 GENERAL

- | | |
|---|---------------------------------------|
| <p>1. Formwork shall be provided in accordance with AS 3610 to produce hardened concrete to the lines, levels and shapes shown on the Drawings or specified elsewhere. It shall have adequate strength to carry all applied loads, including the pressure of fresh concrete, vibration loads, weight of workers and equipment, without loss of shape. Forms shall be mortar tight and designed to allow removal without risk of damage to the completed structure. Joints in the formwork shall be perpendicular to the main axis of the shape of the concrete.</p> | <p>Formwork Requirements</p> |
| <p>2. Where concrete is placed in earth excavations, side forms shall be provided to prevent contact between concrete and the insitu earth.</p> | <p>Side Forms</p> |
| <p>3. Design of formwork for high sections shall be such that it shall not be necessary to drop concrete freely from a greater height than 1.2 metres or to move concrete along the formwork after deposition.</p> | <p>Placement of Concrete</p> |
| <p>4. Formwork material used shall be sound and suitable for the purpose intended and surface finish specified.</p> | <p>Material</p> |
| <p>5. Provision shall be made for the accurate location and firm support of fittings, bolts, anchorages and formers of holes as shown on the drawings. Temporary fittings used for the support of the formwork shall be arranged to permit removal without damage to the concrete. The use of wires and or bolts extending to the surface of the concrete shall not be permitted except where shown on the Drawings.</p> | <p>Formwork Fittings</p> |
| <p>6. Forms for edges of concrete shall be filleted and for re-entrant angles chamfered as shown on the Drawings.</p> | <p>Edge Treatment</p> |
| <p>7. Temporary openings shall be provided where necessary for cleaning out of formwork and inspection before concreting.</p> | <p>Cleaning and Inspection</p> |

C271.08 APPROVAL OF FORMWORK DESIGN

- | | |
|---|----------------------------------|
| <p>1. For box culverts and reinforced concrete retaining walls, detailed drawings, design calculations, description and/or samples of materials proposed for use shall be submitted for the Principal Certifying Authority's concurrence before manufacture of the formwork is commenced.</p> | <p>Approval to Design</p> |
|---|----------------------------------|

C271.09 PROVISION FOR DRAINAGE

- | | |
|--|--------------------------|
| <p>1. Where shown on the Drawings, or where directed by the Principal Certifying Authority, weepholes of 50mm diameter shall be provided in retaining walls and wingwalls.</p> | <p>Weep Holes</p> |
|--|--------------------------|

C271.10 CONSTRUCTION

- | | |
|---|-----------------------------------|
| <p>1. The type and quality of material selected for formwork and the workmanship used in construction shall be such that the surface finish specified shall be obtained. Construction shall be such that the erection tolerances shall be obtainable.</p> | <p>Formwork Material</p> |
| <p>2. Timber for formwork shall be well seasoned, free from defects and, where in contact with fresh concrete, free from loose knots.</p> | <p>Timber Requirements</p> |

3. Timber forms for exposed surfaces shall be constructed from plywood or particle board with hardwood or approved softwood studs and wales. The plywood used for forms shall comply with AS 2271, the hardwood shall comply with AS 2082 and the particle board with AS/NZS 1859. **Timber Standards**

4. Formwork for exposed surfaces shall be made from panels having uniform widths of not less than 1m and uniform lengths of not less than 2m, except where the dimensions of the member formed are less than the specified panel dimensions. Plywood panels shall be placed with the grain of the outer plies perpendicular to the studding or joists. Where form panels are attached directly to the studding or joists the panel shall be not less than 15mm thick. Form panels less than 15mm thick, otherwise conforming to these requirements may be used with a continuous backing of dressed material of 20mm minimum thickness. All form panels shall be placed in a neat, symmetrical pattern. **Formwork Panels for Exposed Surfaces**

5. Forms for all surfaces which will be completely enclosed or permanently hidden below the ground may be constructed from dressed or undressed timber, steel, plywood or particle board. **Hidden Surfaces**

6. Mild steel form surfaces in contact with concrete shall have all bolt and rivet heads counter-sunk and all welds ground back to even and smooth surfaces. **Mild Steel Surfaces**

C271.11 ERECTION

(a) General **Formwork Position Tolerances**

(i) Dimensions and position of forms, shall be carefully checked after the forms are erected. Forms shall be aligned accurately and the location of all fittings, hold formers, etc. checked prior to placing concrete. Departure of the forms from the surfaces shown on the drawings shall not exceed 1/300 of the space between supports for any surface visible in the completed work and 1/150 for hidden work.

(ii) Joints as erected shall be mortar tight. **Mortar Tight**

(iii) The interior surface of the forms shall be treated to ensure non-adhesion of the mortar. Commercial quality form oil or grease will be acceptable, but the oil or grease used on forms against surfaces to be exposed shall not stain or discolour the concrete surface. The coating shall be uniformly spread in a thin film and any surplus shall be removed prior to placing concrete. In the case of unlined timber forms, the timber shall be thoroughly wetted before oiling. Forms shall be treated before placing reinforcement to ensure that the form release agent will not contaminate the surface of the reinforcing steel or construction joints. **Coating of Internal Surfaces**

(iv) Formwork hardware shall be treated with a form release agent and so arranged that it may be removed from the concrete without excessive jarring or hammering. **Release Agent**

(b) Approval by the Principal Certifying Authority

(i) Placing of concrete shall not commence until the formwork and reinforcement have been inspected and approved. **Concrete Placement**

(ii) When an inspection is requested by the Contractor, a notice of not less than 24 hours, excluding Saturdays, Sundays and Public Holidays, shall be given to the Principal Certifying Authority. **Notice of Inspection**

MATERIALS FOR CONCRETE

C271.12 CEMENT

1. Cement shall be Type GP Portland Cement complying with AS 3972 and shall be from a source included in the New South Wales Government Cement Quality Assurance Scheme. **NSW QA Scheme**
2. When submitting details of the nominated mix in accordance with Clause C271.17, the Contractor shall nominate the brand and source of the cement. On approval of the nominated mix by the Principal Certifying Authority, the Contractor shall only use the nominated cement for the work. **Nominated Brand and Source**
3. Documentary or other acceptable evidence of the quality of the cement shall be furnished by the Contractor if required by the Principal Certifying Authority. **Proof of Quality**
4. If the Contractor proposes to use cement which has been stored for a period in excess of 3 months from the date of testing, a re-test shall be required at the Contractor's expense before the cement is used. **Storage Time**
5. All cement shall be transported in watertight containers, and shall be protected from moisture until used. Caked or lumpy cement shall not be used. **Transport and Storage**

C271.13 WATER

1. Water used in the production of concrete shall be potable and free from materials harmful to concrete or reinforcement. **Quality**
2. Water which is not potable for human beings shall not be used in reinforced concrete. **Potability**

C271.14 FINE AGGREGATE

1. Fine aggregates shall consist of clean, hard, tough, durable uncoated grains, uniform in quality, and shall conform to the requirements of AS 2758.1 in respect of bulk density, water absorption (maximum 5 per cent) material finer than 2 micrometres, impurities and reactive materials. **Quality**
2. Fine aggregates shall be evenly graded within the limits shown in Table C271.1. **Grading Requirements**

Australian Standard Sieve	Proportion Passing (% of Mass)
9.50mm	100
4.75mm	90 - 100
1.18mm	40 - 85
300mm	8 - 30
150mm	2 - 10
75mm	0 - 4

Table C271.1 - Fine Aggregate Grading

C271.15 COARSE AGGREGATE

1. Coarse aggregate shall consist of clean, hard, durable, crushed stone, crushed river gravel, screened river gravel or metallurgical furnace slag and shall conform to the requirements of AS 2758.1 in respect of particle density, bulk density, water absorption (maximum 2.5 per cent), material finer than 75 micrometres, weak particles, light particles, impurities and reactive materials, iron unsoundness and falling or dusting unsoundness. In all other respects, the coarse aggregate shall comply with this Specification. If required, coarse aggregate shall be washed to satisfy these requirements.

Quality

2. The percentage of wear shall be determined by AS 1141.23, and the loss of weight shall not exceed 30 per cent.

Wear Test

3. When required by the Principal Certifying Authority, coarse aggregate shall be tested for conformance for any or all of the properties set out below:

Additional Tests

- (i) Crushing Value - AS 1141.21
The aggregate crushing value shall not exceed 25 per cent.
- (ii) Soundness - AS 1141.24
The loss of mass when tested with sodium sulphate shall not exceed 12 per cent.
- (iii) Particle Shape - AS 1141.14
The proportion of mis-shapen particles (2:1 ratio) shall not exceed 35 per cent.

4. Coarse aggregate shall be evenly graded within the absolute limits shown in Table C271.2 and shall not deviate from the grading of the samples submitted under Clause C271.17 by more than shown.

Grading Requirements

Australian Standard Sieve (mm)	Proportion Passing (% of Mass)			Deviation Proposed Grading (% of Mass of Sample)
	40mm Nominal	20mm Nominal	Extrusion Concrete	
	For Walls exceeding 150mm thickness	For all other structures		
53.0	100		100	±10
37.5	95 - 100			
26.5		100		±10
19.0	30 - 70	95 - 100		
13.2				±5
9.50	10 - 35	25 - 35		
4.75	0 - 10	0 - 10		±5
2.36	0 - 2	0 - 2		

Table C271.2 - Coarse Aggregate Gradings

C271.16 ADMIXTURES

1. Chemical admixtures and their use shall comply with AS 1478. Admixtures shall not contain calcium chloride, calcium formate, or triethanolamine or any other accelerator. Admixtures or combinations of admixtures other than specified below, shall not be used.

Quality and Use

2. During the warm season, (October to March inclusive), a lignin or lignin-based ('ligpol') set-retarding admixture (Type Re or Type WR Re) approved by the Principal Certifying Authority shall be used to control slump within the limits stated in Clause C271.21. The dosage shall be varied to account for air temperature and haul time in accordance with the manufacturer's recommendations. A copy of the NATA endorsed Certificate of Compliance with AS 1478 for Type Re or Type WR Re shall be submitted to the Principal Certifying Authority, together with the proposed 'dosage chart' in accordance with Clause C271.17.

Retarder for Warm Season

3. During the cool season, (April to September inclusive), only a lignin or lignin based set-retarding admixture containing not more than 6 per cent reducing sugars (Type WR Re complying with AS 1478) may be used in the mix.

Retarder for Cool Season

C271.17 TESTING OF MATERIALS

1. The Contractor shall submit to the Principal Certifying Authority a copy of a NATA Certified Laboratory Test Report on the quality and gradings of the aggregates proposed to be used in the work.

Contractor's Responsibility

2. The materials shall only be used after receipt of the Principal Certifying Authority's notification of acceptance, and then only so long as the materials accord with the specification.

Use of Material

HANDLING AND TREATMENT OF CONCRETE

C271.18 MEASURING

1. All materials shall be measured by weight, except that:-

Measurement of Material

- (a) Water may be measured by volume with an approved adjustable water-measuring and discharging device, and,
- (b) Cement may be measured by bags as packed by the manufacturer in which case batches shall be proportioned on the basis of one or more unbroken bags of cement, and for this purpose one bag of cement shall be assumed to weigh 40kg. Bulk cement shall be weighed in an individual hopper and shall be kept separate from the aggregates until the components of the batch are discharged from the batching hopper.
- (c) Measurement by volume for smaller works may be undertaken with the prior approval of the Principal Certifying Authority.

C271.19 MEASURING BY WEIGHT, ON-SITE MIXING

1. Where concrete is to be mixed on site, and where mix control is likely to be less efficient than at a central batching plant, the weights of cement, fine and coarse aggregate shown in Table C271.3 may be used as a guide to produce the classes of concrete specified. Small changes in the proportions of fine and coarse aggregate may be required to improve density or workability of the concrete. The use of proportions shown in Table C271.3 shall not relieve the Contractor of his obligation to provide concrete of the specified compressive strength.

Mixing by Weight on Site

MPa	Cement Kg	Fine Aggregates Kg	Coarse Aggregates Kg	Total Aggregates Kg
10	40	130	250	380
15	40	100	190	290
20	40	88	126	214

Table C271.3 - Materials in Batch containing 1 bag (40Kg) Cement

2. The proportions set out in Table C271.3 make allowance for moisture contents of aggregates of 6 per cent for fine aggregates and 1 per cent for coarse aggregates. Where the moisture content of aggregates exceeds 8 per cent or 3 per cent respectively, the proportions of the mix shall be changed to compensate for the excess water in the aggregate.

Variation in Aggregate Moisture Content

C271.20 MEASURING BY VOLUME, ON-SITE MIXING

1. Where measurement by volume is approved, the proportions of the materials shall be such as are required to produce a mix free of voids and having the specified strength at 28 days.

Mixing by Volume on Site

2. The nominal proportions given in Table C271.4 may be used as a guide for volume batching.

Volume Batching

MPa	Parts by Volume		
	Cement	Fine Aggregate	Coarse Aggregate
10	1	3	6
15	1	2.25	4.5
20	1	2	3

Table C271.4 - Volume Batching

3. The volumes of fine and coarse aggregates for each batch shall be measured in boxes or bins. The aggregates shall be measured loose (i.e. without compaction) in the boxes and shall be struck off level. Measurements by shovels or like methods will not be permitted. Batch proportions shall be so arranged that each batch contains 1 bag of cement. One 40kg bag of cement shall be assumed to have a volume of 27.5 litres.

Batch Measurement

C271.21 CONSISTENCY

1. A sufficient quantity of water shall be added to the mix so that the consistency of the concrete is such that it can be placed in the forms, compacted and worked into all corners without permitting the ingredients to segregate, or excess free water to collect on the surface. If required by the Principal Certifying Authority, the Contractor shall determine the consistence of the concrete in accordance with AS 1012.3, Method 1. Except for extruded concrete, the nominated slump shall not exceed 80mm, plus the field tolerance of ±15mm.

Consistency Requirements

2. In the case of concrete placed by an extrusion machine, the water in the mix shall be only sufficient to produce a slump of 10mm to 15mm.

Extruded Concrete Consistence

C271.22 MIXING AND DELIVERY

(a) General

- (i) Concrete may be mixed either at the site or at a central mixing plant. All concrete shall be mixed with mechanically operated mixers. In an emergency, hand mixing may be permitted.
- (ii) Any concrete which exhibits signs of segregation shall not be used.

Mechanical Mixing

Segregation of Concrete

(b) Machine Mixing at Site

- (i) The mixing of concrete shall be done in a batch mixer which will ensure a uniform distribution of the materials throughout the batch.
- (ii) The mixer shall be of such capacity that one or more whole bags of cement may be used per batch of concrete. The volume of the mixed material shall not exceed the manufacturer's rated capacity of the mixer.
- (iii) The mixing time for each batch shall not be less than 1.5 minutes after all ingredients are assembled in the mixer, and prior to any portion of the batch being removed.
- (iv) The entire contents of a batch shall be discharged from the mixer before any materials are placed therein for the succeeding batch.

Mixer Requirements

Mixer Capacity

Mixing Time

Total Mix Discharge

(c) Mixing in an Emergency

- (i) In the case of breakdown of the mechanical mixing equipment, hand mixing in small quantities so as to complete a section of the work or reach a suitable construction joint is permitted. **Hand Mixing**
- (ii) Hand mixing shall be done on a water-tight platform of sufficient size to allow the mixing of at least two batches simultaneously. The amount of cement used shall be 10 per cent more than the amount specified for machine mixed concrete. **Hand Mixing Conditions**
- (iii) The fine aggregate and cement shall first be mixed until a uniform colour is obtained, and then spread on the mixing platform in a thin layer. The coarse aggregate, which shall have been previously drenched with water, shall then be spread over the fine aggregate and cement in a uniform layer, and the whole mass turned over as further water is added with a rose sprinkler. After the water is added, the mass shall be turned at least three times, not including shovelling into barrows or forms, until the mixture is uniform in colour and appearance. Hand-mixed batches shall not exceed 0.25 cubic metres each. **Hand Mixing Procedure**

(d) Ready-Mixed Concrete

- (i) The concrete shall be mixed and delivered in accordance with the requirements of AS 1379 relating to:- **Mixing Standard and Discharge Times**
 - (1) Mixing and Delivery; and
 - (2) Use of Non-Agitating Equipment,

with the exception that in (1) the time taken from the introduction of water until the concrete is completely discharged shall be not more than 1.5 hours, and in (2) not more than 30 minutes.
- (ii) The water used for flushing the chutes and for cleaning shall be discharged in an area acceptable to the Principal Certifying Authority. The chutes shall be long enough to permit delivery to the whole of the area enclosed by the forms. **Cleansing and Positioning of Chutes**

C271.23 PLACING AND COMPACTING CONCRETE

- 1. No concrete shall be placed during rain nor without the approval of the Principal Certifying Authority, while the air temperature is, or is likely to be within 24 hours, below 5°C or while the shade temperature exceeds 38°C. **Air Temperature Requirements**
- 2. The concrete shall be mixed in the quantities required for immediate use and shall be placed in position as rapidly as possible. Any concrete which has developed initial set, or which does not reach the forms within 30 minutes after the water has been added (except when transported in agitator trucks) shall not be used. **Placement within Time Limit**
- 3. The concrete shall be deposited in the forms, without separation of the aggregates. Concrete shall not be dropped freely from a height greater than 1.2 metres, or be deposited in large quantities at any point and moved or worked along the forms. Conveying equipment, including open troughs and chutes, where used, shall be made of metal, or have metal linings. Where used on steep slopes, troughs and chutes shall be equipped with baffles, or be placed in short lengths in such a way that the direction of flow of the concrete is changed. The concrete shall be placed in horizontal layers in one continuous operation between the ends of the work and/or construction joints. Care shall be taken to fill every part of the forms and to work the coarser aggregate back from the face. The freshly placed concrete shall be compacted by continuous spading, slicing or by vibrator units. Vibrators shall not be left in one position for more than 30 seconds, and shall not be permitted to rest on reinforcement. **Placement in Forms, Vibrating**

4. Exposed surfaces of the concrete shall be struck off and finished with a wooden float. Where shown on the Drawings corners and edges shall be left neatly rounded or chamfered. Re-entrant angles shall be neatly filleted. **Exposed Surfaces**

5. Concrete shall not be moved after it has been in the forms for more than 10 minutes. **Initial Set**

6. In the case of concrete placed by an extrusion machine, small quantities of cement-sand slurry, comprised of two parts of plasterer's sand and one part of cement (by volume), together with sufficient water to bring it to a semi-fluid condition, shall be placed in the special receptacle in the machine, if the machine is so equipped and shall be fed onto the surface of the concrete at a rate sufficient to produce a smooth and uniform finish. **Slurry for Extruded Concrete**

C271.24 FINISHING OF UNFORMED SURFACES

(a) Surfaces other than Wearing Surfaces

1. Unformed surfaces shall be compacted and tamped so as to flush mortar to the surface, screeded off and finally dressed with a wooden float to an even surface. Care shall be taken to drain or otherwise remove promptly any water which comes to the surface. A capping of mortar will not be permitted. **Finish for Unformed Surfaces**

2. All future contact surfaces shall be left rough, with the coarse aggregate at the surface firmly embedded but not forced below the surface. **Future Contact Surfaces**

(b) Wearing Surfaces

1. Where a concrete wearing surface is shown on the drawings the concrete shall be thoroughly compacted and the surface screeded off by a vibrating screed, or hand screeded where the distance between forms perpendicular to the direction of screed is no greater than 2 metres. Immediately following compaction and screeding the concrete shall be tested for high or low spots and any necessary corrections made. The surface shall be finished true and uniform and free from any glazed or trowelled finish and shall be finally dressed with a wooden template or float, or by the use of belting in an approved manner. The departure from grade shall not exceed 5mm in any 3 metre length. **Finish for Wearing Surfaces**

2. Where an asphaltic concrete wearing surface is specified, the surface of the concrete, after being compacted, screeded and corrected, shall be dressed with a wooden float and finally broomed to produce a rough surface. **Surface to receive Asphalt**

(c) Finished Levels

1. The finished levels of concrete structures not adjacent to road pavements shall not vary more than 25mm from the specified levels. In the case of barriers, drainage pits and other structures adjacent to road pavements, the finished concrete shall not vary more than 10mm from the specified levels and alignment. Barriers, footpaths and similar shall not deviate from level or alignment by more than 5mm from a straight-edge 3 metres long, subject to any necessary allowances on vertical and horizontal curves. **Surface Tolerance**

C271.25 CURING AND PROTECTION

1. All exposed surfaces of the freshly placed concrete shall be kept moist either by the use of plastic sheeting, damp sand or commercial curing compounds, in accordance with AS 3799, for a minimum period of 3 days. During this time the work must be adequately protected from traffic and any other causes likely to damage the concrete. **Curing Requirements**

C271.26 REMOVAL OF FORMS

1. All forms shall remain in place, after placement of concrete, for minimum periods specified hereinafter. These periods may be extended by the Principal Certifying Authority if the air shade temperature falls below 10°C during the periods specified.

Walls, Sumps etc.

Mass retaining walls, headwalls, wingwalls, gully pits, sumps, and similar drainage structures 48 hours

Footpaths, driveways and similar 48 hours

Sides of reinforced concrete walls when height of each day pour is:

- (i) under 0.6 metres 1 day
 - (ii) 0.6m to 3m 2 days
 - (iii) 3m to 6m 3 days
 - (iv) 6m to 9m 5 days
- Supporting forms under deck slabs of culverts 10 days

2. To permit the satisfactory finishing of barriers, forms shall be removed in not less than 12 hours nor more than 48 hours after placing concrete, depending upon weather conditions.

Barriers

3. Care shall be taken in removing forms so that the concrete will not be cracked, chipped or otherwise damaged. The use of crowbars or other levering devices exerting pressure on the fresh concrete to loosen the forms will not be permitted.

Protection of Concrete

4. No superimposed load shall be allowed on any part of a structure until the concrete has reached at least 70 per cent of the design strength.

Superimposed Load

5. Hole formers such as pipes and bars shall be removed as soon as the concrete has hardened sufficiently for this to be done without damage to the concrete.

Removal of Hole Formers

C271.27 TREATMENT OF FORMED SURFACES

1. All concrete surfaces shall be true and even, free from stone pockets, depressions or projections beyond the surface. All arises shall be sharp and true, and mouldings shall be evenly mitred or rounded. Care shall be exercised in removing forms to ensure this result.

Quality of Surfaces

2. As soon as the forms are removed from mass or reinforced concrete work, all rough places, holes and porous spots shall be repaired by removing defective work and filling with stiff cement mortar having the same proportions of cement and fine aggregate as used in the concrete, and shall be brought to an even surface with a wooden float.

Repair of Defects

3. Any tie wires or other fitments extending to outside surfaces, shall be cut back after removal of forms, to a depth of at least 40mm with sharp chisels or cutters. All cavities caused by removal of fitments or tie wires shall be wetted and carefully packed with cement mortar, as above.

Removal of the Wires

4. The surfaces of bolt cavities, tie wire holes, and all defects in concrete shall be coated prior to the placing of mortar, grout, or fresh concrete, with an approved bonding agent, in lieu of wetting with water. The method of application of such agent and the conditions in which it is to be used shall generally be as laid down by the manufacturer.

Coating with Bonding Agent

C271.28 JOINTS

1. Where horizontal construction joints are found to be necessary in walls, or cast-in-situ drainage structures the joints may be made at the base of walls and at other locations in the walls where approved by the Principal Certifying Authority. In order to provide for bond between the new concrete and the concrete which has already set, the surface on which the new concrete is to be placed shall be thoroughly cleaned of loose material, foreign matter and laitance. The surface shall be roughened or keyed and saturated with water. After any excess water has been removed, the surface shall be thinly coated with a neat cement grout.

***Horizontal
Construction
Joint***

2. Retaining walls shall be provided with vertical expansion joints as shown on the Drawings. The expansion joints shall consist of jointing material of approved quality, and of thickness shown on the drawings, and a depth sufficient to fill the joint. The jointing material shall be neatly cut to fit the surface of the concrete.

***Vertical
Expansion
Joints***

3. Where barriers are extruded or cast in place, narrow transverse vertical grooves, 20mm deep, shall be formed neatly in the surface of the freshly placed concrete to produce contraction joints for the control of cracking. The contraction joints, shall be at intervals of 3 metres.

***Barrier
Contraction***

4. In barriers, unless shown otherwise on the Drawings, expansion joints, 15mm in width for the full depth of the barrier, shall be constructed at intervals not exceeding 15m and where the barrier abuts against gully pits. Expansion joints shall consist of a preformed jointing material of bituminous fibreboard.

***Barrier
Expansion***

5. In footpaths, median toppings and driveways, unless otherwise shown on the Drawings, expansion joints, 15mm in width for the full depth of paving, shall be constructed at intervals not exceeding 15m and where the pavement abuts against gutters, pits and structures. Expansion joints shall consist of a preformed jointing material of bituminous fibreboard.

6. Unless otherwise specified, all unreinforced paving shall be provided with narrow vertical grooves, 20mm deep to induce contraction joints for the control of cracking.

C271.29 STRENGTH OF CONCRETE

1. When tested in accordance with AS 1012.9, the concrete shall have a compressive strength not less than that shown on the Drawings or if not shown shall have a compressive strength not less than that specified in Table C271.5 for the particular class of work.

***Strength
Requirement***

2. The strength shall be determined from the average of not less than two specimens, moulded from each class of concrete being used in the work, and selected to represent the whole of the concrete placed at the time of moulding.

***Determination
of Strength***

3. In general, two pairs of test specimens shall be moulded for each 15 cubic metres of concrete, or part thereof, one pair being intended for the 7 day test if required and the other pair for a 28 day test.

***Moulding of
Cylinders***

Use	MPa	Minimum Cement per cu metre	Coarse Aggregate Nominal Size	Cylinder Strength Required	
				7 days	28 days
				MPa	MPa
Foundations, mass retaining walls	20	330	40	15	20
Mass concrete footings, pitching, linings etc.	20	330	20	15	20
Drainage structures, driveways footpaths, New Jersey barrier, miscellaneous minor concrete work	25	330	20	20	25
Reinforced concrete culverts, headwalls, base slabs, sign structure large footings, retaining walls	32	380	20	24	32
Extruded concrete	20	330	14	15	20

Table C271.5 - Concrete Strength Requirements

4. The strengths specified at 28 days shall be increased by multiplying by factors as shown in Table C271.6 for tests at ages in excess of 28 days.

Strength Age Factor

*Age of test specimen in days of date of testing	Factor
28	1.00
35	1.02
42	1.04
49	1.06
56	1.08
70	1.10
84	1.12
112	1.14
140	1.16
168	1.18
196	1.20
224	1.22
308	1.24
365 and greater	1.25

*For intermediate ages the factor shall be determined on a pro-rata basis

Table C271.6 - Concrete Age Conversion Factors

5. If the test specimens fail to achieve the specified strength, the Contractor may, with the approval of the Principal Certifying Authority, arrange for cores to be taken from the work. If the average strength of such cores complies with the specified requirements nominated in Table C271.5, the concrete will be accepted.

Cores and Test Acceptance

6. If cores taken fail to satisfy the strength requirements, the concrete shall be removed. **Failure of Cores**

C271.30 SAMPLING CONCRETE

1. Equipment and facilities shall be provided by the Contractor for the taking and storage of samples of any materials or concrete being used, or intended to be used in the work. **Contractor's Responsibility**

2. Concrete test specimens shall be cylinders 300mm long and 150mm diameter, moulded concurrently in the presence of the Principal Certifying Authority or Principal Certifying Authority's representative, in accordance with AS 1012.8, from samples taken in accordance with AS 1012.1. **Moulding of Test Cylinders**

STEEL REINFORCEMENT FOR CONCRETE

C271.31 MATERIAL

1. Steel reinforcement shall comply with the requirements of the ~~appropriate~~ following Australian Standards AS/NZS 4671:2001 – Steel Reinforcing Materials:- **Standards**

- ~~— (a) AS 1302 Steel Reinforcing Bars for Concrete.~~
- ~~— (b) AS 1303 Steel Reinforcing Wire for Concrete.~~
- ~~— (c) AS 1304 Welded Wire Reinforcing Fabric for Concrete.~~

2. The type and size of bars shall be as shown on the Drawings. **Type and Size**

3. Steel reinforcement shall be free from loose or thick rust, grease, tar, paint, oil, mud, millscale, mortar or any other coating, but shall not be brought to a smooth polished condition. **Quality**

4. The Contractor shall supply evidence satisfactory to the Principal Certifying Authority that steel reinforcement complies with AS/NZS 4671:2001 – Steel Reinforcing Materials:- ~~AS 1302, AS 1303 or AS 1304, as appropriate~~. Test certificates shall show the results of mechanical tests and chemical analysis. **Documentary Evidence**

5. Where the material cannot be identified with a test certificate, samples shall be taken and testing arranged by the Contractor. The samples shall be selected randomly and consist of three specimens each at least 1.2 m in length. Sampling and testing shall be at no cost to the Principal Certifying Authority.

6. Plastic bar chairs or plastic tipped wire chairs shall be capable of withstanding a load of 200kg mass on the chair for one hour at 23 ± 5°C without malfunction. The Contractor shall demonstrate that the proposed chairs conform with these requirements. **Bar Chairs**

C271.32 BENDING

1. Reinforcement shall be formed to the dimensions and shapes shown on the Drawings. It shall not be bent or straightened in a manner that will injure the material, and bars with kinks or bends not shown on the drawings will not be accepted. Heating of reinforcement for purposes of bending will only be permitted if uniform heat is applied. Temperature shall not exceed 450°C and the heating shall extend beyond the portion to be bent. Heated bars shall not be cooled by quenching. **Cutting and Bending**

C271.33 SPLICING

(a) General

1. All reinforcement shall be furnished in the lengths indicated on the Drawings. If splicing is required, it shall be in accordance with the provisions of [AS/NZS 4671:2001 – Steel Reinforcing Materials:-AS 1302](#). **Plan Lengths**

(b) Lapped Splices

1. Laps in reinforcing bars, wire or fabric shall be as shown on the Drawings. Laps not shown on the Drawings shall be as follows for unhooked bars:- **Lap Dimensions**

Plain bars, Grade R250N	40 bar diameters
Deformed bars, Grade 400 D500L & D500N	35 bar diameters
Hard-drawn wire	50 bar diameters

2. Splices in reinforcing fabric shall be so made that the overlap, measured between outermost transverse wires of each sheet of fabric is not less than the spacing of those wires plus 25mm. **Splice Dimensions**

C271.34 MARKING

1. Bars of identical shape shall be made up in bundles of three and securely tied together by soft iron wire. Each bundle shall have a stout metal label of not less than 40mm diameter attached to it. Each metal label shall be punched with the appropriate marking in accordance with the steel list shown on the drawings. If called for on the Drawings the marking shall incorporate a prefix, and bars with different prefixes shall be stored separately. **Marking Details**

C271.35 STORAGE

Reinforcement shall be stored above the surface of the ground and shall be protected from damage and from deterioration by exposure. **Protection of Reinforcement**

C271.36 DELIVERY AND RECEIPT OF REINFORCEMENT

1. Unless the Contractor elects to have the reinforcement inspected at the site, no reinforcement shall be delivered to the site until all tests and inspections have been satisfactorily completed and permission to deliver has been granted by the Principal Certifying Authority. **Test Before Delivery**

2. The Contractor shall give 10 working days notice to the Principal Certifying Authority for carrying out inspection and testing. The Principal Certifying Authority will carry out the inspection and testing with reasonable expediency, but the Contractor shall not be entitled to an extra as a result of any delays in this connection. **Notice to Test**

C271.37 PLACING

1. Reinforcement shall be accurately placed as shown on the Drawings and shall be securely held by blocking from the forms, by supporting on concrete or plastic chairs, or metal hangers, and by wiring together at all intersections or at 0.5m centres, whichever is the greater distance, using annealed iron wire of diameter not less than 1.25mm. Steel shall not be supported on metal supports which extend to the surface of concrete, on wooden supports, or on pieces of coarse aggregate. Reinforcement shall have the minimum cover shown on the Drawings.

Reinforcement Position

2. The Principal Certifying Authority may approve the use of tack welding instead of wire ties on reinforcing wire. Tack welding of cold-worked and hard grade bars shall not be permitted.

Tack Welding

3. The reinforcement in each section of the work shall be approved by the Principal Certifying Authority before any concrete is deposited in the section and adequate time shall be allowed for inspections and any corrective work which may be required. Notice for inspection shall not be less than four normal working hours.

Inspection Required

4. Splices shall be staggered where practicable and when not shown on the drawings they shall be arranged as directed by the Principal Certifying Authority.

Splices

5. Bars forming a lapped splice shall be securely wired together in at least two places, unless welded.

Lapped Splice

6. The clear cover of any bar, including stirrups, to the nearest concrete surface shall be as shown on the Drawings. Where not so indicated it shall be as stated below:

Bar Cover

- (a) Concrete normally in contact only with air
 - (i) Slabs: 40mm
 - (ii) Other than slabs: 45mm
- (b) Concrete in contact with earth or fresh water
 - (i) Slabs of box culverts: 50mm
 - (ii) Other than culverts: 50mm

In no cases shall the cover be less than 1½ times the diameter of the bar.

BACKFILLING

C271.38 GENERAL

1. Backfilling at barriers, paving, etc, and minor concrete works shall not commence until after the concrete has hardened and not earlier than three days after placing.

2. No filling shall be placed against retaining walls, headwalls or wingwalls within 21 days after placing of the concrete, unless the walls are effectively supported by struts to the satisfaction of the Principal Certifying Authority, or when the Contractor can demonstrate that 85 per cent of the design strength of the concrete has been achieved.

Adjacent to Walls

3. Selected backfill shall be placed against retaining walls and cast-in-place box culverts for a horizontal distance equal to one-third of the height of the wall. It shall consist of granular material, free from clay and stone larger than 50mm gauge. The Plasticity Index of this selected backfill material shall not be less than 2 or more than 12 when tested in accordance with AS 1289.3.3.1. The material shall be placed in layers not exceeding 150mm and shall be compacted to provide a relative compaction of not less than 92 per cent as determined by AS 1289.5.4.1 for modified compactive effort.

Selected Backfill

C271.39 TREATMENT AT WEEPHOLES

1. Drainage adjacent to weepholes shall be provided by either a layer of broken stone or river gravel consisting of clean, hard, durable particles graded from 50mm to 10mm such that:

Size & Type of Backfill Material

- (a) The maximum particle dimension shall not exceed 50mm
- (b) No more than 5 per cent by mass shall pass the 9.5mm A.S. sieve.

2. The broken stone or river gravel, enclosed in a filter fabric suitable for drainage without scour, shall be continuous in the line of the weepholes, extend at least 300mm horizontally into the fill and extend at least 450mm vertically above the level of the weepholes.

Extent of Material

3. Alternatively the Contractor may provide a synthetic membrane of equivalent drainage characteristics. It shall be stored and installed in accordance with Manufacturer's instructions. The use of a synthetic membrane shall be subject to the Principal Certifying Authority's approval.

Synthetic Membrane

SPRAYED CONCRETE

C271.40 GENERAL

1. Sprayed concrete is concrete pneumatically applied at high velocity on to a surface. Application may be either a wet or dry process. A sound homogeneous product shall be provided with surface finish reasonably uniform in texture and free from blemishes.

Definition

2. The minimum depth of sprayed concrete to be applied shall be 75mm.

Depth

3. Sprayed concrete lining in open drains shall be coloured to match the adjoining rock colour.

Colour

4. Sprayed concrete shall have a minimum cement content of 380 kg/m³ as discharged from the nozzle and shall have a minimum compressive strength of 25 MPa at 28 days when tested by means of 75mm diameter cores taken from in-place sprayed concrete.

Strength

5. Cores shall be secured, accepted, cured, capped and tested in accordance with AS 1012.14. Equipment and facilities shall be provided by the Contractor for the taking of cores from the work. The Contractor shall arrange for a laboratory with appropriate NATA registration for the curing and testing of the cores. Copies of test results shall be forwarded to the Principal Certifying Authority.

Test Cores

6. At least 14 days prior to applying any sprayed concrete the Contractor shall submit to the Principal Certifying Authority details of his proposed procedure, plant, materials and mix proportions. Materials shall comply with AS 3600. **Contractor's Responsibility**

C271.41 TEST PANELS

1. If so required by the Principal Certifying Authority, the Contractor shall prepare at least 3 test panels for each mix proposed, in conditions similar to those in the works and in the presence of the Principal Certifying Authority. The test panels shall be made by applying a 75mm thickness of sprayed concrete to a hardboard panel approximately 750mm square. The sprayed concrete shall be applied to the panels in the same manner, using materials including steel reinforcing fabric, equipment, pressures and curing that will be used in the Works. The panels shall be submitted to the Principal Certifying Authority for examination not less than 10 days before applying concrete. **Test Panels**

2. The Contractor shall cut four 75mm diameter cores from one test panel for each proposed mix approximately 48 hours after the panel has been sprayed. The cores shall be tested as for cores from in-place sprayed concrete. One core shall be compression tested at 3 days, one core at 7 days and the remaining two cores at 28 days. **Cores**

3. Should any of the cores reveal defects such as lack of compaction, dry patches, voids or sand pockets or should the test panel exhibit an unacceptable surface finish, the Contractor shall modify the mix design and/or method of placement and prepare fresh test panels for testing and inspection. **Defective Core**

4. Sprayed concrete shall not be applied to the Works until the Contractor produces test panels for the approval of the Council. **Approval**

C271.42 SURFACE PREPARATION

1. Earth surfaces shall be graded, trimmed and compacted and shall be dampened prior to applying the sprayed concrete. The Contractor shall take any precautions necessary to prevent erosion when the sprayed concrete is applied. **Earth**

2. Rock surfaces shall be cleaned of loose material, mud and other foreign matter that might prevent bonding of the sprayed concrete onto the rock surface. The rock surface shall be dampened prior to applying the sprayed concrete. **Rock**

3. Corrugated steel pipes shall be cleaned of loose material, mud and any other foreign matter. **Steel Pipes**

4. The Contractor shall remove free water and prevent the flow of water which could adversely affect the quality of the sprayed concrete. **Water Flow**

C271.43 APPLICATION OF SPRAYED CONCRETE

1. Application shall begin at the bottom of the area being sprayed and shall be built up making several passes of the nozzle over the working area. The nozzle shall be held so that the stream of material shall impinge as nearly as possible perpendicular to the surface being coated. The velocity of discharge from the nozzle, the distance of the nozzle from the surface and the amount of water in the mix shall be regulated so as to produce a dense coating with minimum rebound of the material and no sagging. Rebound material shall be removed after the initial set by air jet or other suitable means from the surface as work proceeds and disposed of. **Procedure**

2. Spraying shall be discontinued if wind causes separation of the nozzle stream. **Wind Problem**

3. Concrete shall not be sprayed in air temperatures less than 5°C. ***Air Temperature***
4. Construction joints shall be kept to a minimum. A joint shall be formed by placing or trimming the sprayed concrete to an angle between 30° and 45° to the sprayed concrete surface. The joint edge shall be cleaned and wetted by air-water jet before recommencing concrete spraying. ***Construction Joints***
5. When spraying around reinforcement, concrete is to be sprayed behind the reinforcement before concrete is allowed to accumulate on the face of the reinforcement. ***Spraying around Reinforcement***
6. Adjoining surfaces not requiring sprayed concrete shall be protected from splash and spray rebound. Splash or rebound material on these adjoining surfaces shall be removed by air-water jet or other suitable means as work proceeds. ***Protection of Adjoining Surfaces***

C271.44 CURING

1. Curing shall commence within one hour of the application of sprayed concrete and may be by water or by colourless wax emulsion curing compound complying with AS 3799 and applied in accordance with manufacturer's specifications. ***Commencement***
2. In water curing, the surface of the sprayed concrete shall be kept continuously wet for at least seven days. ***Water Curing***

LIMITS AND TOLERANCES

C271.45 SUMMARY OF LIMITS AND TOLERANCES

1. The tolerances applicable to the various clauses in this Specification are summarized in Table C271.7 below:

Item	Activity	Tolerances	Spec Clause
1.	Subgrade		
	(a) Relative Compaction	≥100% (standard compactive effort)	C271.03
2.	Barriers, Footpaths etc.		
	(a) Finished Subbase	To be trimmed and compacted so that the levels do not vary more than 12mm under a straight-edge 3 metres long.	C271.04
	(b) Relative Compaction of Subbase	95% (modified compactive effort)	C271.04
3.	Formwork		C271.11
	(a) Position of Forms	Forms shall be aligned accurately so that departure of the forms from the surfaces specified on the Drawings shall not exceed 1/300 of the space between supports for any surface visible in the completed work and 1/150 for hidden work.	
4.	Fine Aggregate		
	(a) Grading	To be evenly graded within the absolute limits and shall not deviate from the grading of sample aggregate as per Table C271.1.	C271.14
5.	Coarse Aggregate		
	(a) Percentage of wear	Loss of weight shall not exceed 30%	C271.15
	(b) Crushing Value	Crushing value shall not exceed 25%	C271.15
	(c) Soundness	The loss of mass when tested with sodium sulphate shall not exceed 12%	C271.15
	(d) Particle Shape	The proportion of mis-shapen particles (2:1 ratio) shall not exceed 35%	C271.15
	(e) Grading	To be evenly graded within the absolute limits and shall not deviate from the grading of sample aggregate as per Table C271.2.	C271.15

Item	Activity	Tolerances	Spec Clause
6.	Aggregate Moisture Content	Where moisture content of fine aggregate exceeds 8%, or moisture content of coarse aggregate exceeds 3%, the proportion of mix shall be changed.	C271.19
7.	Consistency	In accordance with AS 1012.3, Method 1 the slump shall not exceed the nominated slump ± 15 mm.	C271.21
		In the case of concrete placed by extrusion machine, the slump will be between 10mm and 15mm.	C271.21
8.	Ready-Mixed Concrete (a) Mixing & Delivery	The time taken from the introduction of water until the concrete is completely discharged shall be not more than 1.5 hours.	C271.22
		Where non-agitating equipment is used the concrete shall be completely discharged not more than 30 minutes after the addition of water.	
9.	Placing & Compacting of Concrete	Concrete shall not be placed without the approval of the Principal Certifying Authority if the air temperature within 24 hours is likely to be below 5°C or the shade temperature is likely to exceed 38°C.	C271.23
10.	Finishing of Unformed Concrete Surfaces (a) Wearing Surface	To be finished true and uniform so that departure from designed grade shall not exceed 5mm in any 3 metre length.	C271.24
	(b) Finished Level	The finished levels of concrete structures not adjacent to road pavements shall not vary more than 25mm from the specified levels.	C271.24
		In the case of drainage pits and other structures adjacent to road pavements the finished concrete level shall not vary more than 10mm from the specified level and alignment.	C271.24

Table C271.7 - Summary of Limits and Tolerances

**DEVELOPMENT
CONSTRUCTION
SPECIFICATION**

CQC

**QUALITY CONTROL
REQUIREMENTS**

**SPECIFICATION CQC
QUALITY CONTROL REQUIREMENTS**

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Amendment Record for this Specification Part

This Specification is Council’s edition of the AUS-SPEC generic specification part and includes Council’s primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is ‘A’ for additional script ‘M’ for modification to script and ‘O’ for omission of script. An additional code ‘P’ is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
1	<i>Reference to Deed of Agreement and Bank Guarantee removed</i>	<i>Annex A</i>	<i>M</i>	<i>MB</i>	<i>10/10/07</i>

**SPECIFICATION CQC
QUALITY CONTROL REQUIREMENTS**

GENERAL

CQC1 SCOPE

1. This Specification covers the requirements for the quality control testing by the Contractor; including the minimum test frequencies to be employed to demonstrate conformance to the requirements of the technical specifications.

Testing

CQC3 SAMPLING AND TESTING

1. Sampling shall be undertaken in a random and unbiased manner and as approved by the Principal Certifying Authority.

***Sampling
Locations***

2. Sampling and testing shall be carried out by a NATA registered laboratory accredited for those test methods and sampling procedures. Sampling shall be conducted by personnel from the NATA registered laboratory which has been accredited for that sampling procedure and shall be supervised by the approved signatory from that laboratory. Test results shall be reported on NATA endorsed test documentation which shall include a statement by the approved signatory certifying that the correct sampling procedures have been followed.

***Sampling and
Testing***

CQC5 RECORDS

1. Conformance records shall be stored and maintained such that they are readily retrievable and in facilities that provide a suitable environment to minimise deterioration or damage and to prevent loss.

Storage

2. The Contractor shall submit all conformance records to the Principal Certifying Authority for inspection and approval.

***Copies of
Records***

**ANNEXURE CQC-A
TESTING REPORTING AND HOLD POINTS**

Serial	Item/Activity	Hold Point	Inspections / test results to be submitted to the PCA prior to approval to proceed to next activity	Notice Required
Commencement of Works on Site				
1	Site establishment	Pre-Construction Meeting	PCA, Contractor, Developer's Project Manager to attend Pre-Construction meeting on site. The Contractor is to: a. nominate the site supervisor for the project, b. nominate sources and suppliers of all materials, and c. provide written evidence that the Contractor has current Public Liability Insurance and Workers Compensation Insurance with Council nominated as in interested party.	2 days
2	Commencement of earthworks	Soil & Water Management Measures installed Soil & Water Management Measures inspected and approved by the PCA	Field inspection by PCA. (Contractor and Developer's Project Manager to attend)	1 day
Earthworks				
3	Placing fill on roads and/or lots	Stripped areas inspected and approved by PCA	Field inspection by PCA and Geotechnical Engineer	1 day
Road Construction				
4	Subbase	Service Conduit Plan submitted to PCA Subgrade Approved by PCA	Subgrade CBR & Pavement Design Compaction Density Test results Proof Roll (Contractor's site supervisor shall be in attendance) Material grading results	3 days
5	Kerb & Gutter	Subbase Approved by PCA	Compaction Density Test results Proof Roll (Contractor's site supervisor shall be in attendance) Thickness check	2 days
6	Base	Kerb & Gutter Completed Subbase approved by PCA	Compaction Density Test results Proof Roll (Contractor's site supervisor shall be in attendance) Thickness check Material Grading results	2 days
7	Seal	Base Approved by PCA	Compaction Density Test results Proof Roll (Contractor's site supervisor shall be in attendance) Thickness check Benkelman Beam Testing	2 days

QUALITY CONTROL REQUIREMENTS

Subsoil Drainage				
8	Excavation for subsoil drainage lines	Subsoil drainage plan approved by PCA.		1 day
9	Backfill trench to subgrade level	Bedding and subsoil drainage pipe in trench inspected and approved by PCA	Field inspection Material quality results	1 day
Stormwater Pipelines				
10	Pipe laying	Bedding placed & compacted Manufacturer's certification for pre-cast products	Compaction Density test results for bedding Field inspection by PCA Submit manufacturer's certification for pre-cast products to PCA	1 day
11	Backfill haunch and side zone	Pipes inspected & approved by PCA	Field inspection of uncovered pipes in trench by PCA	1 day
12	Backfill to FSL or subgrade	Backfill to haunch zone approved by PCA	Field inspection by PCA Compaction Density test results for backfill	1 day
Drainage Structures				
13	Place concrete for pits, headwalls or culvert base slabs	Formwork & reinforcement approved by PCA Manufacturer's certification for pre-cast products	Field inspection of formwork & reinforcement by PCA. Submit manufacturer's certification for precast units to PCA	1 day
Overland Flowpaths				
14	Topsoil & turfing	Shape & grade approved by the PCA	Field inspection by PCA	1 day
Accessways				
15	Place subbase course	Subgrade approved by PCA	Proof roll Compaction Density Test results where required by the PCA	1 day
16	Place formwork	Subbase inspected and approved by the PCA	Field inspection by PCA	1 day
17	Place concrete	Formwork & reinforcement inspected and approved by PCA	Field inspection by PCA	1 day
Concrete Footpaths and Cycleways				
18	Placing formwork	Formation boxed out	Field inspection by PCA	1 day
19	Place concrete	Formwork & reinforcement inspected and approved by PCA	Field inspection by PCA	1 day

QUALITY CONTROL REQUIREMENTS

Practical Completion				
20	Practical Completion	Practical completion meeting and inspection	Field inspection by PCA. Contractor & Developer's Project Manager to attend. Work as Executed Plan to be provided.	5 days

**ANNEXURE CQC-B
MINIMUM TEST FREQUENCIES**

GENERAL

1. The minimum test frequencies are specified in the following tables:

Contents of Annexure CQC-B

Item	Sub-Annexure	Reference Specification	Sub-Annexure Heading
1	B1	C213	Earthworks
2	B2	C220 C221 C222 C223 C224	Stormwater Drainage - Pipe Culverts, Box Culverts, Open Drains, Kerb & Gutter, Drainage Structures
3	B3	C230 C231 C232 C233	Subsurface Drainage
5	B5	C242	Flexible Pavements
6	B6	C244	Sprayed Bituminous Surfacing
7	B7	C245	Asphaltic Concrete
9	B9	C247	Mass Concrete Subbase
10	B10	C248	Plain or Reinforced Concrete Base
12	B12	C254	Segmental Paving
13	B13	C271	Minor Concrete Works
14	B14	C261	Pavement Markings

**Sub-Annexure B1
EARTHWORKS (Specification C213)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Floor of Cuttings	Material Quality - CBR	Sufficient tests to assess the material variability with not less than 1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests) AND not less than 1 test in any section of pavement	AS1289.F1.1
	Compaction (Residential, Commercial, Industrial)	1 test per 50 lin m or 250 m ² (which ever yields the greater No of tests) with not less than 2 tests in any section of pavement	AS1289.5.4.1
	Compaction (Rural)	1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests with not less than 2 tests any section of pavement	AS1289.5.4.1
Foundation for Embankments and site filling	Compaction	1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests) per layer with not less than 1 test in any section of pavement	AS1289.5.4.1
Lot Filling	Material Quality Compaction / Moisture Content	Level 1 Geotechnical Control	As required by Geotechnical Engineer
Embankments - General -Select Material Zone (includes subgrade)	Material Quality	Level 1 Geotechnical Control	As required by Geotechnical Engineer
	Compaction/Moisture Content	Level 1 Geotechnical Control	As required by Geotechnical Engineer
	CBR	Sufficient tests to assess the material variability with not less than 1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests) AND not less than 1 test in any section of pavement	AS1289.F1.1
	Compaction/Moisture Content (Residential, Commercial, Industrial)	1 test per 50 lin m or 250 m ² (which ever yields the greater No of tests) per layer with not less than 2 tests per layer in any section of pavement	AS1289.5.1.1, AS1289.5.4.1 AS1289.5.7.1
	Compaction/Moisture Content (Rural)	1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests) per layer with not less than 2 tests per layer in any section of pavement	AS1289.5.1.1, AS1289.5.4.1 AS1289.5.7.1
Fill Adjacent to Structures: Bridges, Retaining Walls and Cast-in-Situ Culverts	Material Quality - Maximum Particle Size - Plasticity Index	1 per 400m ³ * 1 per 400m ³ *	AS1289.3.3.1
	Compaction/Moisture Content	1 per layer	AS1289.5.1.1, AS1289.5.4.1 AS1289.5.7.1

* Note: or part thereof.

Sub-Annexure B2
STORMWATER DRAINAGE - PIPE CULVERTS, BOX CULVERTS, OPEN DRAINS
INCLUDING KERB & GUTTER, DRAINAGE STRUCTURES
(Specifications C220, C221, C222, C223, C224)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Supply of Precast Units	Precast Quality	Manufacturer's documentary evidence and certification for each type/size/class per delivery	Manufacturer's Certification. Field Inspection at delivery
Foundations	Compaction Pipe lines	1 per 50 lin m with not less than one test per section of pipeline	AS1289.5.4.1
	Box & Pipe Culverts	1 per 50 m ² with not less than one test	
	Arches	1 per 50 m ² with not less than one test per abutment	
	Headwalls	1 per structure	
Bedding	Material Quality		
	- Particle Size Distribution -Compaction/Moisture Content	1 per 400m ³ * 1 per 50 lin m with not less than one test per section of pipeline	AS1141.11 AS1289.5.7.1, AS1289.5.4.1
Selected Backfill	Material Quality		
	- Maximum Particle Size	1 per 400m ³ *	AS1289.3.3.1 AS1289.5.7.1, AS1289.5.4.1
	- Plasticity Index	1 per 400m ³ *	
	-Compaction/Moisture Content Pipe lines	1 per 2 layers per 50 lin m with not less than one test per 2 layers per section of pipeline	
Box & Pipe Culverts	1 per 2 layers per 50 m ² with not less than one test		
Arches	1 per 2 layers per 50 m ² with not less than one test		
Rock Fill for Gabions/ Wire Mattresses	Material Quality:		
	- Particle Size Distribution	1 per project	AS1141.11
	- Wet Strength	1 per project	AS1141.22
	- Wet/Dry Strength Variation	1 per project	AS1141.22

* Note: or part thereof, per lot.

Sub-Annexure B3
SUBSURFACE DRAINAGE (Specifications C230, C231, C233)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Material Supply	Material Quality - Supplier's documentary evidence and certification of: Pipe Filter Material - Grading - Coefficient of Permeability (Type B) - Grading Variation after Treatment (Type B) Geotextile	1 per type/size/project 1 per 400m ³ 1 per 400m ³ 1 per 400m ³ 1 per type/project	AS1141.11 AS1289.E5.1 ASTM-D2434-68 AS1141.11
Bedding and Backfill of Drainage Blankets	Compaction of - filter material - selected backfill - earth backfill	Level 1 Geotechnical Control	As required by Geotechnical Engineer

* Note: or part thereof, per lot

Sub-Annexure B5
FLEXIBLE PAVEMENTS (Specification C242)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Base and Subbase Supply	Material Quality - Supplier's documentary evidence and certification		
	- Particle Size Distribution	1 per 1,000t	AS1289.3.6.1
	- Fine Particle Size Distribution Ratio	1 per 1,000t	AS1289.3.6.3
	- Liquid Limit	1 per 1,000t	AS1289.3.1.1
	- Plastic Limit	1 per 1,000t	AS1289.3.3.1
	- Plasticity Index	1 per 1,000t	AS1289.3.3.1
	- Maximum Dry Compressive Strength	1 per 5,000t	T114
	- Particle Shape	1 per 1,000t	AS1141.14
	- Aggregate Wet Strength	1 per 5,000t	AS1141.22
	- Wet/Dry Strength Variation	1 per 5,000t	AS1141.22
	- Modified Texas Triaxial Classification	1 per contract	T171
	- Unconfined Compressive Strength (Modified)	1 per 5,000t	T116
	- Unconfined Compressive Strength (Bound)	1 per mix design	T131
Placement	Geometry	1 Cross Section per 15m 10 per 100 lin m* per lane	Survey 3m Straight Edge
	Deflection Control - Benkelman Beam	maximum spacings of 10 metres (alternating wheel paths) in each lane, with not less than 4 measurements per any one length of road.	T160
	Compaction/Moisture Content (Residential, Commercial, Industrial)	1 test per 50 lin m or 250 m ² (which ever yields the greater No of tests) per layer with not less than 2 tests per layer in any section of pavement	AS1289.5.2.1, T130, AS1289.5.4.1 AS1289.5.8.1
	Compaction/Moisture Content (Rural)	1 test per 100 lin m or 500 m ² (which ever yields the greater No of tests) per layer with not less than 2 tests per layer in any section of pavement	AS1289.5.2.1, T130, AS1289.5.4.1 AS1289.5.8.1

* Note: or part thereof

Sub-Annexure B6
SPRAYED BITUMINOUS SURFACING (Specification C244)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Suppliers documentary evidence and certification of: - Class 170 Bitumen - Refinery Cutback Bitumen - Polymer Modified Binder - Bitumen Adhesion Agent - Cutback Oils - Aggregate Precoating Agent - Aggregate	1 per tanker load 1 per tanker load 1 per tanker load 1 per delivery 1 per delivery/tanker 1 per delivery/tanker 1 per 400m ³	AS2758.2
Application Rates	Binder Aggregate	Calculate per spray run Calculate per spray run	

† One per Contract or change in material

* Note: or part thereof

QUALITY CONTROL REQUIREMENTS

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
	<ul style="list-style-type: none"> · Softening Point (°C) · Viscosity at 135°C · Ductility 4°C after RTFO · Penetration at 25°C 	in supplier " "	AS2341.3 AS2341.10, AS2341.11 ASTM, D5
	<ul style="list-style-type: none"> - Bitumen Adhesion Agent <ul style="list-style-type: none"> · Resistance to Stripping - Scrap Rubber <ul style="list-style-type: none"> · Grading <ul style="list-style-type: none"> · Shape/Length · Foaming (%) · Moisture Content (%) · Iron Content (%) · Bulk Density (%) - Bitumen Emulsion 	1 per contract or change in material 1 per contract or change in supplier " " " " 1 per tanker load/bulk delivery	T230 T734 T731 T732 T733 AS1160
Mix Design	Approval of mix and NATA certification. Supplier's documentary evidence and certification	1 per mix	
Production Mix	Temperature Sampling Moisture Content Grading Binder Content Voids in Compacted Mix Maximum Theoretical Density	1 per truck load 1 per 50t 1 per 100t* 1 per 100t* 1 per 100t* 1 per 100t* 1 per 100t*	Measure AS2150 AS2891.3.1 AS2891.3.1 T601, AS1507, AS1507
Laying	Temperature Levels Surface Quality Relative Compaction/Layer Thickness	1 per truck load 1 cross section per 25m 10 per 200m* lane length 6 cores per lot 10 nuclear density tests per lot	Measure Survey 3m Straight Edge T601

* Note: or part thereof

**Sub-Annexure B9
MASS CONCRETE SUBBASE (Specification C247)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Concrete/Air Temperature	1 per 50m ³	Measure
	Air Content	1 per 50m ³	AS1012.4 Method 2
	Consistency - Slump	1 per load	AS1012.3 Method 1
	Compressive Strength (7 day)	1 pair per 50m ³	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	1 pair per 50m ³	AS1012.1 AS1012.8 AS1012.9
Placement	Thickness	5m grid on plan area	Survey and
	Geometry	1 cross section per 15m	Survey and 3m Straight Edge
Curing	Material Quality - Supplier's documentary evidence and certification	1 per production batch	AS3799 AS1160
	Application Rate	1 per 1000m ² *	
Joints	Geometry	All joints	Survey

* Note: or part thereof, per lot

**Sub-Annexure B10
PLAIN OR REINFORCED CONCRETE BASE (Specification C248)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Concrete/Air Temperature	1 per 50m ³	Measure
	Air Content	1 per 50m ³	AS1012.4 Method 2
	Consistency - Slump	1 per load	AS1012.3 Method 1
	Compressive Strength (7 day)	1 pair per 50m ³	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	1 pair per 50m ³	AS1012.1 AS1012.8 AS1012.9
Placement	Relative Compaction		
	- Machine Placed	1 per 50m ³ *	AS1012.14
	- Hand Placed	2 per 50m ³	AS1012.14
	Thickness	5m grid on plan area	Survey
	Geometry	1 cross section per 15m	Survey and 3m Straight Edge
Ride Quality	Profile Factor	All lanes	3m Straight Edge
Surface Texture	Texture Depth	2 per 50m ³	T240
Curing	Material Quality - Supplier's documentary evidence and certification	1 per production batch	AS3799 AS1160
	Application Rate	1 per 1000m ² *	
Joints	Sealant Material Quality Supplier's documentary evidence and certification	1 per prod'n batch	
	Geometry	All joints	Survey

* Note: or part thereof

Sub-Annexure B12
SEGMENTAL PAVING (Specification C254)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:		
	- Concrete Segmental Paving Units	1 per supplier/project	
	- Clay Segmental Paving Units	1 per supplier/project	
	- Bedding Sand · Grading	1 per supplier/project or change in material	AS1141.11
	- Joint Filling Sand · Grading	1 per supplier/project or change in material	AS1141.11
	- Joint Filler	1 per supplier/project	
Base	Geometry	One cross section per 25m	Survey
	Surface Quality	10 per 200m ² or lot	3m Straight Edge
Edge Restraints	Refer 'Minor Concrete Works'	1 per 10 lin m	Measure/Survey
Laying Paver Units	Joint Width	All joints	Measure
	Geometry	One cross section per 15m	Survey
	Surface Quality	10 per 200m ² or lot	3m Straight Edge

* Note: or part thereof, per lot

**Sub-Annexure B13
MINOR CONCRETE WORKS (Specification C271)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MINIMUM TEST FREQUENCY	TEST METHOD
Subgrade	Compaction	1 per 50 lin m and not less than one test per section	AS1289.5.4.1
Gravel Subbase Construction	Compaction	1 per 50 lin m and not less than one test per section	AS1289.5.4.1
	Subbase Geometry	1 per 25 lin m	3m Straight Edge
Steel Supply	Material Quality - Suppliers documentary evidence and certification	1 per production batch	
Ready-Mixed Concrete Supply	Material Quality - Suppliers documentary evidence and certification	1 per mix type	
	Consistency - Slump	1 per load	AS1012.3 Method 1
	Compressive Strength (7 and 28 day)	2 pairs per 15m ³	AS1012.1, AS1012.8, AS1012.9
Concrete Placement	Finished Levels	1 cross section per 15m	Survey and 3m Straight Edge
Backfilling	Material Quality		
	- Maximum particle size	1 per 200m ³	T106
	- Plasticity Index	1 per 200m ³	AS1289.3.3.1
	Compaction	1 per 200m ²	AS1289.5.4.1
Sprayed Concrete	Compressive Strength Cores	2 per 15m ³	AS1012.4, AS1012.9, AS1012.14
	Curing Material Quality - Supplier's documentary evidence and certification	1 per production batch	

* Note: or part thereof

Reference Documents

D1.03 REFERENCE AND SOURCE DOCUMENTS

The following reference document list is not exhaustive and it is the responsibility of the designer to maintain awareness of amendments and changes to Australian Standards and other relevant documents.

(a) Council Specifications

All Specifications for Design and Construction, relevant Development Control Plans (DCP), including but not limited to DCP 49 and 6, and Local Area Traffic Management Plans (LATM).

(b) Australian Standards

AS 2890.1 Parking facilities: Off-street car parking.

(c) State Authorities

Roads and Traffic Authority NSW - Road Design Guide.
Department of Housing - Road Manual, 1987.

(d) Other

<u>AUSTROADS</u>	<u>Guide to the Geometric Design of Rural Roads.</u>
	<u>Guide Policy for the Geometric Design of Major Urban Roads.</u>
	<u>Guide to Traffic Engineering Practice:</u>
	<u>PART 5, Intersections at Grade</u>
	<u>PART 6, Roundabouts</u>
	<u>PART 10, Local Area Traffic Management</u>
	<u>PART 13, Pedestrians</u>
	<u>PART 14, Bicycles</u>

D2.03 REFERENCE AND SOURCE DOCUMENTS

(b) State Authorities

Roads and Traffic Authority, NSW - Sprayed Sealing Guide, 1992.

(c) Other

AUSTROADS - Pavement Design, A Guide to the Structural Design of Road Pavements, 1992.

AUSTROADS - Guide to Control of Moisture in Roads.

APRG No 21 - A Guide to the Design of New Pavements for Light Traffic (A supplement to AUSTRROADS Pavement Design, Jan 1998.

CACA - T33 - Cement and Concrete Association, T33 - Concrete Street and Parking Area Pavement Design, 1984.

CACA - T35 - Cement and Concrete Association, T35 - Interlocking Concrete Road Pavements, A Guide to Design and Construction, 1986.

CACA - TN52 - Cement and Concrete Association, TN52 - Single-Lane Concrete Bus Bays, 1984.

D3.04 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

D1 - Geometric Road Design

D2 - Stormwater Drainage Design

(b) Australian Standards

AS1170 - Minimum design loads on structures (SAA Loading Code)

AS1684 - National Timber Framing Code

AS3600 - Concrete structures

AS3700 - Masonry in buildings (SAA Masonry Code)

AS4100 - Steel structures

Other relevant codes and guidelines with the above.

(c) Other

AUSTRROADS - Bridge Design Code

I. E. Aust. - Australian Rainfall and Runoff

KD Nelson - Design and Construction of Small Earth Dams

D4.04 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specification

C230 - Subsurface Drainage - General
C231 - Subsoil and Foundation Drains
C232 - Pavement Drains
C233 - Drainage Mats

(b) Australian Standards

AS2439.1 - Perforated drainage pipe and associated fittings

(c) RTA Specifications

MR Form 1160 - Supply and Delivery of Seamless Tubular Filter Fabric.
3555 - Slotted Fibre Reinforced Concrete Pipe for Subsurface Drainage

(d) Other

AUSTROADS - Guide to the Control of Moisture in Roads, 1983
ARRB-SR35 - Australian Road Research Board, Special Report No. 35 - Subsurface Drainage of Road Structures, Gerke R.J., 1987.
APRG-No 21 - AUSTRROADS Pavement Research Group, Report No. 21 - A Guide to the Design of New Pavements for Light Traffic. A Supplement to AUSTRROADS Pavement Design. AUSTRROADS 1998.

D6.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

Construction Specifications

C212 - Clearing and Grubbing

C213 - Earthworks

Design Specifications

D1 - Geometric Road Design

D5 - Stormwater Drain Design Code

(b) Australian Standards

AS 3798 - Guidelines on earthworks for commercial and residential developments

AS 2870.1 - Residential slabs and footings - Construction.

(c) Other Publications

Managing Urban Stormwater, Soils and Construction – Vol 1 - 4th Edition

D9.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

D1 - Geometric Road Design

(b) Australian Standards

AS 1742 - Manual of uniform traffic control devices.

AS 2890.3 - Bicycle parking facilities

(c) Other

AUSTROADS - Guide to Traffic Engineering Practice - PART 13 Pedestrians, PART 14 Bicycles.

C213.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C201 - Control of Traffic

C211 - Control of Erosion and Sedimentation

C212 - Clearing and Grubbing

C220 - Stormwater Drainage - General

C273 - Landscaping

(b) Australian Standards

AS 1289.F1.1 - Determination of the California Bearing Ratio of a soil - Standard laboratory method for a remoulded specimen.

AS 1289.3.3.1 - Calculation of the plasticity index of a soil.

AS 1289.5.1.1 - Determination of the dry density/moisture content relation of a soil using standard compactive effort.

AS 1289.5.4.1 - Compaction control test - Dry density ratio, moisture variation and moisture ratio.

AS 1289.5.7.1 - Compaction Control Test (Rapid Method).

AS 3798-1990 Earthworks for Residential and Commercial Developments

(c) Other

EPA - Environmental Noise Control Manual.

C220.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Other Council Specifications

C211 - Control of Erosion and Sedimentation

C213 - Earthworks

C271 - Minor Concrete Works

(b) Australian Standards

AS 1289.5.4.1 - Compaction control test - Dry density ratio, moisture variation and moisture ratio

AS 1289.5.7.1 - Compaction control test (Rapid Method)

AS 3725 Loads on Buried Concrete Pipes

(c) Other Publications

Concrete Pipe Selection and Installation, Concrete Pipe Association of Australia

C221.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C213 - Earthworks

C220 - Stormwater Drainage - General

C230 - Subsurface Drainage - General

C271 - Minor Concrete Works

(b) Australian Standards

AS 1141.11 - Particle size distribution by dry sieving.

AS 1254 - Unplasticised PVC (UPVC) pipes and fittings for storm or surface water applications.

AS 1289.3.3.1 - Calculation of the plasticity index of a soil.

AS 1289.D3.1 - Determination of the pH value of a soil - Standard method.

AS 1289.D4.1 - Determination of the electrical resistivity of sands and granular materials.

AS 1289.E6.1 - Compaction control test - Density index method for a cohesionless material.

AS 1397 - Steel sheet and strip - Hot-dipped zinc coated or aluminium/zinc coated.

AS 1650 - Hot-dipped galvanised coatings on ferrous articles.

AS 2032 - Code of practice for installation of UPVC pipe systems.

AS 2105 - Inorganic zinc silicate paint.

AS 3725 - Loads on buried concrete pipes.

AS 4058 - Precast concrete pipes

AS 4139 - Fibre reinforced concrete pipes and fittings.

C222.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

- C213 - Earthworks
- C220 - Stormwater Drainage - General
- C224 - Open Drains, including Kerb and Gutter
- C242 - Flexible Pavements
- C271 - Minor Concrete Works

(b) Australian Standards

- AS1597.1 - Precast reinforced concrete box culverts - Small culverts
- AS1597.2 - Precast reinforced concrete box culverts - Large culverts
- AS/NZS ISO 9002 Quality Systems - Model for Quality Assurance in Production, Installation and Servicing.

(c) Other

- AUSTROADS - Guide to Geotextiles

C223.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

- C213 - Earthworks
- C220 - Stormwater Drainage - General
- C221 - Pipe Drainage
- C222 - Precast Box Culverts
- C224 -- Open Drains, including Kerb and Gutter
- C271 Minor Concrete Works

(b) Australian Standards

AS 3996 - Metal access covers, road grates and frames

C224.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C220 - Stormwater Drainage - General

C221 - Pipe Drainage

C222 - Precast Box Culverts

C271 - Minor Concrete Works

(b) Australian Standards

AS 1141.22 - Wet/dry strength variation

AS 1289.5.4.1 - Compaction control test - Dry density ratio, moisture variation and moisture ratio

AS 1289.5.7.1 - Compaction control test (rapid method)

AS 1650 - Hot-dipped galvanised coatings on ferrous articles

AS 2876 - Concrete kerbs and channels (gutters) - Manually or machine placed

(c) Other

AUSTROADS - Guide to Geotextiles

Soil & Water Management Plan

C230.04 REFERENCE DOCUMENTS

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1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C213	-	Earthworks
C271	-	Minor Concrete Works

(b) Australian Standards

AS 1141.11	-	Particle size distribution by dry sieving.
AS 1141.22	-	Wet/dry strength variation.
AS 1289.E5.1	-	Determination of minimum and maximum dry density of a cohesionless material.
AS 1477	-	Unplasticised PVC (UPVC) pipes and fittings for pressure applications
AS 2439.1	-	Perforated drainage pipe and associated fittings
AS 2758.1	-	Aggregates and rock for engineering purposes - Concrete aggregates
ASTM-D2434-68		Test method for permeability of granular soils (constant head)

b) Other

Soil & Water Management Plan

C231.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C213	-	Earthworks
C230	-	Subsurface Drainage - General

(b) Australian Standards

AS 1289.5.4.1	-	Compaction control test - Dry density ratio, moisture variation and moisture ratio
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C233.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C230	-	Subsurface Drainage - General
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(b) Australian Standards

AS 1289.5.4.1	-	Compaction control test - Dry density ratio, moisture variation and moisture ratio..
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C242.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C244	-	Sprayed Bituminous Surfacing
C245	-	Asphalt Surfacing
Wollongong City Council Specification for Asphaltic Concrete.		

(b) Australian Standards

AS 1141.14	-	Particle shape, by proportional calliper.
AS 1141.22	-	Wet/dry strength variation.
AS 1289.3.1.1	-	Determination of the liquid limit of a soil - Four point Casagrande method.
AS 1289.3.3.1	-	Calculation of the plasticity index of a soil.
AS 1289.3.6.1	-	Determination of the particle size distribution of a soil - Standard method of analysis by sieving.
AS 1289.3.6.3	-	Determination of the particle size distribution of a soil - Standard method of fine analysis using a hydrometer.
AS 1289.5.2.1	-	Determination of the dry density/moisture content relation of a soil using modified compactive effort.
AS 1289.5.3.1	-	Determination of the field density of a soil - Sand replacement method using a sand-cone pouring apparatus.
AS 1289.5.4.1	-	Compaction control test - Dry density ratio, moisture variation and moisture ratio.
AS 1289.5.8.1	-	Determination of field density and field moisture content of a soil using a nuclear surface moisture - density gauge - Direct transmission mode.
AS 1289.F1.1	-	Determination of the California bearing ratio of a soil - Standard laboratory method for a remoulded specimen.

(c) RTA Test Methods

T114	-	Maximum Dry Compressive Strength of Road Materials
T116	-	Unconfined Compressive Strength - Remoulded Material
T130	-	Dry Density Moisture Relations for Mixtures of Road Materials and Cement.
T131	-	Unconfined Compressive Strength
T160	-	Benkelman Beam Deflection Test
T171	-	Modified Texas Triaxial Compression Test

(d) AUSTRROADS

APRG Special Report No 21 - A Guide to the design of new pavements for light traffic - 1998
A Guide to The Structural Design of Road Pavements - 1992

C244.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C201	-	Control of Traffic
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(b) Australian Standards

AS 2008	-	Residual bitumen for pavements.
AS 2157	-	Cutback bitumen.
AS 2341.9	-	Determination of water content.
AS 2758.2	-	Aggregate for sprayed bituminous surfacing.
AS 3568	-	Oils for Reducing the Viscosity of Bitumen for Pavements.

(c) RTA Specifications and Forms

<u>MR466</u>	-	<u>Sprayed Bituminous Surfacing Cutback Chart</u>
<u>3253</u>	-	<u>Bitumen for Pavements</u>
<u>3258</u>	-	<u>Aggregate Precoating Agents</u>
<u>3259</u>	-	<u>Bitumen Adhesion Agents</u>
<u>3261</u>	-	<u>Cutback Bitumen</u>
<u>RTA Form 23</u>	-	<u>Bituminous Surfacing Daily Record</u>

(d) Government Legislation

Bush Fires Act, 1949
Local Government Act, 1993

(e) Other

AUSTROADS - Design of Sprayed Seals (1987).

C245.02 REFERENCE DOCUMENTS

1. Australian Standards and Roads and Traffic Authority Test Methods are referred to in abbreviated form; for example, AS1234 or T123. For convenience, the full titles are given below.

a. Australian Standards

<u>AS1141</u>	<u>Sampling and Testing Aggregates</u>
<u>AS1160</u>	<u>Bituminous Emulsions for construction and maintenance of pavements</u>
<u>AS2008</u>	<u>Residual Bitumen for Pavements</u>
<u>AS2150</u>	<u>Asphalt (Hot Mixed)</u>
<u>AS2357</u>	<u>Mineral Fillers for Asphalt</u>
<u>AS2758.5</u>	<u>Aggregates and Rock for Engineering Purposes – Asphalt Aggregates</u>
<u>AS2734</u>	<u>Asphalt (Hot-Mixed) Paving - Guide to Good Practice</u>
<u>AS2891</u>	<u>Sampling and Testing of Asphalt</u>
<u>AS1742.3</u>	<u>Traffic control devices for works on roads</u>

b. Council Specifications

C201 - Control of Traffic

c. Roads and Traffic Authority

RTA Traffic Control at Worksites Manual

C247.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

<u>C248</u>	-	<u>Plain or Reinforced Concrete Base</u>
<u>C271</u>	-	<u>Minor Concrete Works</u>

(b) Australian Standards

AS 1012.1	-	<u>Sampling of fresh concrete.</u>
AS 1012.3	-	<u>Determination of properties related to the consistence of concrete.</u>
AS 1012.4	-	<u>Determination of air content of freshly mixed concrete.</u>
AS 1012.8	-	<u>Making and curing concrete compression, indirect tensile and flexure test specimens, in the laboratory or in the field.</u>
AS 1012.9	-	<u>Determination of the compressive strength of concrete specimens.</u>
AS 1012.14	-	<u>Securing and testing cores from hardened concrete for compressive strength.</u>
AS 1141.11	-	<u>Particle size distribution by sieving.</u>
AS 1141.14	-	<u>Particle shape, by proportional calliper.</u>
AS 1141.22	-	<u>Wet/dry strength variation.</u>
AS 1160	-	<u>Bitumen emulsion for construction and maintenance of pavements.</u>
AS 1379	-	<u>The specification and manufacture of concrete.</u>
AS 1478	-	<u>Chemical admixtures in concrete.</u>
AS 2758.1	-	<u>Concrete aggregates.</u>
AS 3582.1	-	<u>Supplementary cementitious materials for use with portland cement - Flyash.</u>
AS 3799	-	<u>Liquid membrane - forming curing compounds for concrete.</u>
AS 3972	-	<u>Portland and blended cements.</u>

(c) RTA Test Methods

T 321	-	<u>Dry Shrinkage of 100 x 100 x 280mm Concrete Prisms.</u>
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C248.03 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C224	-	<u>Open Drains including Kerb and Gutter</u>
C231	-	<u>Subsoil and Foundation Drains</u>
C247	-	<u>Mass Concrete Subbase</u>

(b) Australian Standards

AS 1012.1	-	<u>Sampling fresh concrete.</u>
AS 1012.3	-	<u>Determination of properties related to the consistence of concrete.</u>
AS 1012.4	-	<u>Determination of air content of freshly mixed concrete.</u>
AS 1012.8	-	<u>Making and curing concrete compression, indirect tensile and flexure test specimens in the laboratory or in the field.</u>
AS 1012.9	-	<u>Determination of the compressive strength of concrete specimens.</u>
AS 1012.12	-	<u>Determination of mass per unit volume of hardened concrete.</u>
AS 1012.13	-	<u>Determination of the drying shrinkage of concrete for samples prepared in the field or in the laboratory.</u>
AS 1012.14	-	<u>Securing and testing cores from hardened concrete for compressive strength or indirect tensile strength.</u>
AS 1141.11	-	<u>Particle size distribution by dry sieving.</u>
AS 1141.14	-	<u>Particle shape by proportional calliper.</u>
AS 1141.18	-	<u>Crushed particles of coarse aggregates.</u>
AS 1141.22	-	<u>Wet/dry strength variation.</u>
AS 1141.24	-	<u>Soundness (by use of sodium sulphate solution).</u>
AS 1160	-	<u>Bitumen emulsions for construction and maintenance of pavements.</u>
AS 1302	-	<u>Steel reinforcing bars for concrete.</u>
AS 1303	-	<u>Steel reinforcing wire for concrete.</u>
AS 1304	-	<u>Welded wire reinforcing fabric for concrete.</u>
AS 1379	-	<u>The specification and manufacture of concrete.</u>
AS 1478	-	<u>Chemical admixtures in concrete.</u>
AS 1554.3	-	<u>Welding of reinforcing steel.</u>
AS 2758.1	-	<u>Concrete aggregates.</u>
AS 3582.1	-	<u>Supplementary Cementitious materials - flyash.</u>
AS 3799	-	<u>Liquid membrane - forming curing compounds for concrete.</u>

AS 3972 - Portland and blended cement.

(c) RTA Test Methods

T 1160 - Low Temperature Recovery of Preformed Polychloroprene Elastomeric Joint Seals for Bridge Structures.

T 1161 - High Temperature Recovery of Polychloroprene Elastomeric Joint Seals for Bridge Structures.

T 1163 - Resistance of Vulcanised Rubber to the Absorption of Oil.

T1192 - Adhesion of Sealant.

T1193 - Accelerated Ageing of Cured Sealant.

(d) ASTM Standards

D792 - Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement.

C793 - Test Method for Effects of Accelerated Weathering on Elastomeric Joint Sealants.

C794 - Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.

D2240 - Test Method for Rubber Property Durometer Hardness.

D2628 - Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete.

D2835 - Specification for Lubricant for Installation of Preformed Compression Seal in Concrete Pavements.

(e) US Military Specifications

MIL-S-8802 - Sealing Compound, Temperature Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High Adhesion.

C254.04 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C213 - Earthworks

C224 - Open Drains including Kerb and Gutter

C241 - Stabilisation

C242 - Flexible Pavements

C247 - Mass Concrete Subbase

C271 - Minor Concrete Works

(b) Australian Standards

AS 1141.11 - Particle size distribution by dry sieving.

AS/NZS 4455 - Masonry units and segmental pavers..

(c) Concrete Masonry Association of Australia Specifications

MA20 - Specification for Concrete Segmental Paving Units.

(d) Clay Brick and Paver Institute Specifications

Paver Note 1 - Specifying and Laying Clay Pavers

C271.02 REFERENCE DOCUMENTS

Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.:

(a) Australian Standards

AS 1012.1	-	Sampling fresh concrete
AS 1012.3	-	Determination of properties related to the consistency of concrete
AS 1012.8	-	Making and curing concrete compression, indirect tensile and flexure test specimens in the laboratory or in the field.
AS 1012.9	-	Determination of the compressive strength of concrete specimens.
AS 1012.14	-	Securing and testing cores from hardened concrete for compressive strength.
AS 1141.14	-	Particle shape by proportional calliper.
AS 1141.21	-	Aggregate crushing value.
AS 1141.23	-	Los Angeles value.
AS 1141.24	-	Soundness (by use of sodium sulphate solution).
AS 1289.3.3.1	-	Calculation of the plasticity index of a soil.
AS 1289.5.1.1	-	Determination of the dry density/moisture content relation of a soil using standard compactive effort.
AS 1289.5.2.1	-	Determination of the dry density/moisture content relation of a soil using modified compactive effort.
AS 1289.5.4.1	-	Compaction control test - Dry density ratio, moisture variation and moisture ratio.
AS 1302	-	Steel reinforcing bars for concrete.
AS 1303	-	Steel reinforcing wire for concrete.
AS 1304	-	Welded wire reinforcing fabric for concrete.
AS 1379	-	The specification and manufacture of concrete.
AS 1478	-	Chemical admixtures for concrete.
AS/NZS 1859	-	Reconstituted wood-based panels.
AS 2082	-	Visually stress-graded hardwood for structural purposes.
AS 2271	-	Plywood and blockboard for exterior use.
AS 2758.1	-	Concrete aggregates
AS 3600	-	Concrete structures
AS 3610	-	Formwork for concrete.
AS 3799	-	Liquid membrane-forming curing compounds for concrete.
AS 3972	-	Portland and blended cements.

C263.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C201	-	Control of Traffic
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(b) Australian Standards

AS 1143	-	High temperature creosote for the preservation of timber.
AS 1580	-	Paints and related materials - Methods of test.
AS 1580.101.1	-	Air drying conditions.
AS 1580.481.1.11	-	Exposed to weathering - Degree of chalking.
AS 1580.481.1.12	-	Exposed to weathering - Degree of colour change.
AS 1580.483.1	-	Resistance to artificial weathering (carbon-arc type instruments)
AS 1580.602.2	-	Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85°.
AS 1906.2	-	Retroreflective devices (non-pavement application).
AS 2082	-	Visually stress-graded hardwood for structural purposes.

C261.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated..

(a) Council Specifications

C201 - Control of Traffic

(b) Australian Standards

AS 1742.2 - Traffic control devices for general use.

AS 1906.3 - Raised pavement markers (retroreflective and non-retroreflective).

AS 2009 - Glass beads for road-marking materials.

AS 4049.1 - Solvent-borne paint - For use with drop-on beads.

AS 4049.2 - Thermoplastic road marking materials.

AS 4049.3 - Waterborne paint - For use with drop-on beads.

SUMMARY SHEET

Responsible Division	Development Assessment and Certification
Date adopted by Council	[To be inserted by Corporate Governance]
Date of previous adoptions	24 February 2003
Date of next review	"[Date - Not to be more than 4 years from adoption]"
Prepared by	Manager Development Assessment and Certification
Authorised by	Manager Development Assessment and Certification

DRAFT

BACKGROUND

Council, under the *Roads Act* 1993, is the roads authority for all public roads within its area, other than any freeway or Crown road or any public road for which another public authority is declared by the regulation to be the road authority. As such, Council may name or rename all public roads for which it is the roads authority, subject to the Geographical Names Board being given at least one month's notice of the proposed name.

In exercising its power to name roads, Council is also required to follow procedures set out in the *Roads (General) Regulations* ~~2000~~

~~2008~~.

OBJECTIVE

The main objectives of this policy are to –

- 1 Provide guidelines and procedures for the naming and renaming of roads.
- 2 Ensure that the proposed road names and road suffixes are appropriate.
- 3 Ensure that the origin of the road names be recorded.

POLICY STATEMENT

This policy formalises Council's requirements with regards to the procedures to be undertaken and the guidelines to be used when existing public roads for which Council is the roads authority are proposed to be renamed or proposed roads to be dedicated to Council are named.

Legislation and guidelines used to determine this policy are as follows:

- *Roads Act* 1993
- ~~The Roads (General) Regulations~~ 2008
- [New South Wales Road Naming Policy- Geographical Names Board of New South Wales, 24 October 2013](#)
- [New South Wales Road Naming Procedure and Process - Geographical Names Board of New South Wales, 24 October 2013](#)
- ~~*Guidelines for the Naming of Roads* – Geographical Names Board of New South Wales, 11 July 2004~~
- [Australian Standards AS1742.5-1997 and AS4590-~~1999~~ 2006](#)
- [New South Wales Address Policy \(October 2014\)](#)
- [New South Wales Addressing User Manual \(October 2014\)](#)

As part of the procedure, once a road has been formally named, it will be entered into Council's Land Information System database to provide a permanent record of the background/origin for the reasons for naming that road.

POLICY REVIEW

This Policy forms part of Council's three-year rolling review of policies schedule and will be reviewed within three years from the date of each adoption of the policy, or more frequently as required.

STATEMENT OF PROCEDURES

When Council is in receipt of a request to name a proposed road or rename an existing road the following procedure must be followed:

- i The proposed name shall be considered having regard to the Road Naming Guidelines as contained in the next section of this Policy.
- ii A written application must be submitted to Council that clearly sets out the reasons, origin and history of the proposed road name and must include a plan or map clearly showing the extent of the proposal. The proposed name must include an appropriate road suffix.
- iii Council Officers will check that the proposed road name is suitable and complies with this Policy. If the proposed name does not comply with this policy the written application will be rejected.
- iv In the event of rejection the applicant will be notified and provided with reasons for the rejection. In the event of support, action will proceed to step v.
- v Council will arrange exhibition of the proposal. Exhibition will involve the notification of the proposal, which will include:
 - Publishing a notice in a Local Newspaper
 - Serving notice on:
 - ~~The Lord Mayor and Wollongong City Councillors~~
 - ~~Australia Post~~
 - ~~The Registrar-General~~
 - ~~The Surveyor-General~~
 - ~~The RTA (in the case of a classified road)~~
 - ~~The owners and occupants of any property which fronts the road that is proposed to be named or renamed~~
 - ~~Emergency Services Providers (Ambulance, Fire, Police) when the proposal is to rename an existing road~~
 - Australia Post
 - The Registrar-General
 - The Surveyor-General
 - The Chief Executive of the Ambulance Service of NSW
 - New South Wales Fire Brigades
 - The NSW Rural Fire Service
 - The NSW Police Force
 - The State Emergency Service
 - The New South Wales Volunteer Rescue Association Incorporated
 - In the case of a classified road – the RMS

The notification will invite written submissions to be made to Council and must specify the address to which, and the closing date by which, any submission shall be made. The notification period must be at least one month.

It will be deemed that Council has advised the Registrar-General and the Surveyor-General if written notification of the proposal be received by the Manager Cadastral Data Information Sourcing of Land and Property Information.

- vi Council may not proceed with a proposal to name or rename a road against an objection made by Australia Post, the Registrar-General, the Surveyor-General or the ~~RTA- RMS~~ (in the case of a classified road), except with the approval of the Minister.
- vii If Council is unable to comply with step i and step v, the statutory notification shall be given to the Geographical Names Board.

The Geographical Names Board's will also act if it receives submissions or complaints from any source on particular road naming proposals.

- viii At the close of the exhibition period:
- Any objections will be ~~reported to~~ considered by Council. The naming proposal will then be determined ~~upon resolution by Council~~ to either proceed with the name proposal in accordance with step (ix) or reject the proposal and notify the proponent in accordance with step (iv).
 - If Council does not receive any objections, then road naming proposal is deemed to be an acceptable road name to adopt under this policy in accordance with step (ix).
- ix Should Council decide to proceed with the proposed road name then ~~upon resolution to adopt the name~~, Council must:
- Publish notice of the new name in:
 - The Government Gazette
 - A Local Newspaper - giving (in the case of a road that is being named for the first time) a brief description of the location of the road.
 - Inform:
 - ~~Australia Post~~
 - ~~The Registrar-General~~
 - ~~The Surveyor-General~~
 - ~~The RTA (in the case of a classified road)~~
 - ~~The owners and occupants of any property which fronts the road that has been named or renamed~~
 - ~~Emergency Services Providers (Ambulance, Fire, Police)~~
 - Australia Post
 - The Register-General
 - The Surveyor-General
 - The Chief Executive of the Ambulance Service of NSW
 - New South Wales Fire Brigades
 - The NSW Rural Fire Service
 - The NSW Police Force
 - The State Emergency Service
 - The New South Wales Volunteer Rescue Association Incorporated
 - In the case of a classified road – the RMS
- x All appropriate details supporting the reasons for naming of that road will be compiled by the Council division responsible, and entered into Council's Information Management System. Once a road has been formally named, it will be entered into Council's Land Information System database, and linked with the information supporting adoption of road name.

ROAD NAMING GUIDELINES

In the naming and re-naming of roads the ~~following guidelines (which basically follow the provisions of the [Guidelines for the Naming of Roads](#) – Geographical Names Board of New South Wales, 11 July 2001 [New South Wales Road Naming Policy - Geographical Names Board of New South Wales, 24 October 2013](#)) and the [New South Wales Address Policy \(October 2014\)](#)~~ should must be observed.

~~1~~ **UNIQUENESS**

- ~~1.1~~ Name duplication within a local government area should be avoided. If possible duplication of names in proximity to adjacent local government areas should also be avoided.
- ~~1.2~~ However, roads crossing council boundaries should have a single and unique name.

~~2~~ **SOURCES**

- ~~2.1~~ Preferred sources for road names include:
 - ~~Aboriginal names~~

- Early explorers, pioneers, settlers and other eminent persons
- Local history
- Mining, industry or other historical usage
- Thematic names such as flora, fauna or ships
- War/casualty lists.

- 2.2 Names should be appropriate to the physical, historical or cultural character of the area concerned.
- 2.3 The origin of each name should be clearly stated and subsequently recorded.
- 2.4 The Illawarra Aboriginal Land Council and relevant key Aboriginal groups in the community (lists are available from Council's Aboriginal Liaison Officer or Heritage Officer) should be consulted when choosing Aboriginal names unless Council already has an agreed list of appropriate names.

3 PROPRIETY

- 3.1 Names of living persons should not be used.
- 3.2 Names, which are characterised as follows, are to be avoided.
- Offensive or likely to give offence
 - Incongruous — out of place
 - Commercial or company.

4 COMMUNICATION

- 4.1 Names should be reasonably easy to read, spell and pronounce in order to assist service providers, emergency services and the travelling public.
- 4.2 Unduly long names and names composed of two or more words should be avoided.
- A given name should only be included with a family name where it is essential to identify an individual or where it is necessary to avoid ambiguity. The use of given names should generally be avoided.
 - Whilst street and cul-de-sac names should have only one word it is recognised that some roads require a two word name because of their geographic relationship, eg New England Highway.
 - Roads with double destination names should be progressively renamed.

5 SPELLING

- 5.1 Where it is intended that a road have the same name as a place or feature with an approved geographical name, then particular care should be taken to ensure that the correct spelling is adopted. Place names shown on Central Mapping Authority topographic maps are approved names unless specifically excepted in the map legend or in exceptional circumstances where the name has been changed subsequent to the publication of the map.
- 5.2 Where names have been changed or corrupted by long established local usage, it is not usually advisable to attempt to restore the original form; that spelling which is sanctioned by general usage should be adopted.
- 5.3 Generally road names proposed or approved should not contain abbreviations: eg. the "Creek" in "Wallaby Creek Road" must not be abbreviated.
- There is, however, one exception:
- "ST" should always be used in place of "Saint"

6 FORM

- 6.1 The apostrophe mark (') must be omitted in the possessive case, eg "Smith's Road" should be "Smiths Road".
- 6.2 It is further preferable to delete a possessive "s" unless the euphony becomes harsh, eg "Smith Road".
- 6.3 The use of hyphens should be avoided.

7 HOUSE NUMBERING

- 7.1 ~~The sequence of existing and/or proposed house numbering will be considered in determining any proposed road naming or renaming. The need to re-allocate existing house numbers as a result of a road naming or re-naming should be avoided unless such naming/renaming is undertaken to resolve an existing or potential confusing situation.~~

ROAD TYPE

~~Proposals for road names should include an appropriate road type suffix.~~

- ~~• Assistance to both the motoring and pedestrian public should be a prime consideration in making this choice.~~
- ~~• When a type suffix with a geometric or geographic connotation is chosen ensure that it generally reflects the form of the road; for example:
Crescent – a crescent or half-moon, rejoining the road from which it starts;
Esplanade – open, level and often along the seaside or a river.~~
- ~~• For a cul-de-sac use Place, Close, Court or a type suffix of similar connotation.~~
- ~~• Road types specifically associated with the NSW main road network are recognised but have not been listed.~~

ROAD SUFFIXES AND ABBREVIATIONS

~~Appendix 1 contains a list of suitable road type suffixes and abbreviations which are included for convenience. The list has been sourced from Australian Standards AS 1742.5 – 1997 and AS 4212 – 1994.~~

NO PREFIX OR ADDITIONAL SUFFIX

~~The use of a compass point prefix or an additional suffix such as “north” or “extension” should be avoided.~~

APPENDIX 1 – ROAD SUFFIXES AND ABBREVIATIONS

SUFFIX	ABBREVIATION	SUFFIX	ABBREVIATION
Access	ACCS	Circus	CRCS
Alley	ALLY	Close	CL
Alleyway	ALWY	Colonnade	CLDE
Amble	AMBL	Common	CMMN
Anchorage	ANCG	Concourse	CON
Approach	APP	Copse	CPS
Arcade	ARC	Corner	CNR
Artery	ART	Gerse	GSO
Avenue	AV	Court	CT
		Courtyard	CTYD
Basin	BASN	Cove	COVE
Beach	BCH	Crescent	CR
Bend	BEND	Crest	CRST
Block	BLK	Cross	CRSS
Boulevard	BVD	Crossing	GRSG
Brace	BR	Crossroad	CRD
Brae	BRAE	Crossway	COWY
Break	BRK	Cruiseway	CUWY
Bridge (see Note *)	BDGE	Cul-de-sac	CDS
Broadway	BDWY	Cutting	CTTG
Brew	BROW		
Bypass	BYPA	Dale	DALE
Byway	BYWY	Dell	DELL
		Deviation	DEVN
Causeway	CAUS	Dip	DIP
Centre	CTR	Distributor	DSTR
Centreway	CNWY	Drive	DR
Chase	CH	Driveway	DRWY
Circle	CIR		
Circlet	CLT	Edge	EDGE
Circuit	CCT	Elbow	ELB
End	END	Interchange	INTG
Entrance	ENT	Intersection	INTN
Esplanade	ESP		
Expressway	EXP	Junction	JNG
Extension	EXTN		
		Key	KEY
Fairway	FAWY		
Firetrack	FTRK	Lane	L
Firetrail	FITR	Laneway	LNWY
Flat	FLAT	Lees	LEES
Follow	FOLW	Line	LINE

SUFFIX	ABBREVIATION	SUFFIX	ABBREVIATION
Footway	FTWY	Link	LINK
Foreshore	FSHR	Little	LT
Formation	FORM	Lookout	LKT
Freeway	FWY	Loop	-LOOP
Front	FRNT	Lower	LWR
Frontage	FRTG		
		Mall	MALL
Gap	GAP	Meander	MNDR
Garden(s)	GDN(S)	Mew	MEW
Gate(s)	GTE(S)	Mews	MEWS
Glade	GLD	Motorway	MWY
Glen	GLEN	Mount	MT
Grange	GRA		
Green	GRN	Neck	NOOK
Ground	GRND		
Grove	GR	Outlook	OTLK
Gully	GLY		
		Parade	PDE
Heights	HTS	Park	PARK
Highroad	HRD	Parklands	PKLD
Highway	HWY	Parkway	PWY
Hill	HILL	Part	PART
Pass	PASS	Roadside	RDSD
Path	PATH	Roadway	RDWY
Pathway	PWAY	Ronde	RNDE
Piazza	PIAZ	Rosebowl	RSBL
Place	PL	Rotary	RTY
Plaza	PLZA	Round	RND
Pocket	PKT	Route	RTE
Point	PNT	Rew	ROW
Port	PORT	Rue	RUE
Promenade	PROM		
		Siding	SDNG
Quad	QUAD	Slope	SLPE
Quadrangle	QDGL	Spur	SPUR
Quadrant	QDRT	Square	SQ
Quay(s)	QY(S)	Stairs	STRS
		State Highway	SHWY
Ramble	RMBL	Steps	STPS
Ramp	RAMP	Strand	STRA
Range	RNGE	Street	ST
Reserve	RES	Strip	STRP
Rest	REST	Subway	SBWY

SUFFIX	ABBREVIATION	SUFFIX	ABBREVIATION
Retreat	RTT		
Ride	RIDE	Tarn	TARN
Ridge	RDGE	Terrace	TCE
Ridgeway	RGWY	Thoroughfare	THOR
Right-of-Way	ROWY	Tollway	TLWY
Ring	RING	Top	TOP
Rise	RISE	Tor	TOR
River	RVR	Towers	TWRS
Run	RUN	Track	TRK
Riverway	RVWY	Trail	TRL
Riviera	RVRA	Triangle	TRI
Road(s)	RD(S)	Trunkway	TKWY
Turn	TURN	Wade	WADE
		Walk	WK
Underpass	UPAS	Walkway	WKWY
		Way (see Note #)	WY
Vale	VALE	Wharf	WHRF
Viaduct	VDCT	Wynd	WYND
View	VIEW		
Villas	VLLS	Yard	YARD
Vista	VSTA		

NOTES:

* — Usually a bridge reference is associated with building/property attribute. However, if circumstances dictate that 'Bridge' is an acceptable road type, the abbreviation *BDGE* should be used.

— 'Way' is not usually abbreviated.

SUMMARY SHEET

Responsible Division	Development Assessment and Certification
Date adopted by Council	[To be inserted by Corporate Governance]
Date of previous adoptions	16 October 2007, 25 November 2002
Date of next review	(Not more than three years from date of last adoption)
Prepared by	Development Engineering Manager
Authorised by	Manager Development Assessment and Certification

DRAFT

BACKGROUND

Council, under the *Roads Act* 1993, is the roads authority for all public roads within its area, other than any freeway or Crown road or any public road for which another public authority is declared by the regulation to be the road authority. As such, Council may name or rename all public roads for which it is the roads authority, subject to the Geographical Names Board being given at least one month's notice of the proposed name.

In exercising its power to name roads, Council is also required to follow procedures set out in the *Roads (General) Regulations* 2008.

OBJECTIVE

The main objectives of this policy are to –

- 1 Provide guidelines and procedures for the naming and renaming of roads.
- 2 Ensure that the proposed road names and road suffixes are appropriate.
- 3 Ensure that the origin of the road names be recorded.

POLICY STATEMENT

This policy formalises Council's requirements with regards to the procedures to be undertaken and the guidelines to be used when existing public roads for which Council is the roads authority are proposed to be renamed or proposed roads to be dedicated to Council are named.

Legislation and guidelines used to determine this policy are as follows:

- *Roads Act* 1993
- The *Roads (General) Regulations* 2008
- New South Wales Road Naming Policy- Geographical Names Board of New South Wales, 24 October 2013
- New South Wales Road Naming Procedure and Process – Geographical Names Board of New South Wales, 24 October 2013
- Australian Standards AS1742.5-1997 and AS4590-2006
- New South Wales Address Policy (October 2014)
- New South Wales Addressing User Manual (October 2014)

As part of the procedure, once a road has been formally named, it will be entered into Council's Land Information System database to provide a permanent record of the background/origin for the reasons for naming that road.

POLICY REVIEW

This Policy forms part of Council's three-year rolling review of policies schedule and will be reviewed within three years from the date of each adoption of the policy, or more frequently as required.

STATEMENT OF PROCEDURES

When Council is in receipt of a request to name a proposed road or rename an existing road the following procedure must be followed:

- i The proposed name shall be considered having regard to the Road Naming Guidelines as contained in the next section of this Policy.
- ii A written application must be submitted to Council that clearly sets out the reasons, origin and history of the proposed road name and must include a plan or map clearly showing the extent of the proposal. The proposed name must include an appropriate road suffix.
- iii Council Officers will check that the proposed road name is suitable and complies with this Policy. If the proposed name does not comply with this policy the written application will be rejected.
- iv In the event of rejection the applicant will be notified and provided with reasons for the rejection. In the event of support, action will proceed to step (v).
- v Council will arrange exhibition of the proposal. Exhibition will involve the notification of the proposal, which will include:
 - Publishing a notice in a Local Newspaper
 - Serving notice on:
 - The Lord Mayor and Wollongong City Councillors
 - Australia Post
 - The Registrar-General
 - The Surveyor-General
 - The Chief Executive of the Ambulance Service of NSW
 - New South Wales Fire Brigades
 - The NSW Rural Fire Service
 - The NSW Police Force
 - The State Emergency Service
 - The New South Wales Volunteer Rescue Association Incorporated
 - In the case of a classified road – the RMS

The notification will invite written submissions to be made to Council and must specify the address to which, and the closing date by which, any submission shall be made. The notification period must be at least one month.

It will be deemed that Council has advised the Registrar-General and the Surveyor-General if written notification of the proposal be received by the Manager Cadastral Data Information Sourcing of Land and Property Information.

- vi Council may not proceed with a proposal to name or rename a road against an objection made by Australia Post, the Registrar-General, the Surveyor-General or the RMS (in the case of a classified road), except with the approval of the Minister.
- vii If Council is unable to comply with step (i) and step (v), the statutory notification shall be given to the Geographical Names Board.

The Geographical Names Board will also act if it receives submissions or complaints from any source on particular road naming proposals.
- viii At the close of the exhibition period:
 - Any objections will be reported to Council. The naming proposal will then be determined upon resolution by Council to either proceed with the name proposal in accordance with step (ix) or reject the proposal and notify the proponent in accordance with step (iv).
 - If Council does not receive any objections, then the road naming proposal is deemed to be an acceptable road name to adopt under this policy in accordance with step (ix).

- ix Should Council decide to proceed with the proposed road name then upon resolution to adopt the name, Council must:
- Publish notice of the new name in:
 - The Government Gazette
 - A Local Newspaper – giving (in the case of a road that is being named for the first time) a brief description of the location of the road.
 - Inform:
 - Australia Post
 - The Register-General
 - The Surveyor-General
 - The Chief Executive of the Ambulance Service of NSW
 - New South Wales Fire Brigades
 - The NSW Rural Fire Service
 - The NSW Police Force
 - The State Emergency Service
 - The New South Wales Volunteer Rescue Association Incorporated
 - In the case of a classified road – the RMS
- x All appropriate details supporting the reasons for naming of that road will be compiled by the Council division responsible, and entered into Council's Information Management System. Once a road has been formally named, it will be entered into Council's Land Information System database, and linked with the information supporting adoption of road name.

ROAD NAMING GUIDELINES

In the naming and re-naming of roads the provisions of the New South Wales Road Naming Policy – Geographical Names Board of New South Wales, (24 October 2013) and the New South Wales Address Policy (October 2014) must be observed.

SUMMARY SHEET

Responsible Division	Development Assessment and Certification
Date adopted by Council	[To be inserted by Corporate Governance]
Date of previous adoptions	16 October 2007, 25 November 2002
Date of next review	(Not more than three years from date of last adoption)
Prepared by	Development Engineering Manager
Authorised by	Manager Development Assessment and Certification

DRAFT

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
Materials Handling Procedures and Systems Improvements Report Sections 3, 5, 7, 8, 12, 13, 14, 15, 16.									
1	Cease stockpiling of waste material at non-approved sites	5.2, 7.1, 7.2, 7.3, 7.5	<ul style="list-style-type: none"> Remove and dispose all non-approved stockpiles within the city in accordance with relevant regulations 	<ul style="list-style-type: none"> Legislative compliance 	IN PROGRESS	Completed	100%		* All non-approved stockpiles within the city have been removed and disposed of at an authorised waste station.
			<ul style="list-style-type: none"> Cease stockpiling and dispose of all waste material resulting from construction activities to an authorised waste facility unless classified otherwise 	<ul style="list-style-type: none"> Legislative compliance 	COMPLETED	Completed	100%		* Stockpiling of waste from construction activities has ceased. * All waste is transported to an authorised waste station.
			<ul style="list-style-type: none"> Undertake review of compliant stockpiling opportunities across the city 	<ul style="list-style-type: none"> Improve current systems, improved materials reuse 	Medium - Long term	Planning	20%	1-Mar-16	*A review including a cost benefit analysis of developing and managing authorised stockpiles will be conducted to determine if and where licenced stockpiles are required across the city. This review will commence post implementation of new operational procedures.
2	Establish a Construction Materials Handling Framework to effectively classify, manage & transport waste materials	3.1, 3.2, 3.3, 5.1, 5.3, 7.2, 7.4, 12.1, 12.2, 16.1, 16.2	<ul style="list-style-type: none"> Review, update and implement a waste / material classification system for works undertaken by council staff 	<ul style="list-style-type: none"> Legislative Compliance, staff training & awareness, improved materials reuse 	August 2015	In Progress	95%		*A waste classification and transport procedure has been developed. *All Council staff who create, transport or receive waste have undertaken Waste Classification and Awareness training. *All relevant City Works and Services, Property and Botanic Garden staff have also undertaken Waste Classification Procedural Training. *The new waste operational procedures commenced 6 October 2015. * The waste classification system will be incorporated into Council's contracts by 1 December 2015.
			<ul style="list-style-type: none"> Review and implement appropriate application of POEO Resource Recovery orders and exemptions framework 	<ul style="list-style-type: none"> Legislative Compliance, staff training & awareness, improved materials reuse 	August 2015	Completed	100%		*Staff have received waste classification procedural training. This training includes the implementation of the "waste docketing" system which provides staff with the ability to utilise where practical the Resource Recovery Orders and Exemptions. The extent to which these Orders and Exemptions can be used will be finally determined by the establishment of any future authorised stockpiles.
			<ul style="list-style-type: none"> Review and develop improved procedure for transportation and disposal of waste / material by Council and its contractors 	<ul style="list-style-type: none"> Legislative Compliance, staff training & awareness, improved materials reuse 	August 2015				The waste classification and transport procedure outlines in detail the process for the legal transportation of different classification of waste. Council staff and contract carriers have been trained in this procedure.

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
2 cont.	Establish a Construction Materials Handling Framework to effectively classify, manage & transport waste materials		<ul style="list-style-type: none"> Confirm completeness of revised procedures and framework with Regulators (EPA and WorkCover) 	<ul style="list-style-type: none"> Legislative Compliance 	August 2015	Implementation	75%	1-Dec-15	*NSW WorkCover have been consulted and Environmental Protection Authority are being consulted in the development of the waste classification and transport procedure. *Further consultation with the EPA in relation to the unexpected finds procedure and the contaminated lands register will occur during November 2015.
			<ul style="list-style-type: none"> Review and update REF documentation, procedures and training to incorporate requirements for classification, transportation and disposal of waste / material by Council and its contractors 	<ul style="list-style-type: none"> Legislative Compliance, staff training & awareness, improved materials reuse 	August 2015	In Progress	75%	1-Dec-15	*All REF documentation has been reviewed and updated in accordance with relevant environmental legislation and new waste classification and transport procedures. *Relevant staff will be undertaking REF awareness training during November 2015. *Relevant staff have already been trained in asbestos awareness, waste classification awareness training, and waste classification procedural training. *Executive and middle management staff have undertaken "Environmental Risk and Responsibility for Managers" training provided by the Australian Sustainable Business Group.
			<ul style="list-style-type: none"> Engage consultant to review and improve current procedures and processes relating to materials handling and to guide the development of any new procedures 	<ul style="list-style-type: none"> Legislative compliance Independent Expert Adviser 	September 2015	Completed	100%		*The Australian Sustainable Business Group (ASBG) was engaged to provide Waste Classification and Awareness training to over 350 staff including Executive, Senior and Middle Management, Supervisory and Operational Staff during September and October 2015. *ASBG has also provided guidance in the development of the new waste classification and transport procedure.
3	Establish a best practice unexpected finds procedure	8.1, 8.2, 8.3	<ul style="list-style-type: none"> Review the current unexpected finds procedure to ensure it links to other existing council processes and is consistent with industry standard 	<ul style="list-style-type: none"> Legislative compliance, improved current systems 	September 2015	Planning	85%	1-Dec-15	* A best practice unexpected finds procedure has been developed in consultation with relevant council staff and NSW WorkCover. *Unexpected find procedural training will commence October 2015.

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
4	Establish best practice Identification and management of non-friable and friable asbestos identified during construction	8.1, 8.2, 8.3	<ul style="list-style-type: none"> Review current procedures for the identification, removal and disposal of non-friable asbestos under 10m2 at a works site 	<ul style="list-style-type: none"> Improved procedures and staff training / awareness of asbestos identification and management requirements. 	IN PROGRESS	Planning	85%	27-Nov-15	<p>*A best practice unexpected finds procedure has been developed by Council's WHS branch in consultation with staff and NSW WorkCover. This procedure includes identification of bonded and non-bonded asbestos.</p> <p>*All relevant staff have completed Asbestos Awareness Training.</p> <p>*Training for City Works and Services Staff to remove less than 10m2 of bonded asbestos will commence during October 2015.</p> <p>*All non-bonded asbestos will be managed by a specialist asbestos contractor in accordance with relevant WHS and EPA legislation.</p> <p>*The WHS team and City Works and Services have determined any asbestos finds greater than 10m2 will continue to be undertaken by a qualified asbestos removal contractor. Council staff therefore do not require a Class B asbestos licence.</p>
			<ul style="list-style-type: none"> Review current procedures for the identification and management of large quantities (greater than 10m2) of non-friable asbestos at a works site 	<ul style="list-style-type: none"> Compliance with WHS and EPA legislation 					
			<ul style="list-style-type: none"> Train and develop additional staff in the removal and disposal of non-friable asbestos under 10m2 						
			<ul style="list-style-type: none"> Undertake review of need for nominated staff to gain a Class B asbestos removal licence (more than 10m2). 		IN PROGRESS				
5	Establish a process that ensures all Contaminated material found on worksites is recorded accurately and the Contaminated Lands Register (CLR) is updated and suitable for required outputs	10.1, 10.2, 10.3, 10.4, 10.5	<ul style="list-style-type: none"> Implement reviews of known contaminated land to be scheduled 	<ul style="list-style-type: none"> Legislative compliance 	IN PROGRESS	Implementation	100%		<p>*Process of identifying, reporting, recording and reviewing known contaminated lands is under review. Council's design staff including authors of all REF's consult the contaminated lands register as part of the planning and design phase of all new works.</p>
			<ul style="list-style-type: none"> Integrate the CLR into the design and risk profile of new works 	<ul style="list-style-type: none"> Improve current systems 					
			<ul style="list-style-type: none"> Establish thresholds needed to be established regarding volumes of ACM located on work sites 						

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
5 cont.	Establish a process that ensures all Contaminated material found on worksites is recorded accurately and the Contaminated Lands Register (CLR) is updated and suitable for required outputs	10.1, 10.2, 10.3, 10.4, 10.5	<ul style="list-style-type: none"> Establish means for capturing contamination within non-mapped areas 			Implementation	75%	1-Mar-16	*A review of the management and application of the Contaminated Lands Register is underway. This review will examine and update processes for the management of contaminated lands in accordance with the <i>Contaminated Land Management Act 1997</i> . *High level process flow-chart drafted for notification, assessment and reporting of contaminated land matters with detailed procedures being developed. * Half day workshop with all stakeholder groups held with follow-up workshop to occur in October 2015 to review draft process. *Final review will identify when notification is required of asbestos finds regardless of size. *Definition of remediated Vs ongoing managed contaminated sites to be determined as part of the review into Contaminated lands Register. * Environmental Management Plans in accordance with the <i>Contaminated Land Management Act 1997</i> is currently in place.
			<ul style="list-style-type: none"> Define 'remediated/cleaned ups site' vs ongoing managed sites 						
			<ul style="list-style-type: none"> Establish appropriate EMP for known contaminated sites in Council workspace 						
			<ul style="list-style-type: none"> Establish system for documentation and information transfer 			Planning	10%	1-Mar-16	* A system for documentation and information transfer from site to contaminated land register will be developed as part of the review of the contaminated lands register.
			<ul style="list-style-type: none"> Confirm and establish interdepartmental responsibilities for recording/reporting/end user 			Planning	25%	1-Mar-16	*This will be determined at the completion of the review of the contaminated lands register
6	Improve illegal dumping strategy and procedures		<ul style="list-style-type: none"> Review illegal dumping prevention strategies 	<ul style="list-style-type: none"> Reduced illegal dumping 	IN PROGRESS	Planning	65%	1-Mar-16	* Project proposal prepared for review of Illegal Dumping Strategy. *Illegal Dumping workshop scheduled for November 2015. * Illegal Dumping Strategy Review underway. *Two day training event scheduled to develop a litter and Illegal Dumping regional communication and education strategy.
			<ul style="list-style-type: none"> Review removal and disposal of illegal dumping procedures 	<ul style="list-style-type: none"> Increased efficiencies in removal and disposal of illegal dumping 	Short - Medium term				

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
Project Procedures and Systems Improvements									
7	Review and update Councils project management framework to improve management and control of minor and operational projects	1.1, 1.2, 1.3, 1.4, 2.1, 4.1, 4.2, 4.3, 4.4, 5.3, 6.1, 6.2, 9.1, 9.2	<ul style="list-style-type: none"> Review the approval and handover process and application of design, environmental and construction documentation to ensure accurate references to the applicable site works and understanding of staff 	<ul style="list-style-type: none"> Improve current systems 	Short - Medium term	Planning	75%	1-Feb-16	<ul style="list-style-type: none"> *A review of design and handover of construction documentation is underway. *The review includes the development and handover of REF's, design, documentation and programming of works to allow sufficient planning time prior to execution of the works. * Risk assessments and site management plans have been updated for all projects undertaken by ESP. * Team meetings to include PM framework/issues as standard agenda item.
			<ul style="list-style-type: none"> Update and align the process of Project design, development, handover and application of Project Plans. 	<ul style="list-style-type: none"> Improve process for the development and application of design and construction documentation 	Short - Medium term	Planning	65%	1-Dec-15	<ul style="list-style-type: none"> *A formal review of design and construction process underway. *Project and generic REF's reviewed to include references to relevant waste legislation. *Plain english review of REF's with Council's Legal team complete to assist staff understanding of REF's. *Process improvement in design staging now includes pre-design site inspections based on risk of project.
			<ul style="list-style-type: none"> Review and improve processes and training for the establishing and managing non-capital works projects and proposals 		Short - Medium term	Planning	50%	1-Apr-16	<ul style="list-style-type: none"> * A project management framework that can be applied across the organisation to capture 4 key elements of project management is currently being designed. This framework will clearly guide staff in the scoping, planning and delivering projects including necessary approvals and reporting. The project management framework will be adopted by all Departments of Council for all projects excluding major capital works. Major capital works will continue to be delivered under the ISO9001 third party accredited Quality Management System operating within the Project Delivery division.
8	Improve process and application of appropriate environmental management controls	9.3, 10.1, 10.2, 10.3, 10.4, 10.6, 11.1, 11.2, 13.1, 13.2, 14.1, 14.4, 15.1, 15.2, 15.3, 15.4	<ul style="list-style-type: none"> Update and align the process of developing, handing over and monitoring Environmental impact assessment (Reviews of Environmental Factors, Erosion and Sediment Control Plans, and Construction Environmental Management Plans). 	<ul style="list-style-type: none"> Improve process for the development and application of environmental controls and requirements for projects 	IN PROGRESS	Planning	50%	1-Dec-15	<ul style="list-style-type: none"> *Review of current environmental control processes is underway. *Program developed to ensure environmental legislative compliance including a formal review by ESP and/or Planning of 4 REF's per year. * Audit program developed to ensure REF's are being implemented as designed/intended. *Training of staff in the implementation of REF's is scheduled for November 2015. This training also includes environmental management on construction sites including erosion and sediment control. * KPI's of key staff responsible for delivering projects to be incorporated into performance management system.

IAB REVIEW RECTIFICATION PLAN

						FOR REPORT OF 19 OCTOBER 2015			
Action No.	Objective	IAB Report Refs	Action / Deliverables	Intended Outcomes	Timeframe as at 3 August 2015	Status as of October 2015	% Complete	Anticipated Completion Date	Comments
9	Establish formal process and documentation for the supervision and periodic audit of construction and maintenance works	4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 9.1, 9.2	<ul style="list-style-type: none"> Review procedure for attending and recording visits to Works sites by Supervisory staff 	<ul style="list-style-type: none"> Improve current systems 	September 2015	Planning	60%	1-Dec-15	<ul style="list-style-type: none"> *A review of City Works and Services construction process has been undertaken. *A process and frequency to record all environmental construction issues and practices at Coordinator and Manager level is being developed. *Increased audit program of environmental management at construction sites implemented. *EPA non-contestable grant projects to be rolled up and reported on monthly.
			<ul style="list-style-type: none"> Review existing workplace management documentation to include recording of environmental construction management issues and inspection 	<ul style="list-style-type: none"> Improved project and environmental documentation, enhance audit trail of environmental compliance checking 	September 2015				<ul style="list-style-type: none"> * A review of roles, responsibilities and structure of key City Works and Services staff is underway.
10	Provide staff with improved skills in project and environmental management	1.4, 1.2, 1.3, 1.4, 3.1.4.1, 4.2, 9.3, 10.1, 10.2, 10.3, 10.4, 10.6, 11.1, 11.2, 13.1, 13.2, 14.1, 14.2, 14.3, 14.4	<ul style="list-style-type: none"> Identify all skill gaps 	<ul style="list-style-type: none"> Increase project and environmental capacity amongst staff for non-capital works 	September 2015	Implementation	70%	1-Mar-16	<ul style="list-style-type: none"> *Urgent skill gaps in relation to waste management have been identified and training provided to relevant staff. Further environmental management training to be incorporated into divisional training plans.
			<ul style="list-style-type: none"> Establish training program to support project management, especially for non-capital works 		Short - Medium term	Planning	30%	1-Mar-16	<ul style="list-style-type: none"> *Standard project Plan and Report templates from Council's Project Delivery group is being incorporated into City Works and Services project management framework. *City Works and Services currently mapping project management process. This will identify skill gaps and system deficiencies which will be addressed in the new project management framework. *The project management framework, when finished will be initially introduced to relevant staff via an awareness session. *Training in project management skills is scheduled twice per year for relevant staff. The course will be tailored to incorporate the project management framework currently being developed. *Pre-environmental checklist and sign-off delegations are currently under review.
			<ul style="list-style-type: none"> Establish training program for policies and procedures relating to environmental and waste management 		August 2015	Implementation	75%	1-Mar-16	<ul style="list-style-type: none"> *Relevant staff have undertaken training for all new waste management procedures. *Targeted training in relation to application of REF's and environmental management of construction sites to be undertaken in November 2015. *Additional training to be provided post completion of any new procedures developed as part of the Rectification Plan.



Wollongong Section 94A

Development Contributions Plan (2015)





Wollongong Section 94A Development Contributions Plan (2015)

Document Control						
Document ID: Wollongong City Council Section 94A Plan						
Rev No	Date	Revision Details	Typist	Author	Verifier	Approver
1	March 2006	Draft for exhibition (2006 version)	ZS	ZS	ZS	ZS
2	June 2006	In force (2006 version)	ZS	ZS	ZS	ZS
3	December 2006	Ministers Direction under S94E added	ZS	ZS	ZS	ZS
4	May 2007	Draft for exhibition (2007 version)	ZS	ZS	ZS	ZS
5	June 2007	In force (2007 version)	ZS	ZS	ZS	ZS
6	May 2008	Draft for exhibition (2008 version)	DG	DG	DG	DG
7	24 July 2008	In force (2008 version)	DG	DG	DG	DG
8	28 July 2009	Draft for exhibition (2009 version)	DG	DG	DG	DG
9	27 October 2009	Endorsed by Council	DG	DG	DG	DG
10	4 November 2009	In force (2009 version)	DG	DG	DG	DG
11	27 July 2010	Draft for exhibition (2010 version)	DH	DH	JB	RC
12	6 Sept 2010	In force (2010 version)	DH	DH	DG	DG
13	3 June 2011	Draft for exhibition (2011 version)	DH	DH	DG	DG
14	26 July 2011	In force (2011 version)	DH	DH	DG	DG
15	2 August 2012	Draft for exhibition (2012 version)	DH	DH	DG	DG
16	8 December 2012	In force (2012 version)	DH	DH	DG	DG
17	8 April 2013	Draft for exhibition (2013 version)	DH	DH	DG	DG
18	16 September 2013	In force (2013 version)	DH	DH	DG	DG
19	9 Sept 2014	Draft for exhibition (2014 version)	DG	DG	DG	DG
20	3 Nov 2014	In force (2014 version)	DG	DG	DG	DG
21	27 April 2015	Draft for Council meeting (2015 version)	MH	MH	DG	DG
22	10/7/15	Draft for exhibition (2015 version)	MH	MH	DG	DG
23	11/9/15	Post exhibition report 19/10/15	MH	MH	DG	DG

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Part A - Summary Schedules

1. Schedule 1 - Summary of levy

The rate of the levy is calculated as follows:

Proposed cost of the development <i>(Determined in accordance with Clause 15)</i>	Maximum percentage rate of the levy
Up to \$100,000	Nil
\$100,001 - \$200,000	0.5%
More than \$200,000	1%

Within the B3 Commercial Core zone in the Wollongong City Centre an additional 1% levy is applied to all development with a cost of more than \$250,000 and that increases the gross floor area (i.e. total levy of 2%). This contribution provides funding towards the Special City projects nominated in the Civic Improvements Plan for the Wollongong City Centre, reproduced below. The timing of the implementation of the projects will be determined through Councils Management Plan process as funding permits, and then detailed in Part D Schedule 4.

Item	Cost Estimate (2009)
Crown Street Upgrade	\$14,200,000
City Beach Waterfront Improvements	\$11,000,000
Civic Precinct Revitalisation	\$21,000,000
MacCabe Park Landscape Improvements	\$12,000,000
Bus Transport Initiatives	\$20,000,000
Traffic Management Works	\$2,000,000
City Centre Car Park	\$8,000,000
Total	\$88,200,000

2. Schedule 2 – Works schedule summary

Project	Actual Section 94A contribution (2011-12 to 2014-15)	Proposed Section 94 Contribution 2015-16	Forecast Section 94A contribution (2016-17 to 2017-18)
Roads and bridges	\$ 2,640,000	\$ 772,000	\$ 1,975,000
Footpaths and Cycleways	\$ 4,051,789	\$ 932,000	\$ 1,557,000
Car parks	\$ 764,000	\$ 500,000	\$ 260,000
Non-Commercial buildings	\$ 4,721,000	\$ 75,000	\$ 75,000
Parks, Gardens and sports fields	\$ 2,054,000	\$ 155,000	\$ 242,000
Land Acquisitions	\$ -	\$ 750,000	\$ 2,250,000
Administration	\$ 387,000	\$ 102,000	\$ 316,000
Total	\$ 14,617,789	\$ 3,286,000	\$ 6,675,000

For further details refer to Part D Schedule 4 – Detailed Works Schedule page 16.

Part B – Expected Development and Demand for Public Facilities

3. Expected Development and Demand for Public Facilities

This part broadly discusses the relationship between the expected types of development in the Council's area and the demand for additional public amenities and services to meet that development. That relationship is established through current demographic information.

The expected types of development include but are not limited to:

- Alterations and additions to existing development;
- Dwellings of all forms;
- Commercial development located primarily in commercial precincts;
- Industrial development;
- Subdivisions; and
- Mixed use development.

The relationship between expected development and the demand for public facilities is established through:

- The population projections undertaken by Council, adopted from the Australian Bureau of Statistics (ABS) information indicates that continued population growth in Wollongong is expected. A projected population of 234,000 is expected by 2026.
- Accelerating housing costs in metropolitan Sydney contribute to certain pressures in Wollongong, particularly new housing developments, which will largely impact the future needs of the region.
- The likely population growth will diminish the enjoyment and standard of public facilities for the existing population unless additional facilities are provided to meet the additional demand.
- The likely growth will require the provision of additional public facilities to meet additional demands.

Wollongong City Council wants to ensure that it has a sustainable local government area, safeguarding the economic, social, cultural, and environmental wellbeing of present and future generations. The section 94A levy will assist Council to provide high quality and diverse public facilities to meet the expectations of the existing and new residents of Wollongong City Council.

The additional public facilities to be provided to meet the expected future development are set out in Part D Schedule 4.

The demand for facilities within the Wollongong City Centre is based on the growth and development projected for the Wollongong City Centre in the Illawarra Regional Strategy and Wollongong City Centre Plan. In particular, this includes the total developable floor space allowed under the Wollongong LEP 2009 and Wollongong DCP 2009.

Part C – Administration and Operation of the Plan

4. What is the name of this contributions plan?

This Plan is called the “Wollongong City Council Section 94A Development Contributions Plan”.

5. Where does this plan apply?

This plan applies to all land within the local government area of Wollongong City Council excluding Stages 1 & 2 and other additional areas of the West Dapto Urban Release area as shown on Figure 1.

6. What is the purpose of this contributions plan?

The purposes of this contributions plan are:

- To authorise the imposition of a condition on certain development consents and complying development certificates requiring the payment of a contribution pursuant to section 94A of the *EP&A Act 1979*.
- To assist the council to provide the appropriate public facilities which are required to maintain and enhance amenity and service delivery within the area.
- To publicly identify the purposes for which the levies are required.

7. When does this development contributions plan commence?

This Development Contributions plan takes effect from the date on which public notice was published, pursuant to clause 31(4) of the Environmental Planning and Assessment Regulation 2000.

This Section 94A Contributions Plan 2015 was adopted by Council at its Meeting of 19 October 2015 and came into force on **(Date to be inserted)**.

8. Relationship with other development contribution plans

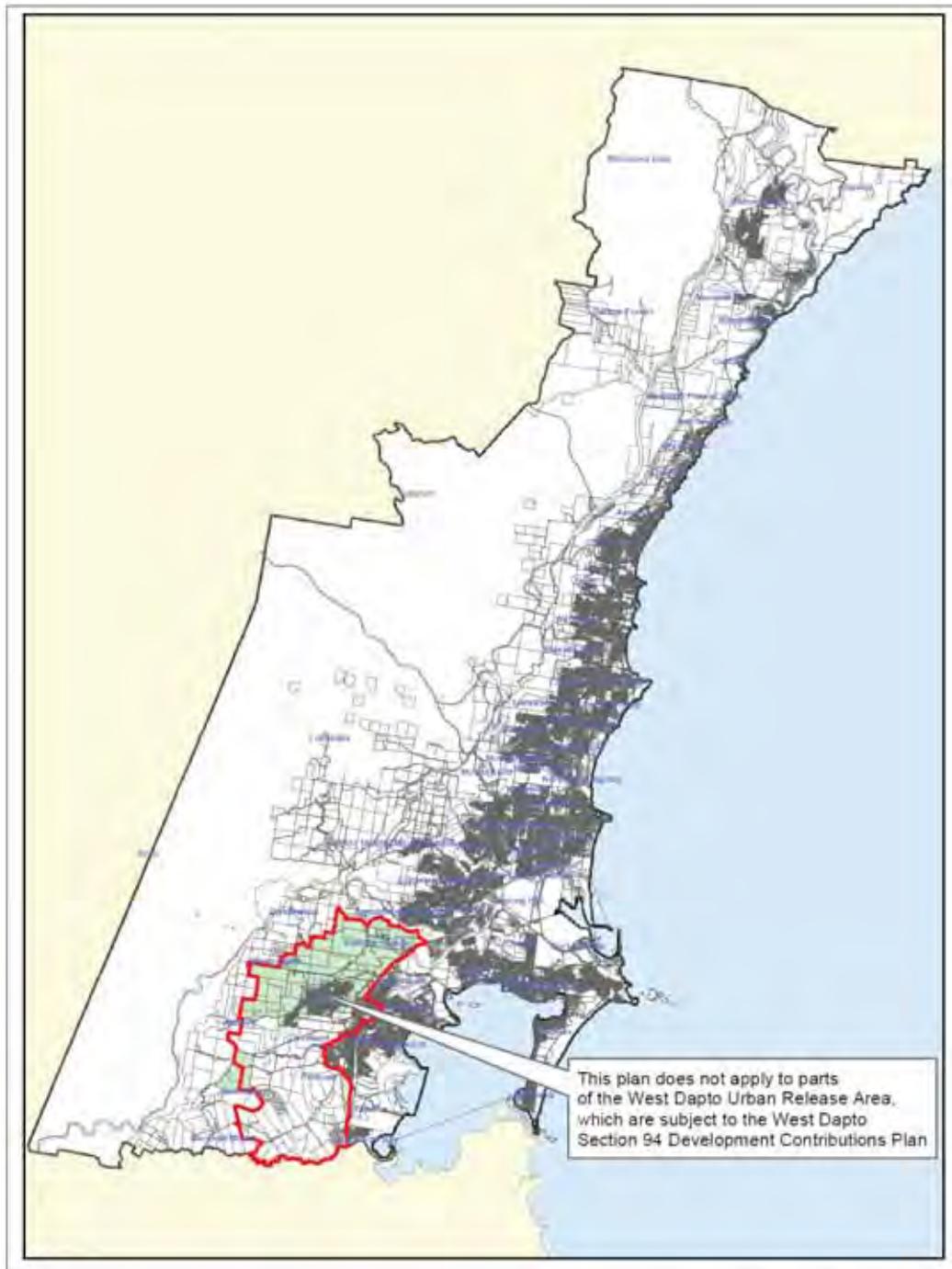
This plan repeals the following section 94 / 94A contributions plans applying in the Wollongong local government area:

- Wollongong Section 94A Contributions Plan (2014 version) – this plan repealed the following plan
- Wollongong Section 94A Contributions Plan (2013 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2012 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2011 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2010 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2009 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2008 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2007 version) – this plan repealed the following plan;
- Wollongong Section 94A Contributions Plan (2006 version) – this plan repealed the following Section 94 plans:
 - CP No 1 Open Space Embellishment, Recreation Facilities, Community Facilities;
 - Amendment to CP No 1 Open Space;
 - CP No 2 Traffic Management & Road Works in City of Wollongong;
 - CP No 3 Car Parking in the City of Wollongong;
 - CP No 4 Studies & Administration;
 - CP No 6 Car Parking in Area between Fairy Creek & Georges Plan Nth Wollongong;
 - CP No 7 Open Space Dedication (Nth Side Kanahooka Road);
 - CP No 8 Roundabout at the intersection of Unara Road, Yalunga Street & Princes Highway, Dapto;
 - CP No 9 Mount Brown Local Area Traffic Management Scheme;

- CP No 10 Bank Street (Road Works & Intersection Upgrade);
- CP No 11 Bank Street (Car Parking Facility between Bank & Stewart Sts);
- CP No 12 Sandon Point Section 94 Land Acquisition; and
- CP No 13 Library Resources.

Any other section 94 contributions plans that are not repealed continue to apply to all areas and development to which they are stated to apply.

Figure 1



	Wollongong Section 94A Contribution Area	Drawn By: H Jones	
		Date: 13/05/2015	
		Site ref: Wollongong Section 94A (13/05/2015)	
			

9. What does Section 94A of the Act provide?

Section 94A of the Act provides as follows:

94A Fixed development consent levies

- (1) A consent authority may impose, as a condition of development consent, a requirement that the applicant pay a levy of the percentage, authorised by a contributions plan, of the proposed cost of carrying out the development.
- (2) A consent authority cannot impose as a condition of the same development consent a condition under this section as well as a condition under section 94.
- (3) Money required to be paid by a condition imposed under this section is to be applied towards the provision, extension or augmentation of public amenities or public services (or towards recouping the cost of their provision, extension or augmentation). The application of the money is subject to any relevant provisions of the contributions plan.
- (4) A condition imposed under this section is not invalid by reason only that there is no connection between the development the subject of the development consent and the object of expenditure of any money required to be paid by the condition.

10. Council may require payment of the levy as a condition of development consent

This plan authorises the Council to grant consent to development to which this plan applies subject to a condition requiring the applicant to pay to the Council a levy calculated as per clause 11.

11. How will the levy be calculated

The levy will be determined on the basis of the rate as set out in Part A Schedule 1 Summary of levy. The levy will be calculated as follows:

$$\text{Levy payable} = \%C \times \$C$$

Where:

%C is the levy rate applicable

\$C is the proposed cost of carrying out development as determined in accordance with clause 15.

Where an exemption is granted for a preceding application under Clause 12(q) *"An application for demolition (where there is no replacement building or development)"*. On the same subject site (irrespective of sub-division or consolidation occurring) the following application(s) for development, qualifying under clause 11, will be additionally levied the relevant proportion of the levy that would have applied if the cost of development included the *"demolition, excavation and site preparation, decontamination or remediation"* in accordance with Clause 25J of the Regulation that occurred under the preceding application.

12. Development to which this plan applies

This Plan applies to all applications for development consent and complying development certificates required to be made by or under Part 4 of the Act in respect of development on land to which this plan applies.

13. Are there any exemptions to the levy?

The following Directions under Section 94E of the Environmental Planning and Assessment Act 1979 have been made by the Minister for Planning that require that a Section 94A levy cannot be imposed on development:

- a. for the purpose of disabled access (10/11/06);
- b. for the sole purpose of affordable housing (10/11/06) – *(including Granny Flat/Secondary dwelling under 60m2)*;
- c. for the purpose of reducing the consumption of mains-supplied potable water, or reducing the energy consumption of a building (10/11/06);
- d. for the sole purpose of adaptive re-use of an item of environmental heritage (note: the term "item" and "environmental heritage" have the same meaning as in the *Heritage Act 1977*) (10/11/06);

- e. other than the subdivision of land, where a condition under section 94 of the Act has been imposed under a previous development consent relating to the subdivision of the land on which the development is proposed to be carried out (10/11/06);
- f. Seniors living development under SEPP Seniors Housing 2004 by a Social Housing provider (14/9/07);
- g. Components of school development that is a Building Education Revolution (BER) project (9/9/09);
- h. Port Kembla Lease Area, as mapped in the Ports SEPP (6/12/13)

In addition, Council may allow for the following exemptions (partial or full):

- i. An application by the Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.
- j. An application by the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities and public transport infrastructure.
- k. An application for an industrial, retail, commercial or residential development, where there is no increase in floor space within an existing building, such as but not limited to internal fit-out or alteration to existing structure.
- l. An application for the continued operation of a coal mine, where rail transport is used for the transportation of coal.
- m. An application for a place of public worship.
- n. An application for demolition (where there is no replacement building or development).
- o. An application for a residential care facility.
- p. An application for an industrial training facility.

The following exception (partial or full) requests will require a comprehensive submission:

- q. An application on behalf of the Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.
- r. An application on behalf of the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities and public transport infrastructure.
- s. An application for privately funded community infrastructure, such as but not limited to education facilities, universities, and private hospitals.
- t. Any other development for which Council considers an exemption is warranted, where the decision is made by formal ratification of the Council at a public Council meeting.

Submission Requirements for an exemption claim to be considered

For an exemption to be considered in accordance with points (q) to (t) above, any such application will need to submit a comprehensive submission arguing the case for exemption and including details of:

- Under which point the exemption claimed is to be considered
- The mechanism ensuring that such development will remain in the form proposed in the future (i.e. Not to increase future demand on public amenities and services), NB: where a further development application or application for complying development under the *EP&A Act* is required for any change to the development no mechanism is necessary, however if a change of use is available by way of exempt development then the requirement for a mechanism remains.
- Other items if applicable:
 - How the development will incorporate the maintenance of the item of heritage significance
 - How the development will contribute to the public benefit of the community
 - Works in the public domain included in the development

- How the residents/users will utilise existing private facilities attached to the development that replicate those types provided by council.

A comprehensive submission is not required for points (a) to (p) from the above list. Whilst assessment of any application will include consideration of the provisions of this plan for any exemption that may be warranted, where a comprehensive submission isn't required, the application should clearly state which point an exemption is expected to ensure it is considered.

Exemptions (partial or full) listed under points (i) to (t) will only be granted with approval of the Council Officer(s) whose position(s) holds the required Council delegations or in terms of point (t) by formal ratification of the Council at a public Council meeting.

14. Complying Development Certificates and the obligations of accredited certifiers

Development applications for Complying Development are also subject to the provisions of this plan, and the payment of a Section 94A contribution. The Complying Development Certificate is to include a condition that requires the payment of a Section 94A contribution (in accordance with the requirements of clauses 1 to 12 above).

As the construction certificate is issued concurrently, payment is to be made to Council within 7 days of the date of the Complying Development Certificate.

In particular, the certifier must ensure that the applicant provides a receipt(s) confirming that levies have been fully paid and copies of such receipts must be included with copies of the certified plans provided to the council in accordance with clause 142(2) of the *EP&A Regulation*. Failure to follow this procedure may render such a certificate invalid.

15. Construction certificates and the obligations of accredited certifiers

In accordance with Section 94EC of the Environmental Planning and Assessment Act and clause 146 of the *EP&A Regulation 2000*, a certifying authority must not issue a construction certificate for building work or subdivision work under a development consent unless it has verified that each condition requiring the payment of levies has been satisfied.

In particular, the certifier must ensure that the applicant provides a receipt(s) confirming that levies have been fully paid and copies of such receipts must be included with copies of the certified plans provided to the council in accordance with clause 142(2) of the *EP&A Regulation*. Failure to follow this procedure may render such a certificate invalid.

The only exceptions to the requirement are where the Council has agreed to a works in kind, material public benefit, dedication of land, or deferred payment arrangement. In such cases, council will issue a letter confirming that an alternative payment method has been agreed with the applicant.

16. How is the proposed cost of carrying out development determined?

Clause 25J of the Regulation sets out how the proposed cost of carrying out development is to be determined. That clause provides as follows:

“25J Section 94A levy—determination of proposed cost of development

- (1) The proposed cost of carrying out development is to be determined by the consent authority, for the purpose of a section 94A levy, by adding up all the costs and expenses that have been or are to be incurred by the applicant in carrying out the development, including the following:
 - (a) if the development involves the erection of a building, or the carrying out of engineering or construction work—the costs of or incidental to erecting the building, or carrying out the work, including the costs (if any) of and incidental to demolition, excavation and site preparation, decontamination or remediation,
 - (b) if the development involves a change of use of land—the costs of or incidental to doing anything necessary to enable the use of the land to be changed,
 - (c) if the development involves the subdivision of land—the costs of or incidental to preparing, executing and registering the plan of subdivision and any related covenants, easements or other rights.

- (2) For the purpose of determining the proposed cost of carrying out development, a consent authority may have regard to an estimate of the proposed cost of carrying out the development prepared by a person, or a person of a class, approved by the consent authority to provide such estimates
- (3) The following costs and expenses are not to be included in any estimate or determination of the proposed cost of carrying out development:
- (a) the cost of the land on which the development is to be carried out,
 - (b) the costs of any repairs to any building or works on the land that are to be retained in connection with the development,
 - (c) the costs associated with marketing or financing the development (including interest on any loans),
 - (d) the costs associated with legal work carried out or to be carried out in connection with the development,
 - (e) project management costs associated with the development,
 - (f) the cost of building insurance in respect of the development,
 - (g) the costs of fittings and furnishings, including any refitting or refurbishing, associated with the development (except where the development involves an enlargement, expansion or intensification of a current use of land),
 - (h) the costs of commercial stock inventory,
 - (i) any taxes, levies or charges (other than GST) paid or payable in connection with the development by or under any law."

17. Cost estimate reports must accompany an application for a development application or a complying development certificate

An application for a development application or a complying development certificate is to be accompanied by a report, prepared at the applicant's cost in accordance with this clause, setting out an estimate of the proposed cost of carrying out the development for the purposes of clause 25J of the Regulation, per clause 16 above.

The following types of report are required:

- where the estimate of the proposed cost of carrying out the development is less than \$10,000,000 - a suitable cost estimate as determined by Council;
- where the estimate of the proposed cost of carrying out the development is \$10,000,000 or more - a detailed cost report in accordance with Part D Schedule 3.

Applicants will be required to declare upon signing of application for development/building work that the cost of carrying out development as evidenced by their submitted estimate has been calculated in accordance with the provisions of this plan, in particular clause 16.

18. Who may provide a report for the purposes of clause 16 of this plan?

For the purpose of clause 25J(2) of the Regulation and clause 16 of this plan, the following persons are approved by the Council to provide an estimate of the proposed cost of carrying out development in the following circumstances:

- where the proposed development cost is less than \$10,000,000 - a person who, in the opinion of the Council, is suitably qualified to provide a cost estimate;
- where the proposed development cost is \$10,000,000 or more - a quantity surveyor who is a registered member of the Australian Institute of Quantity Surveyors.

Upon reviewing a cost estimate, the Council may require a further estimate to be provided by a registered quantity surveyor at the applicant's cost. The Council may, at the applicant's cost, engage a person referred to in this clause to review a report submitted by an applicant in accordance with clause 16.

19. How will the Council apply money obtained from the levy?

Money paid to the Council under a condition authorised by this plan is to be applied by the Council towards meeting the cost of the public facilities that will be or have been provided within the area as listed in Part D Schedule 4.

20. What are the funding priorities from levies authorised by this plan?

Subject to s93E(2) of the Act and clauses 18 and 19 of this plan, the public facilities listed in Part D Schedule 4 are to be provided in accordance with the staging set out in that Schedule.

21. Pooling of levies

For the purposes of s93E(2) of the Act, this plan authorises money obtained from levies paid in respect of different developments to be pooled and applied by the Council progressively towards the public facilities listed in Part D Schedule 4 in accordance with the staging set out in that Schedule.

22. The Goods and Services Tax (GST)

At the time this Plan was made, the position of the Australian Taxation Office (ATO) was that the payment of development contributions made under the *EP&A Act* is exempt from the Goods and Services Tax (GST). Items in the works schedule of this Plan have been calculated without any GST component.

23. When is the levy payable?

A levy to be paid by a condition authorised by this plan must be paid to the Council at the time specified in the condition. If no time is specified, the levy must be paid in full prior to the first construction or subdivision certificate issued in respect of the development under Part 4A of the *EP&A Act*.

Payment can be made by cash, credit card, EFTPOS or bank cheque (payable to Wollongong City Council) only.

Payments can be made in person at Council's Customer service centre located on the ground floor of Wollongong City Council Administration Building, 41 Burelli Street, Wollongong between 8.30am and 5pm Monday to Friday except public holidays during business hours. Bank Cheques will be accepted by mail to Wollongong City Council - Locked Bag 8821, Wollongong DC NSW 2500.

24. Can deferred or periodic payments of levies be made?

Deferred or periodic payments may be permitted in the following circumstances:

- Deferred or periodic payment of the contribution will not prejudice the timing or the manner of the provision of public facilities included in the works program;
- In other circumstances considered reasonable by Council.

For a deferred or periodic payment to be considered, the applicant must satisfy to Council that:

- There are valid reasons for deferred or periodic payment;
- No prejudice will be caused to the community deriving benefit from the services being provided under this plan;
- No prejudice will be caused to the efficiency and operation of this development contribution plan.

If Council does decide to accept deferred or periodic payment, Council may require the applicant to provide a bank guarantee for the full amount of the contribution or the outstanding balance on condition that:

- a) The bank guarantee be issued by a bank for the amount of the total contribution, or the amount of the outstanding contribution, plus an amount equal to thirteen (13) months interest.
- b) Any charges associated with establishing or operating the bank security are payable by the applicant.
- c) The bank guarantee must carry specific wording identifying the exact obligation to which it relates (i.e. section 94A development contributions for development of Lot x DP xxx under Development Consent No. xxx)

- d) The bank unconditionally pays the guaranteed sum to the Council if the Council so demands in writing not earlier than 12 months from the provision of the guarantee or completion of the work.
- e) The bank must pay the guaranteed sum without reference to the applicant or landowner or other person who provided the guarantee, and without regard to any dispute, controversy, issue or other matter relating to the development consent or the carrying out of development.
- f) The bank's obligations are discharged when payment to the Council is made in accordance with this guarantee or when Council notifies the bank in writing that the guarantee is no longer required.
- g) Where a bank guarantee has been deposited with council, the guarantee shall not be cancelled until such time as the original contribution and accrued interest are paid.

Deferred or periodic payments may be permitted, in accordance with the above requirements, only with approval of the Council Officer(s) whose position(s) holds the required Council delegations.

25. Are there alternatives to payment of the levy?

The council may accept an offer by the applicant to provide an "in-kind" contribution (i.e. the applicant completes part or all of work/s identified in the plan) or through provision of another material public benefit in lieu of the applicant satisfying its obligations under this plan. The decision to accept such offers is at the sole discretion of the Council.

Council may accept such alternatives in the following circumstances:

a) Offer made to the Council as part of a development application

The applicant may include in the relevant development application or in an application for a modification under section 96 of the Act, an offer to carry out works or provide a material public benefit towards which the levy is to be applied. The Council will consider the offer as part of its assessment of the development application or as an application for a modification to a development approval under section 96 of the Act where a levy has been imposed pursuant to this plan. If the Council agrees to the arrangement and grants consent to the application, it will substitute a condition of consent under section 80A or section 96 of the Act (whichever is relevant) requiring the works to be carried out or the material public benefit to be provided for a condition requiring payment of a levy under section 94A.

In assessing the applicant's offer, the Council will have regard to any relevant requirements of the current Practice Note issued by the NSW Government (DIPNR 2005) and such other matters as the Council considers relevant in the circumstances of the case including, but not limited to:

- (1) the value of the works to be undertaken is at least equal to the value of the contribution that would otherwise be required under this plan, Council does not issue credits to applicants for works in kind which are provided in excess of the approved condition outside of a standard procedure involving approval by Council, such as staged development; and
- (2) the standard of the works is to council's full satisfaction and the works are handed over to the Council without restriction of limitation; and
- (3) the provision of the material public benefit will not prejudice the timing or the manner of the provision of public facilities included in the works program.

b) Valuation of Offer made to the Council as part of a development application ("value of work")

The value of an offer to provide Works In Kind, or a material public benefit towards which the levy is to be applied, in lieu (in full or in part) of satisfying a condition of consent relating to payment of a Section 94/94A contribution will be valued utilising the following mechanism:

- (1) Any Credit will be calculated based on the actual cost of works or the agreed cost estimate, whichever is the lesser. The agreed cost estimate will be determined by a review of the costs submitted by the applicant via Council's Infrastructure Team or a Registered Quantity Surveyor at Councils discretion;

- (2) The agreed cost estimate can be amended by submission of a variation request by the applicant which will be reviewed and certified by a registered Quantity Surveyor;
- (3) The actual cost of works is required to be evidenced and verified by a registered Quantity Surveyor;
- (4) The Quantity Surveyor to act on the project will be chosen by Council from a list of 3 recommended by the applicant all of whom are to be members of Panels for The NSW Department of Commerce or Local Government Procurement; and
- (5) Quantity Surveyor service costs are to be borne by the applicant.

c) Legal agreements pertaining to works in kind

All offers, should they be accepted, to provide Works In Kind, or a material public benefit towards which the levy is to be applied, in lieu (in full or in part) of satisfying a condition of consent relating to payment of a Section 94/94A contribution will be subject to a legal agreement between Council and the applicant. All agreements will include, but not limited to, the following:

- The works to be undertaken;
- The timing of the works;
- The quality of the works;
- The costs of the works;
- the applicant's rights and responsibilities; and
- Council's rights and responsibilities.

d) Offer to enter into a ~~voluntary~~ planning agreement

An applicant may offer to enter into a ~~voluntary~~ planning agreement with the Council under s93F of the EP&A Act in connection with the making of a development application. This offer may include a monetary contribution, dedication of land, the carrying out of works, or another material public benefit for public purposes. Those purposes need not wholly relate to the impacts of the applicant's development not to the items listed in Part D Schedule 4.

The applicant's provision under a planning agreement may be additional to or instead of paying a levy in accordance with a condition of development consent authorised by this plan. This will be a matter for negotiation with the Council. The offer to enter into the planning agreement together with a copy of the draft agreement should accompany the relevant development application.

The Council will publicly notify the draft planning agreement and an explanatory note relating to the draft agreement along with the development application and will consider the agreement as part of its assessment of that application.

If the Council agrees to enter into the planning agreement, it may impose a condition of development consent under s93I (3) of the *EP&A Act* requiring the agreement to be entered into and performed. If the Council does not agree to enter into the planning agreement, it may grant consent subject to a condition authorised by this plan requiring the payment of a levy.

Applicants should refer to the Council's Policy on Planning Agreements, which has been prepared having regard to the Practice Note on Planning Agreements (DIPNR 2005).

26. How will the levy be adjusted?

As the date of the consent may vary to the actual time of payment of the contribution, Clause 25(4) of the *EP&A Regulation* allows council to adjust the contribution to reflect current between the date of the consent and the time of payment. Contributions required as a condition of consent under the provisions of this plan will be indexed quarterly in accordance with movements in the Consumer Price Index (All Groups Index) for Sydney issued by the Australian Bureau of Statistics.

The following formula for indexing contributions is to be used:

$$\text{Contribution at time of payment} = \$C \times (\text{CP2/CP1})$$

Where:

- \$C** is the original contribution as set out in the consent
CP1 is the Consumer Price Index (all groups index for Sydney) used in the proceeding indexation calculation
CP2 is the Consumer Price Index (all groups index for Sydney) at the time of indexation

27. Savings and Transitional Arrangements

A development application which has been submitted prior to the adoption of this plan but not determined shall be determined in accordance with the provisions of this plan, except in the West Dapto Release Area if Council has resolved to apply the West Dapto Section 94 Development Contribution Plan to the land but the amendment has not yet occurred. In that instance the West Dapto Section 94 Development Contribution Plan applies.

28. Are refunds for payments of levies possible?

For a refund of levy payments to be considered, the applicant/landowner must:

- Submit a written request to Council
- As a part of the request, demonstrate that the development that is the subject of the consent has not been commenced
- Submit the request for a refund by the first working day after 31 January within the year following payment of the levy e.g. payment is made in April 2011 then refund request can be made until first working day after 31 January 2012; payment is made in January 2011 then refund request can be made until first working day after 31 January 2012.
- Formally surrender the consent that applied the levy

In other circumstances considered reasonable by Council at its sole and unfettered discretion, where a formal request is made, part or full refunds may be provided.

Part D – References

29. What definitions apply?

In this plan, unless the context or subject matter otherwise indicates or requires, the following definitions apply:

- **ABS** means the Australian Bureau of Statistics
- **EP&A Act** means the Environmental Planning and Assessment Act 1979
- **Council** means The Wollongong City Council
- **Development contributions** means a development contribution required to be paid by a condition of development consent imposed pursuant to section 94 of the Act
- **Levy** means a levy under section 94A of the Act authorised by this plan
- **Public facility & Public Infrastructure** means a public amenity or public service
- **Regulation** means the Environmental Planning and Assessment Regulation 2000

30. Schedule 3 - Detailed Cost Report

(Clause 17)

Registered* Quantity Surveyor's Detailed Cost Report

[Development Cost in excess of \$10,000,000]
*A member of the Australian Institute of Quantity Surveyors

DEVELOPMENT APPLICATION No. REFERENCE:

CONSTRUCTION CERTIFICATE No. DATE:

APPLICANT'S NAME: _____

APPLICANT'S ADDRESS: _____

DEVELOPMENT NAME: _____

DEVELOPMENT ADDRESS:

DEVELOPMENT DETAILS:

Gross Floor Area – Commercial	m ²	Gross Floor Area – Other	m ²
Gross Floor Area – Residential	m ²	Total Gross Floor Area	m ²
Gross Floor Area – Retail	m ²	Total Site Area	m ²
Gross Floor Area – Car Parking	m ²	Total Car Parking Spaces	
Total Development Cost	\$		
Total Construction Cost	\$		
Total GST	\$		

ESTIMATE DETAILS:

Professional Fees	\$	Excavation	\$
% of Development Cost	%	Cost per square metre of site area	\$/m ²
% of Construction Cost	%	Car Park	\$
Demolition and Site Preparation	\$	Cost per square metre of site area	\$/m ²
Cost per square metre of site area	\$/m ²	Cost per space	\$/space
Construction – Commercial	\$	Fit-out – Commercial	\$
Cost per square metre of site area	\$/m ²	Cost per m ² of commercial area	\$/m ²
Construction – Residential	\$	Fit-out – Residential	\$
Cost per square metre of residential area	\$/m ²	Cost per m ² of residential area	\$/m ²
Construction – Retail	\$	Fit-out – Retail	\$
Cost per square metre of retail area	\$/m ²	Cost per m ² of retail area	\$/m ²

I certify that I have:

- Inspected the plans the subject of the application for development consent or construction certificate
- Prepared and attached an elemental estimate generally prepared in accordance with the Australian Cost Management Manuals from the Australian Institute of Quantity Surveyors
- Calculated the development costs in accordance with the definition of development costs in the section 94A Development Contributions Plan of the council of the City of Wollongong at current prices
- Included GST in the calculation of development cost
- Measured gross floor areas in accordance with the Method of Measurement of Building Area in the AIQS Cost Management Manual Volume 1, Appendix A2

Signed: _____

Name: _____

Position and Qualifications: _____

Date: _____

31. Schedule 4 –Detailed Works Schedule

The works listed in this schedule may be funded from a mix of sources, including contributions collected from this plan.

(Clauses 19 & 20)

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map Ref		Project	Actual Section 94A contribution (2011-12 to 2014-15)	Timing of Section 94A expenditure							Timing of other funding				Total Project Cost (2011-12 to 2016-17)	
Map No.	Ref No.			Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16		2016-17
		Roads and Bridges														
		City Centre Public Transport	\$ 404,000	\$ 50,000	\$ 129,000	\$ 150,000	\$ 75,000	\$ 22,000					\$ 75,000	\$ 50,000	\$ 529,000.00	
		City Wide Public Transport	\$ 125,000		\$ 50,000	\$ 75,000		\$ 100,000			\$ 100,000	\$ 75,000	\$ 75,000	\$ 100,000	\$ 475,000.00	
		Road Reconstruction	\$ -												\$ -	
		Road Upgrade	\$ -												\$ -	
		Traffic Facility Improvements (50% RTA)	\$ -					\$ 13,000	\$ 450,000	\$ 753,000	\$ 1,216,000		\$ 820,000	\$ 80,000	\$ 100,000	\$ 2,216,000.00
21	2	Lake Avenue Traffic Facilities : Flagstaff Rd to Gorrel St	\$ 40,000				\$ 40,000						\$ 305,798		\$ 345,798.00	
		<i>Roads & Bridges - New & Upgrade (bulk vote)</i>	\$ -												\$ -	
16	3	Church St, Wollongong - Roundabout, cnr Ellen St	\$ -												\$ -	
13	4	Cliff Rd, North Wollongong - new pedestrian safety facilities	\$ -					\$ 280,000							\$ -	
	C	Parkes St/Princes Hwy, Helensburgh - New roundabout	\$ 85,000		\$ 85,000										\$ 85,000.00	
24	48	Denison Street/T hrosby Drive, Gwynneville - bypass	\$ -												\$ -	
24	47	Denison St - Victoria St, Wollongong traffic lights	\$ -					\$ 40,000							\$ -	
24	48	Denison St - Throsby Dr. Wollongong traffic lights	\$ -					\$ 30,000							\$ -	
14	83	Cordeaux Rd, Cordeaux Heights - Pedestrian Refuge	\$ -												\$ -	
14	77	Cordeaux Rd. west of William James Dr - Upgrade	\$ 515,000				\$ 515,000					\$ 1,470,000	\$ 1,483,063		\$ 3,468,063.00	
16	76	Gladstone Ave, Coniston - Pedestrian Crossing	\$ -												\$ -	
	C	Compton Street, Dapto- Traffic Calming augmentation	\$ 313,000		\$ 313,000										\$ 313,000.00	
16	58	Burelli Street - Kenny Street T raffic Signals	\$ 120,000				\$ 120,000	\$ 52,000					\$ 80,001		\$ 200,001.00	
16	37	Burelli Street/Corrimal Street, Wollongong - T raffic Lights	\$ -												\$ -	
16	36	Burelli Street - Auburn Street T raffic Signals	\$ 204,578				\$ 204,578	\$ 35,000							\$ 204,578.00	
17	27	Central Rd - Blackman/Nudjia, Unanderra traffic lights	\$ -					\$ 200,000							\$ -	
	C	Carters lane, Fairy Meadow shoulder construct - Pioneer to Elliotts	\$ 159,000		\$ 159,000										\$ 159,000.00	
	C	Squires Way, North Wollongong - kerb and gutter - Elliotts Rd to iC entry	\$ 51,000		\$ 51,000										\$ 51,000.00	
10	74	Cabbage Tree Lane, Fairy Meadow - kerb, gutter and drainage	\$ -												\$ -	
1	39	Parkes St/Vera St, Helensburgh - kerb, gutter and drainage	\$ 275,000		\$ 25,000	\$ 250,000									\$ 275,000.00	
	C	Jarvie Rd, Cringlia - new kerb & gutter	\$ 50,000		\$ 50,000										\$ 50,000.00	
2	84	Walker St, Helensburgh - Replace culvert to widen and provide pedestrian access	\$ 140,999				\$ 140,999								\$ 140,999.00	

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map No.	Ref No.		Actual Section 94A contribution (2011-12 to 2014-15)	Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16	2016-17	Total Project Cost (2011-12 to 2016-17)
	C	Burke Street, Berkeley - New T traffic Island	\$ 5,000		\$ 5,000											\$ 5,000.00
	C	Ball Street, Woonona - New Traffic Island	\$ 1,000		\$ 1,000											\$ 1,000.00
7	85	Sturdee Ave, Bulli - Augmentation design options	\$ 16,000		\$ 9,000	\$ 7,000										\$ 16,000.00
		Sub total	\$ 2,640,000	\$ 50,000	\$ 827,000	\$ 532,000	\$ 1,095,577	\$ 772,000	\$ 450,000	\$ 753,000	\$ 1,975,000	\$ 1,545,000	\$ 2,838,862	\$ 230,000	\$ 100,000	\$ 8,575,862.00
		Footpaths and Cycleways														
		Footpaths - New footpaths	\$ -					\$ -	\$ 250,000	\$ 330,000	\$ 580,000			\$ 2,400,000	\$ 50,000	\$ 3,030,000.00
		Footpaths - Reconstruction or upgrading	\$ -					\$ -	\$ 50,000	\$ 65,000	\$ 115,000			\$ 4,350,000	\$ 150,000	\$ 4,615,000.00
		New cycle/shared paths	\$ -					\$ -	\$ 200,000	\$ 250,000	\$ 450,000			\$ 200,000		\$ 650,000.00
2	19	Gills Creek pedestrian path linkage, Walker St Helensburgh	\$ 20,000				\$ 20,000	\$ 120,000								\$ 20,000.00
14	23	Cordeaux Rd Cordeaux Hts; Mt Kembla to Booreea Ave, off road	\$ -					\$ 12,000			\$ 12,000			\$ 4,456,426		\$ 4,468,426.00
16	79	Keira St footpath, Crown to Market St	\$ 400,000				\$ 400,000						\$ 1,736,000			\$ 2,136,000.00
	C	Gloucester Bvde, Port Kembla - Primary School to Darcy Rd - Shared pathway	\$ 99,000	\$ 94,000	\$ 5,000											\$ 99,000.00
23	38	Foreshore Rd, Port Kembla - Old Port Rd to Harbour - New on road Shared pathway	\$ 4,000	\$ 4,000												\$ 4,000.00
	C	Southern cycleway - Port Kembla pool to Parkes St & along Foreshore Rd	\$ 42,000			\$ 42,000										\$ 42,000.00
22	24	Five Islands Rd, Port Kembla - shared path between Flinders St & Wattle St	\$ 2,000			\$ 2,000										\$ 2,000.00
	C	Princes Hwy, Dapto, Unara St to Northcliffe - New Shared pathway	\$ 442,000	\$ 135,000	\$ 3,000	\$ 304,000						\$ 100,000				\$ 542,000.00
22	18	Shellharbour Rd, Port Kembla - Parkes St to King Street new on-road and off-road cycleway	\$ -													\$ -
	C	Amaroo Ave, Figtree - New footpath	\$ 9,000		\$ 2,000	\$ 7,000										\$ 9,000.00
12	25	Grey St, Keiraville new footpath	\$ 19,000			\$ 19,000										\$ 19,000.00
13	13	Tramway Sea Wall and Path, North Wollongong - Augmentation	\$ -													\$ -
16	14	Crown St Mall Upgrade	\$ 150,000				\$ 150,000						\$ 6,856,999			\$ 7,006,999.00
16	14	City Centre Crown St, Wollongong - Augmentation	\$ 20,000		\$ 20,000											\$ 20,000.00
	C	O'Briens Rd, Figtree - New shared pathway	\$ 55,000		\$ 55,000											\$ 55,000.00
17	15	Cordeaux Rd, Figtree - new on road cycleway	\$ 85,000		\$ 85,000											\$ 85,000.00
8	16	Channon St, Russell Vale - new footpath	\$ 47,000			\$ 47,000										\$ 47,000.00
	C	Parkes St, Helensburgh - New shared pathway connection	\$ 75,000		\$ 75,000											\$ 75,000.00
	C	Brian St, Balgownie - new footpath and pedestrian crossing	\$ 82,000		\$ 82,000											\$ 82,000.00
	C	Unanderra Town Centre - Tallegalla Street - new cycleway	\$ 25,000		\$ 25,000											\$ 25,000.00
	C	Beach St to Hutton Ave, Bulli - New shared pathway	\$ 25,000		\$ 25,000											\$ 25,000.00

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map Ref		Project	Actual Section 94A contribution (2011-12 to 2014-15)	Timing of Section 94A expenditure								Timing of other funding				Total Project Cost (2011-12 to 2016-17)
Map No.	Ref No.			Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16	2016-17	
	C	Brokers Rd, Balgonie - new footpath	\$ 43,000	\$ 43,000										\$ 43,000.00		
10	71	Foothills Rd, Balgownie - New footpath	\$ -											\$ -		
5	60	Lawerance Hargrave Dr, Bartons Gully, Wombarra - New footpath	\$ -											\$ -		
	C	Gibson Rd, Figtree - widen footpath	\$ 85,000	\$ 85,000										\$ 85,000.00		
	C	Abercrombie St, West Wollongong - New footpaths	\$ 274,000	\$ 274,000										\$ 274,000.00		
	C	McMillan St, Helensburgh - New north side footpath	\$ 36,000	\$ 36,000										\$ 36,000.00		
	C	Princes Hwy, West Wollongong - New shared pathway, London Dr to Abercrombie St	\$ 113,000	\$ 35,000	\$ 78,000									\$ 113,000.00		
7	1	Princes Hwy, Bulli - New shared pathway, Black Diamond Pl to Point St	\$ 212,000	\$ 12,000		\$ 200,000								\$ 212,000.00		
	C	Murphys Avenue, Keiraville - New footpath	\$ 60,000		\$ 60,000									\$ 60,000.00		
	C	Mt Keira Rd, Mt Keira - New footpath	\$ 100,000		\$ 100,000						\$ 46,000			\$ 146,000.00		
	C	Derribong Dr, Cordeaux Heights - New footpath	\$ 149,000		\$ 149,000						\$ 34,000			\$ 183,000.00		
	C	Loftus St, Wollongong - New footpath	\$ 103,000		\$ 103,000						\$ 39,000			\$ 142,000.00		
13,24	5	Smith St, Shared Path - Harbour to Belmore St	\$ 10,000		\$ 10,000							\$ 36,531		\$ 46,531.00		
16	6	Gladstone Ave, Wollongong - cycleway Swan St underpass to Crown Street	\$ 8,000		\$ 8,000									\$ 8,000.00		
	C	Pioneer Rd, Towradgi - New footpath & bridging over culvert	\$ 82,000		\$ 82,000						\$ 172,000			\$ 254,000.00		
11	49	Squires Way, North Wollongong - Widen cycleway	\$ 25,000	\$ 25,000							\$ 520,000			\$ 545,000.00		
18	7	Lakelands Dve footpath; Fowlers Rd to Parkside Dve	\$ 243,343			\$ 243,343								\$ 243,343.00		
18	8	Cirrus Ave footpath; full length west side	\$ 81,981			\$ 81,981						\$ 13,141		\$ 95,122.00		
12	9	Dumfries Ave footpath; McMahon St to Foothills Rd	\$ 194,733			\$ 194,733								\$ 194,733.00		
7	10	Point Street footpath, nth side; Blackall St to Summerville	\$ 5,687			\$ 5,687						\$ 110,000		\$ 115,687.00		
7	32	Farrell Rd, Bulli pedestrian bridge - over railway	\$ -				\$ 50,000							\$ -		
18	34	Robert St, Dapto; Byamee St to Joan St, footpath	\$ -				\$ 112,000							\$ -		
1	35	Maidstone St Helensburgh; The Ridge to The Crescent, footpath	\$ -				\$ 151,000							\$ -		
20	40	Flagstaff Rd, Berkeley; Whimbrel St to Bubb Place crossing	\$ -				\$ 80,000							\$ -		
8	41	Cherry St Woonona; ForestviewWay to Woodland Ave, footpath east side	\$ -				\$ 57,000							\$ -		
13	42	Endeavour Dr Wollongong, Flagstaff Hill Heritage Walk - Path	\$ -				\$ 150,000							\$ -		

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map Ref		Project	Actual Section 94A contribution (2011-12 to 2014-15)	Timing of Section 94A expenditure							Timing of other funding				Total Project Cost (2011-12 to 2016-17)	
Map No.	Ref No.			Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16		2016-17
24	43	Porter St, Gwynneville, Crawford Street, Int. House Ramp	\$ -				\$ 200,000							\$ -		
6	11	Railway Rd footpath east side: King St - Redman Ave	\$ 58,045			\$ 58,045								\$ 58,045.00		
4	12	Grand Pacific Walk, North Wollongong to Otford - Stage 1 Stoney Ck Bridge, Coalcliff Village & Town Centre - Upgrades (bulk vote)	\$ 467,000	\$ 187,000	\$ 280,000					\$ 150,000				\$ 617,000.00		
17	72	Unanderra CBD Upgrade	\$ 100,000			\$ 100,000					\$ 126,000			\$ 226,000.00		
22	70	Warrawong CBD upgrade	\$ -											\$ -		
		Cycle/shared Paths Reconstruct or upgrading Shared (Cycleways) Pathways - New & Upgrade (bulk vote) - see Bicycle Plan	\$ -						\$ 300,000	\$ 100,000	\$ 400,000			\$ 100,000	\$ 500,000.00	
		City wide Footpaths - New & Upgrade (bulk vote)	\$ -								\$ 750,000			\$ 750,000.00		
		Sub total	\$ 4,051,789	\$ 233,000	\$ 1,074,000	\$ 1,291,000	\$ 1,453,789	\$ 932,000	\$ 800,000	\$ 745,000	\$ 1,557,000	\$ 1,811,000	\$ 8,878,671	\$ 11,406,426	\$ 300,000	\$ 28,179,886.00
		Car parks														
		Car Park Constructing/formalising	\$ -							\$ 260,000	\$ 260,000		\$ 500,000		\$ 760,000.00	
	C	Station Street - Thomas Gibson Park Bank/Stewart Street, Wollongong - 4hr Car park - Additional spaces	\$ 110,000	\$ 110,000											\$ 110,000.00	
	C	Campbell Street, Woonona - Ocean Park car park	\$ 78,000		\$ 78,000										\$ 78,000.00	
	C	Lakeside leisure Centre, Kanahooka - Upgrade and expansion	\$ 144,000	\$ 4,000	\$ 140,000						\$ 40,000				\$ 184,000.00	
19	54	Stuart Park, Wollongong off road parking	\$ 7,000	\$ 7,000											\$ 7,000.00	
13	44	Market Street - Multi Storey Car park - Upgrade	\$ -				\$ 500,000								\$ -	
	C	Windang Foreshore Park P2 car park - augmentation	\$ 20,000	\$ 20,000											\$ 20,000.00	
	C	George Street, Wollongong - Car park extension	\$ 5,000	\$ 5,000											\$ 5,000.00	
	C	Stanwell Park shops Car Park - Upgrade	\$ 140,000	\$ 140,000											\$ 140,000.00	
	C	The Circle Car Park, Woonona - Upgrade	\$ 243,000	\$ 150,000	\$ 93,000						\$ 33,000				\$ 276,000.00	
	C	City wide car parks - New (bulk vote)	\$ 17,000	\$ 17,000							\$ 110,000				\$ 127,000.00	
		Sub total	\$ -												\$ -	
		Sub total	\$ 764,000	\$ 4,000	\$ 449,000	\$ 311,000	\$ -	\$ 500,000	\$ -	\$ 260,000	\$ 260,000	\$ 183,000	\$ -	\$ 500,000	\$ -	\$ 1,947,000.00
		Non-Commercial buildings														
		Lifeguards facilities Designs	\$ -													\$ -
	C	Bald Hill Amenities, Stanwell Tops - augmentation - Masterplan	\$ 33,000	\$ 33,000											\$ 33,000.00	
	C	North Beach Bathers Pavilion, North Wollongong - augmentation (Inc. Retaining Wall)	\$ 4,433,000	\$ 4,301,000	\$ 100,000	\$ 32,000									\$ 4,433,000.00	
	C	Wollongong Town Hall augmentation	\$ -												\$ -	
16	26	Civic Plaza, Wollongong - Water Saving facilities implementation	\$ -												\$ -	
	C	Dapto Pool - Disabled Access Improvements	\$ 40,000	\$ 40,000											\$ 40,000.00	
	C	Sandon Point Surf Club Expansion	\$ 125,000	\$ 125,000											\$ 125,000.00	

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map Ref		Project	Actual Section 94A contribution (2011-12 to 2014-15)	Timing of Section 94A expenditure								Timing of other funding				Total Project Cost (2011-12 to 2016-17)
Map No.	Ref No.			Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16	2016-17	
22	20	Warrawong Multipurpose Community Centre & Library design	\$ 13,000		\$ 13,000		\$ 75,000			\$ 75,000			\$ 75,000		\$ 163,000.00	
	C	Windang Beach Lifeguard Tower - Design	\$ 52,000		\$ 52,000										\$ 52,000.00	
	C	Coledale Lifeguard Tower	\$ 25,000		\$ 25,000										\$ 25,000.00	
		<i>Non-Commercial buildings - bulk vote</i>	\$ -								\$ 283,000				\$ 283,000.00	
		Sub total	\$ 4,721,000	\$ 4,301,000	\$ 298,000	\$ 122,000	\$ -	\$ 75,000	\$ -	\$ -	\$ 75,000	\$ 283,000	\$ -	\$ 75,000	\$ -	\$ 5,154,000.00
		Parks, Gardens and sports fields														
		<i>New Bridges, Boardwalks & Jetties- Bulk</i>	\$ -						\$ 100,000	\$ 100,000			\$ 250,000		\$ 350,000.00	
		<i>Bridges, Boardwalks & Jetties - Upgrade</i>	\$ -							\$ -			\$ 50,000		\$ 50,000.00	
		<i>Beach facilities - New (bulk vote)</i>	\$ 10,000	\$ 10,000							\$ 125,000				\$ 135,000.00	
		Skate Parks	\$ -					\$ 50,000	\$ 67,000	\$ 117,000					\$ 117,000.00	
		<i>Sporting facilities - New (bulk vote)</i>	\$ 26,000	\$ 6,000	\$ 20,000						\$ 25,000				\$ 51,000.00	
		<i>Recreation facilities - New (bulk vote)</i>	\$ 20,000	\$ 20,000							\$ 20,000				\$ 40,000.00	
		Play Facilities Renew	\$ -					\$ 25,000		\$ 25,000			\$ 25,000		\$ 50,000.00	
13, 24	29	Stuart Park Playground	\$ 25,000		\$ 25,000							\$ 575,000			\$ 600,000.00	
13, 24	30	Stuart Park - footbridge	\$ 22,332		\$ 22,332			\$ 130,000							\$ 22,332.00	
	C	Stanwell Park - New Playground	\$ 11,000	\$ 11,000											\$ 11,000.00	
	C	Bailey Park, Compton Street, Dapto - New Playground	\$ 10,000	\$ 10,000											\$ 10,000.00	
	C	Penrose Park - New Playground	\$ 10,000	\$ 10,000											\$ 10,000.00	
	C	Bramsen St Reserve, Bellambi - New Playground	\$ 5,000	\$ 5,000											\$ 5,000.00	
	C	Corrimal Memorial Park - New Playground	\$ 73,000	\$ 50,000	\$ 23,000										\$ 73,000.00	
	C	Waples Rd, Farmborough Heights - New Playground	\$ 10,000	\$ 10,000											\$ 10,000.00	
	C	Bruce Park, Oxlade St, Warrawong - New Playground	\$ 10,000	\$ 10,000											\$ 10,000.00	
	C	Keira Village Park, Keira Mine Rd - New Playground	\$ 20,000	\$ 20,000											\$ 20,000.00	
	C	Holborn Park, Berkeley - New Playground	\$ 25,000	\$ 25,000							\$ 150,000				\$ 175,000.00	
9	21	Happy Valley Reserve, East Corrimal - playground	\$ -												\$ -	
		<i>New Playground installations</i>	\$ -								\$ 300,000				\$ 300,000.00	
		<i>Sports field Irrigation Infrastructure - New (bulk vote)</i>	\$ -									\$ 190,000			\$ 190,000.00	
11	28	Thomas Dalton Park, FairyMeadow - Sports field Irrigation	\$ 297,000	\$ 140,000	\$ 57,000	\$ 100,000									\$ 297,000.00	
	C	Thomas Dalton Park, FairyMeadow - fence Carters Lane	\$ 15,000		\$ 15,000										\$ 15,000.00	
1	31	Rex Jackson Oval - Sportsfield Irrigation	\$ 38,500			\$ 38,500									\$ 38,500.00	
	C	Rex Jackson Oval (soccer), Helensburgh - Sports field Irrigation	\$ 40,000	\$ 40,000											\$ 40,000.00	
	C	Fred Finch Park, Berkeley - Landscape and Design & Infrastructure	\$ 200,000	\$ 200,000											\$ 200,000.00	

**Wollongong Section 94A
Development Contributions Plan (2015)**

Map Ref		Project	Actual Section 94A contribution (2011-12 to 2014-15)	Timing of Section 94A expenditure							Timing of other funding				Total Project Cost (2011-12 to 2016-17)	
Map No.	Ref No.			Expenditure 2011-12	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15	Budget 2015-16	Forecast 2016-17	Forecast 2017-18	Forecast Section 94A contribution 2015-16 to 2017-18	2013-14	2014-15	2015-16		2016-17
	C	Holborn Park (Southern Suburbs Skate Park) Berkeley - provision	\$ 406,000	\$ 19,000	\$ 20,000		\$ 367,000					\$ 30,001		\$ 436,001.00		
		Lake Illawarra Foreshore Improvements	\$ 100,000		\$ 100,000									\$ 100,000.00		
16	26	Civic Plaza, Wollongong - Lighting augmentation	\$ -											\$ -		
	C	MacCabe Park, Wollongong - Design Development - City Centre	\$ 12,000	\$ 12,000										\$ 12,000.00		
16	33	MacCabe Park, Wollongong - Landscape Improvements - City Centre	\$ -											\$ -		
	C	MM Beach, Port Kembla - Access Steps	\$ 65,000		\$ 65,000					\$ 25,000				\$ 90,000.00		
	C	Puckeys Estate, Beach access	\$ 15,000	\$ 15,000										\$ 15,000.00		
	C	Charles Harper Park, Helensburgh - Public toilet	\$ 40,000	\$ 40,000										\$ 40,000.00		
15	22	Figtree Oval	\$ -											\$ -		
23	98	King George V, Port Kembla, (main oval) - irrigation	\$ -											\$ -		
		Sub total	\$ 2,054,000	\$ 382,000	\$ 423,000	\$ 248,000	\$ 452,832	\$ 155,000	\$ 50,000	\$ 167,000	\$ 242,000	\$ 645,000	\$ 795,001	\$ 325,000	\$ -	\$ 3,512,833
		Land Acquisitions														
		<i>Land Acquisitions - See Wollongong LEP 2009 - Land Reservation Acquisition Maps</i>	\$ -					\$ 750,000	\$ 750,000	\$ 750,000	\$ 2,250,000				\$ 2,250,000.00	
		Sub total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 750,000	\$ 750,000	\$ 750,000	\$ 2,250,000	\$ -	\$ -	\$ -	\$ -	\$ 1,500,000.00
		Administration														
		S94 Planner	\$ 90,028			\$ 90,028	\$ 93,000	\$ 96,000	\$ 98,000	\$ 287,000					\$ 377,028.00	
		S94 Admin Support - Finance	\$ 9,117			\$ 9,117	\$ 9,000	\$ 10,000	\$ 10,000	\$ 29,000					\$ 38,117.00	
		<i>S94 Administration & Studies</i>	\$ 288,000	\$ 96,000	\$ 96,000	\$ 96,000								\$ 288,000.00		
		<i>Capital Project Planning</i>	\$ -								\$ 420,000			\$ 420,000.00		
		Sub total	\$ 387,000	\$ 96,000	\$ 96,000	\$ 96,000	\$ 99,145	\$ 102,000	\$ 106,000	\$ 108,000	\$ 316,000	\$ 420,000	\$ -	\$ -	\$ -	\$ 1,015,000.00
		TOTAL	\$ 14,617,789	\$ 5,066,000	\$ 3,167,000	\$ 2,600,000	\$ 3,101,343	\$ 3,286,000	\$ 2,156,000	\$ 2,783,000	\$ 6,675,000	\$ 4,887,000	\$ 12,512,534	\$ 12,536,426	\$ 400,000	\$ 49,884,581

C = completed project (not mapped)

32. Schedule 5 - Works Schedule - Maps

Projects locations are noted as best as possible given their nature and scale of mapping. (Clauses 19 & 20)



	Section 94A 2015	Drawn By: J Lewis	
	Map Index	Date: April 2015	
	 Community Land	File ref: - Sec94A_2015_Index	0 7,500 Meters



Section 94A 2015
Map 1

 Community Land

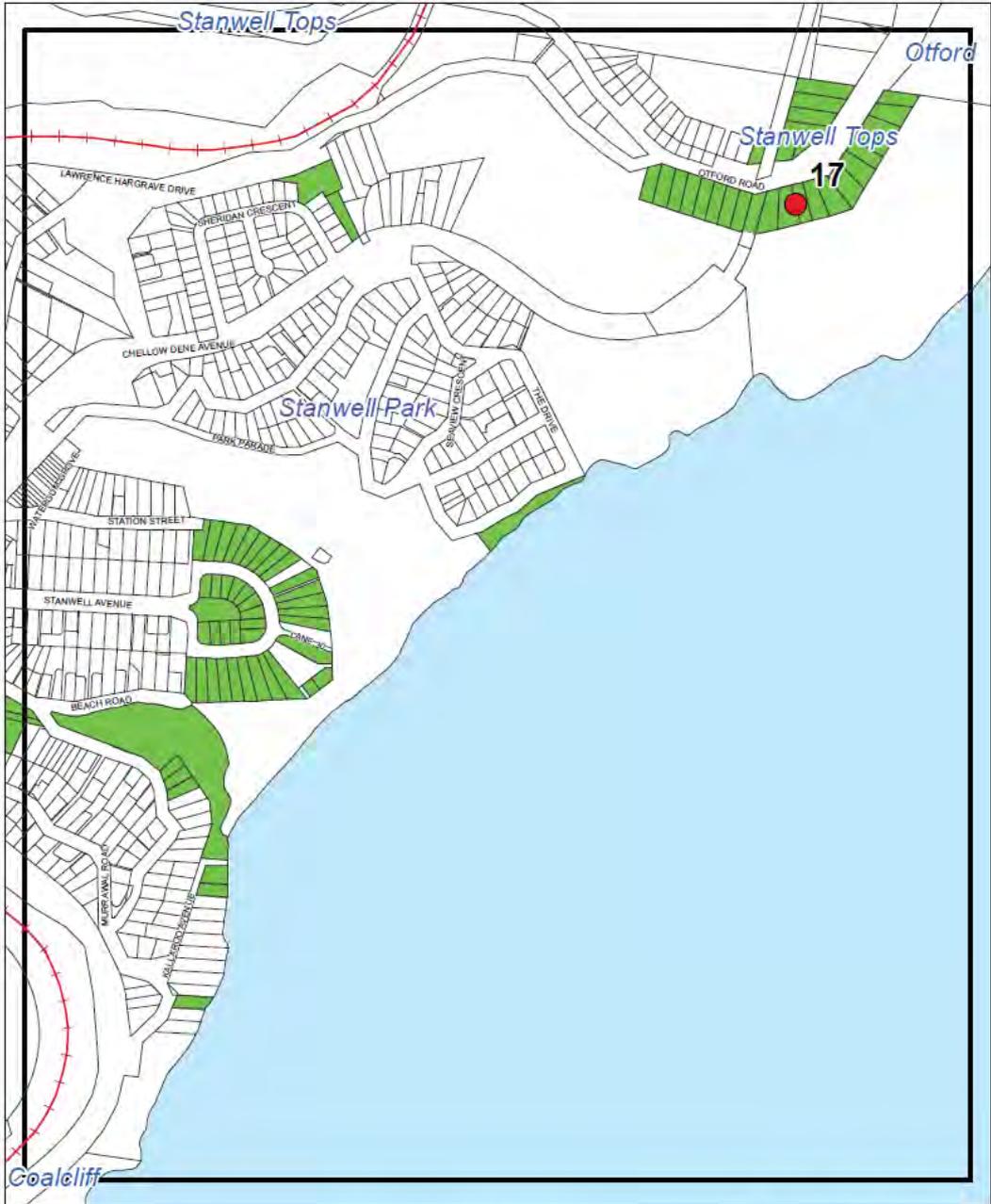
Drawn By: J Lewis	
Date: April 2015	
Gic ref.: 8e084A_2015_mapbook	
	



Section 94A 2015
Map 2

 Community Land

Drawn By: J Lewis	
Date: April 2015	
Gis ref: - 94A_2015_mapbook	
	
Meters	



	<h3>Section 94A 2015</h3> <h3>Map 3</h3>		
	 Community Land		
Drawn By: J Lewis Date: April 2016		Gls ref: - 80094A_2015_mapbook	
			



Section 94A 2015
Map 4

 Community Land

Drawn By: J Lewis	
Date: April 2016	
Olc ref: - 8e094A_2015_mapbook	
	

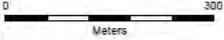


**Section 94A 2015
Map 5**

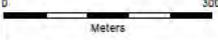
Community Land

Drawn By: J Lewis	
Date: April 2016	
GIS ref.: 20094A_2015_mapbook	
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	<h2>Section 94A 2015</h2> <h3>Map 6</h3>	
	 Community Land	
<p>Drawn By: J Lewis Date: April 2016</p>		<p>GIC ref: - 80044_2015_mapbook</p> 



	<h2>Section 94A 2015</h2> <h3>Map 7</h3>	Drawn By: J Lewis Date: April 2015
	 Community Land	
		Gls ref: - Sec94A_2015_mapbook 

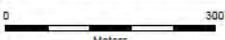


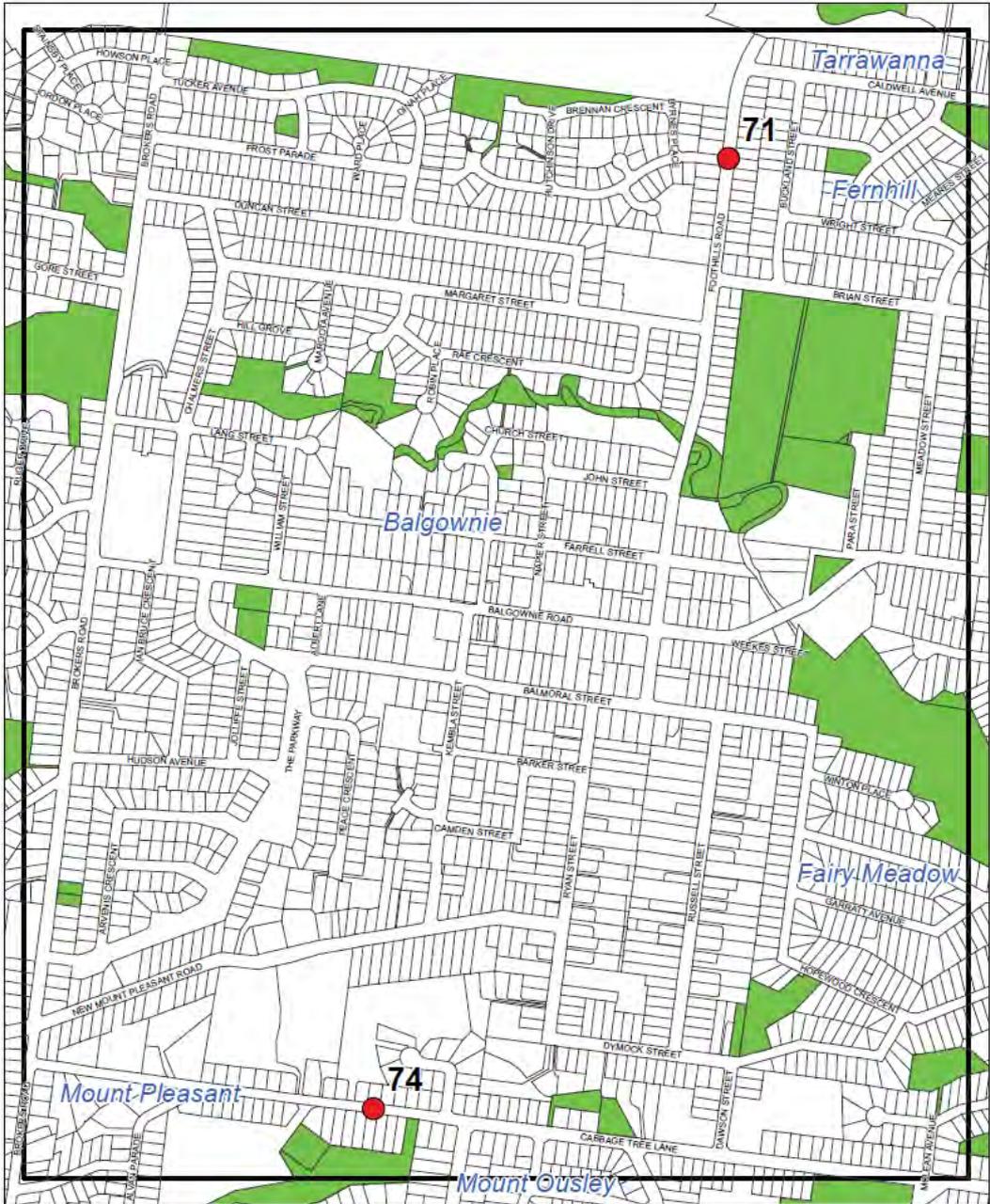
	<h3>Section 94A 2015</h3> <h3>Map 8</h3>	Drawn By: J Lewis Date: April 2015	
	 Community Land	GIC ref: - See94A_2015_mapbook	



Section 94A 2015
Map 9

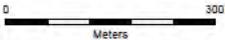
 Community Land

Drawn By: J Lewis	
Date: April 2016	
Gis ref: - Sec94A_2016_mapbook	
 0 300 Meters	



	<h3>Section 94A 2015</h3> <h3>Map 10</h3>	Drawn By: J Lewis Date: April 2016	
	 Community Land	Gis ref: - 94a_2015_mapbook 0 300 Meters	



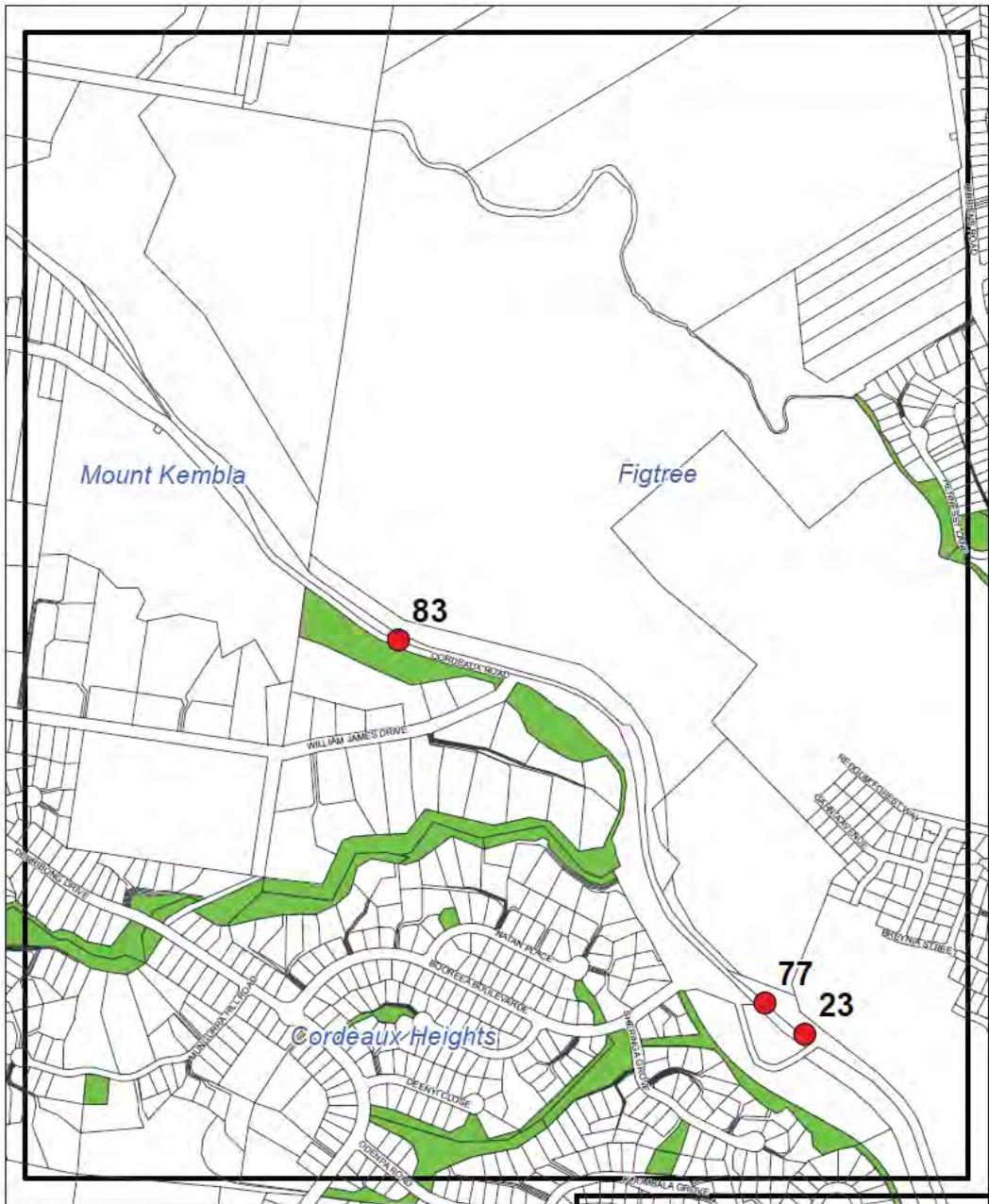
	<h2>Section 94A 2015</h2> <h3>Map 11</h3>		
	 Community Land		
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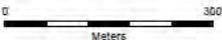


	<h3>Section 94A 2015</h3> <h3>Map 12</h3>		
	<p>Community Land</p> 		
		<p>Drawn By: J Lewis Date: April 2015</p>	
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		<p>0 300 Meters</p> 	



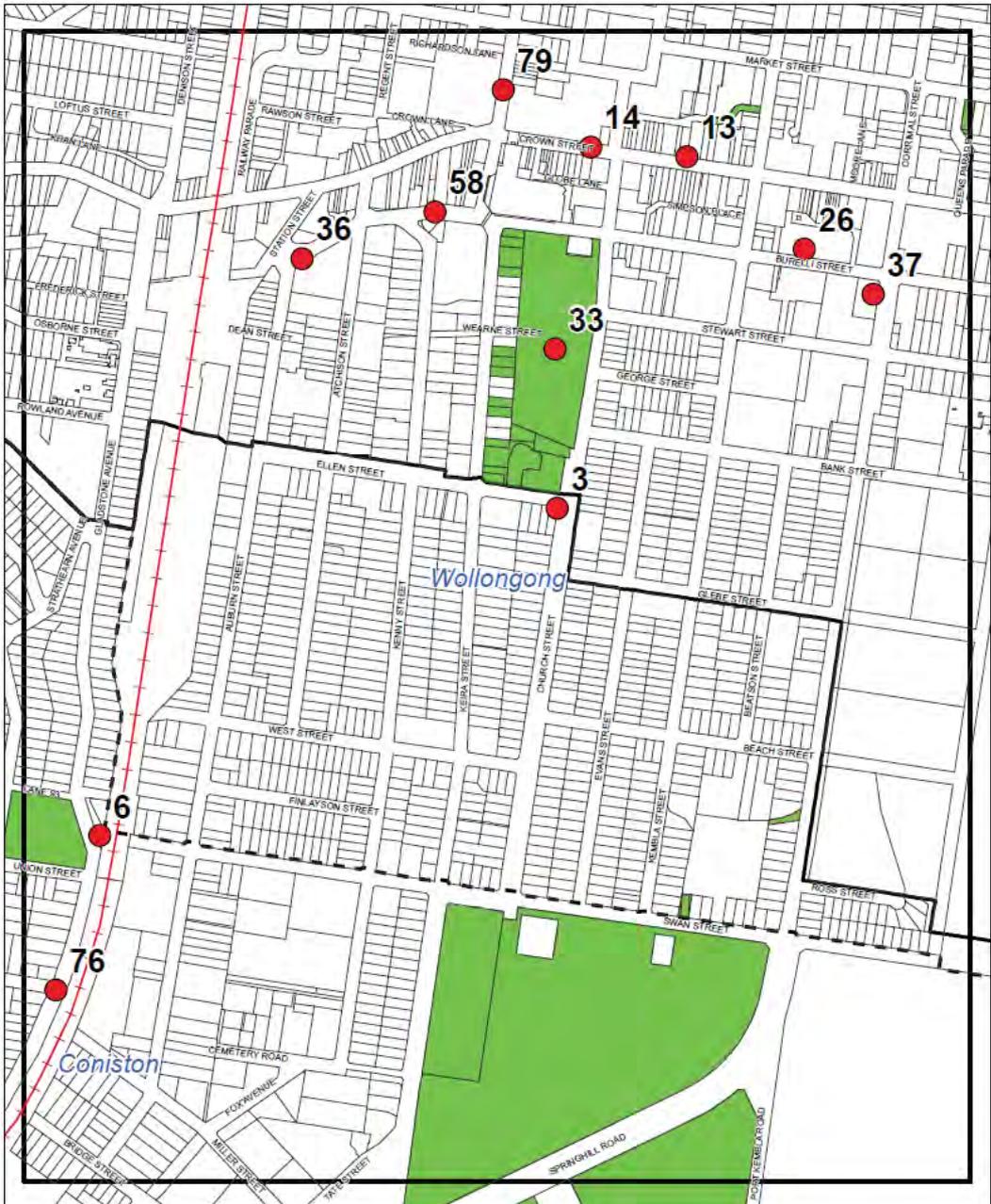
 <p>wollongong city of innovation</p>	<p>Section 94A 2015 Map 13</p> <p> Community Land</p>	<p>Drawn By: J Lewis Date: April 2016</p> <p>GIS ref.: seo94A_2015_mapbook</p> <p>0 300 Meters</p>	
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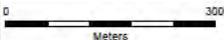


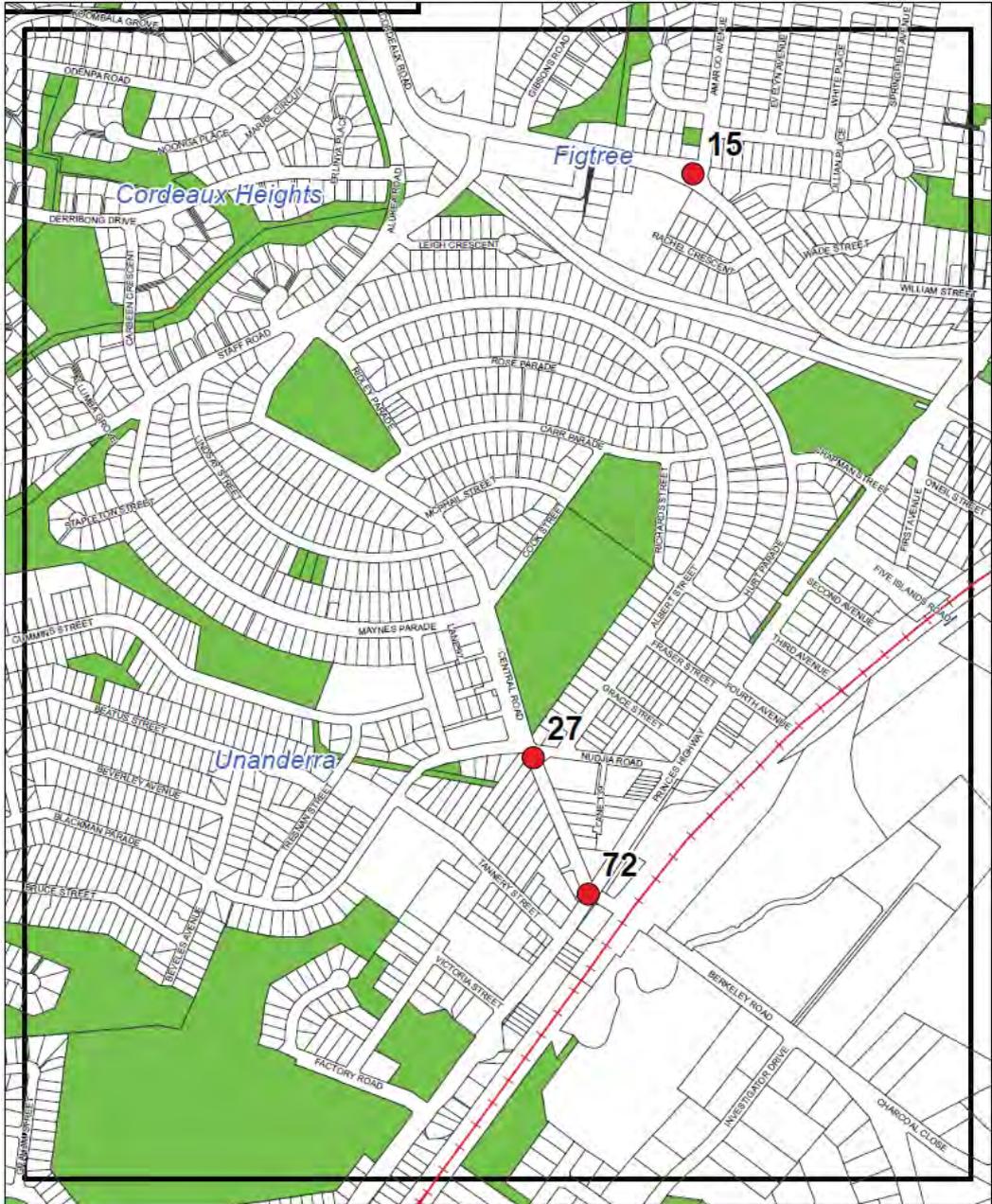
	<h3>Section 94A 2015</h3> <h3>Map 14</h3>	Drawn By: J Lewis Date: April 2016	
	 Community Land	Gls ref: - 8es94A_2015_mapbook 	



	<h3>Section 94A 2015</h3> <h3>Map 15</h3>	Drawn By: J Lewis Date: April 2015
	 Community Land	GIC ref. - 80094A_2015_mapbook 

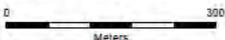


	<h3>Section 94A 2015</h3> <h3>Map 16</h3>		
	 Community Land		
		Drawn By: J Lewis Date: April 2016	
		GIS ref: - 94A_2015_mapbook	
			



	<h3>Section 94A 2015</h3> <h3>Map 17</h3>	Drawn By: J Lewis Date: April 2015	
	 Community Land	Elic ref: - 80094A_2015_mapbook 0 300 Meters	

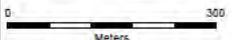


	<h3>Section 94A 2015</h3> <h3>Map 18</h3>	Drawn By: J Lewis Date: April 2015
	 Community Land	Gls ref: - 94A_2015_mapbook  0 300 Meters



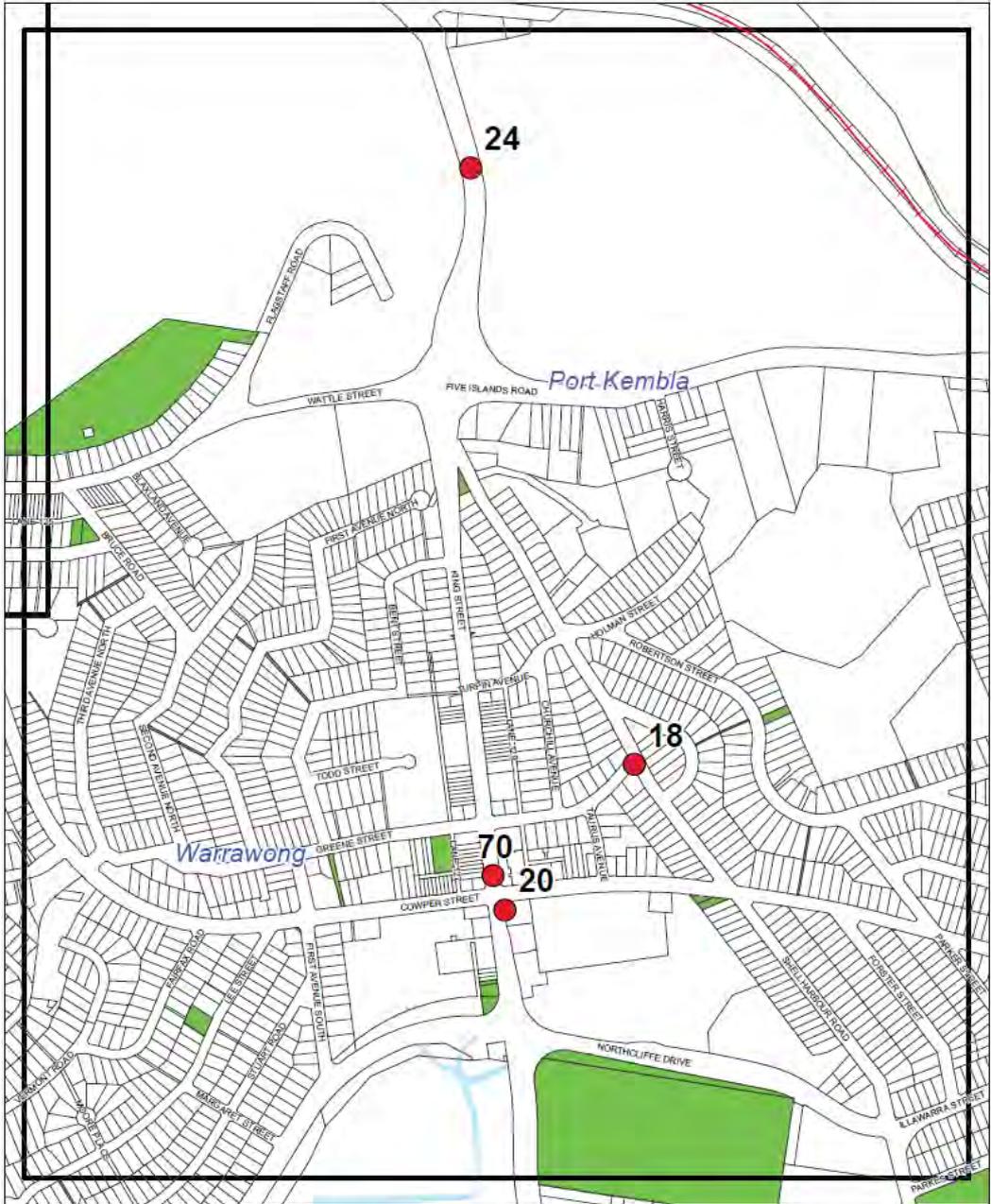
	<h3>Section 94A 2015</h3> <h3>Map 19</h3>	
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Drawn By: J Lewis Date: April 2016		
GIC ref: - 80094A_2015_mapbook		



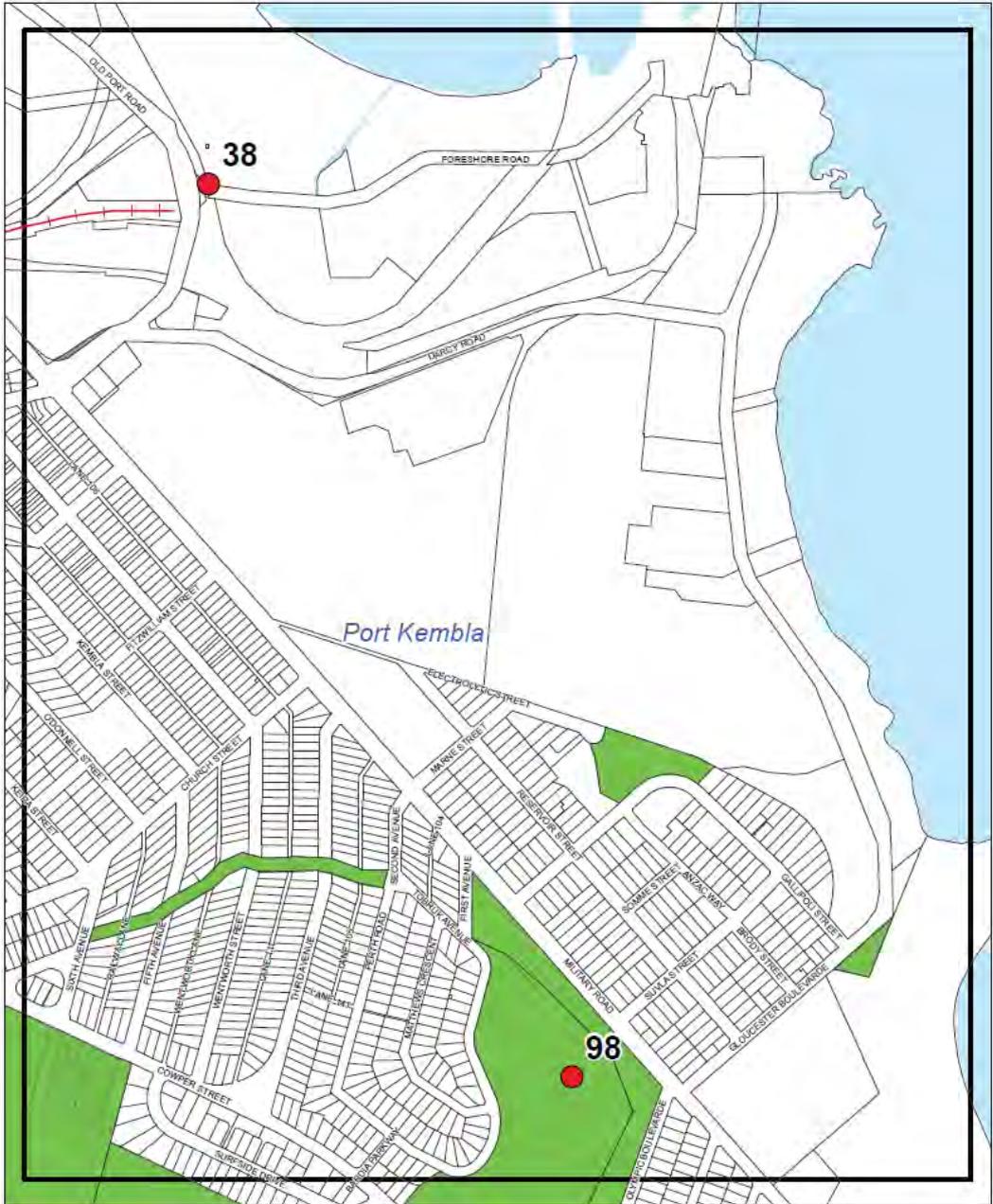
	<h3>Section 94A 2015</h3> <h3>Map 20</h3>		
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		<p>Gis ref: - 20094A_2015_mapbook</p>	



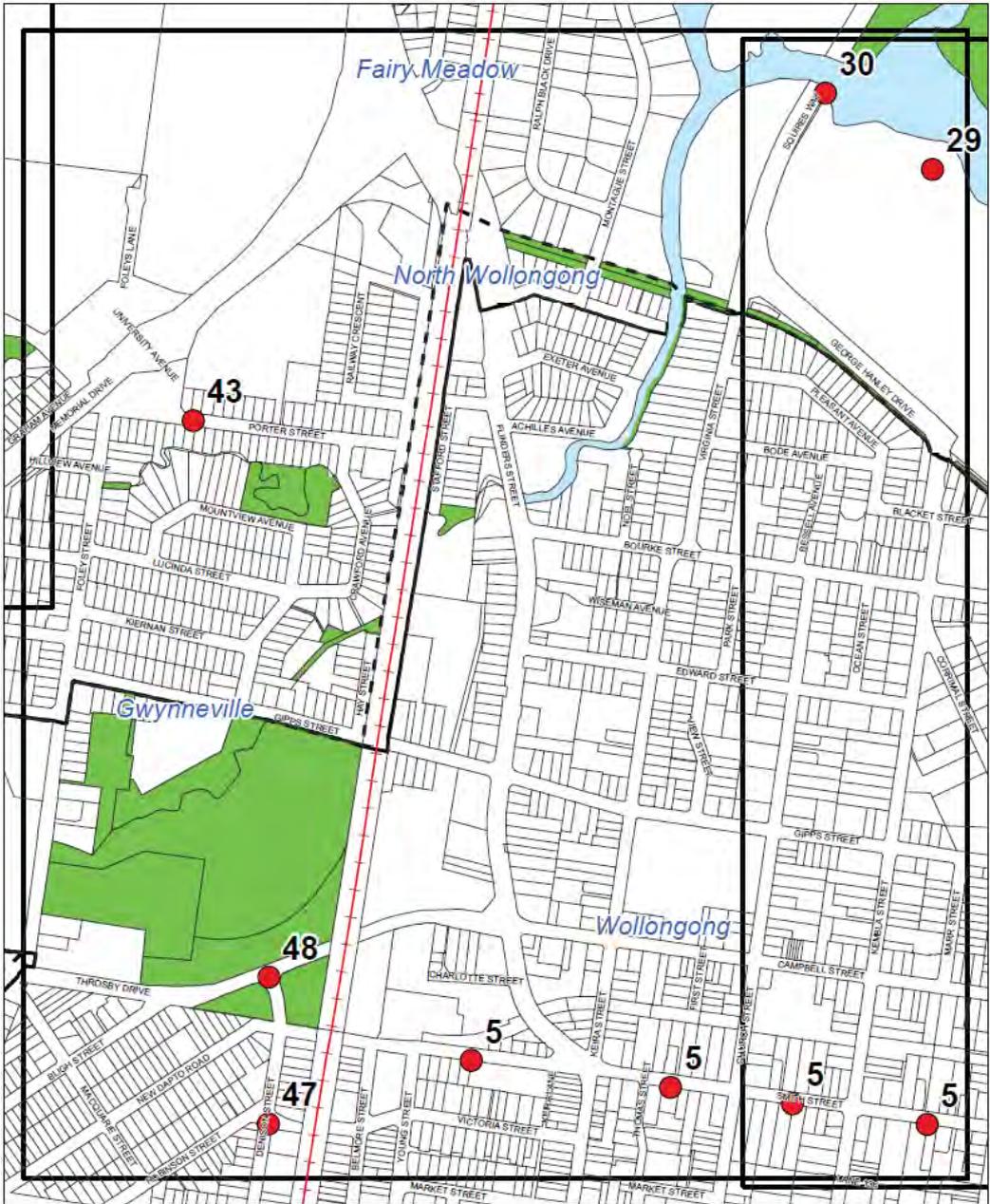
	Section 94A 2015 Map 21	Drawn By: J Lewis Date: April 2016
	 Community Land	Gls ref: - 80084A_2016_mapbook  0 300 Meters



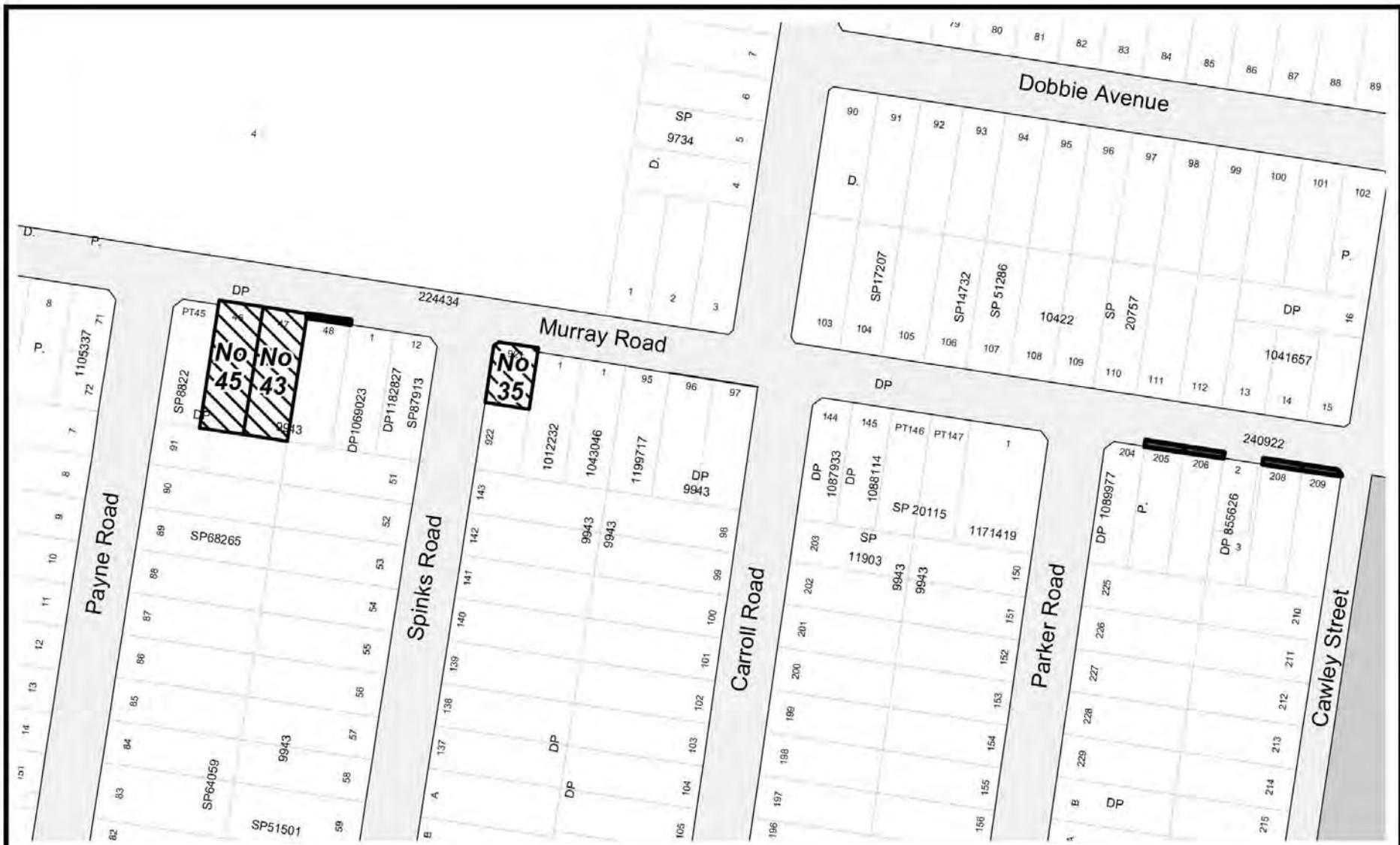
	<h3>Section 94A 2015</h3> <h3>Map 22</h3>	Drawn By: J Lewis Date: April 2016	
	 Community Land	Gic ref: - 80094A_2015_mapbook 0 300 Meters	



	<h3>Section 94A 2015</h3> <h3>Map 23</h3>	Drawn By: J Lewis Date: April 2016	
	 Community Land	Gic ref: - 86984A_2015_mapbook	0 300 Meters



	Section 94A 2015 Map 24	Drawn By: J Lewis Date: April 2015
	 Community Land	Gls ref: - See94A_2015_mapbook 0 300 Meters



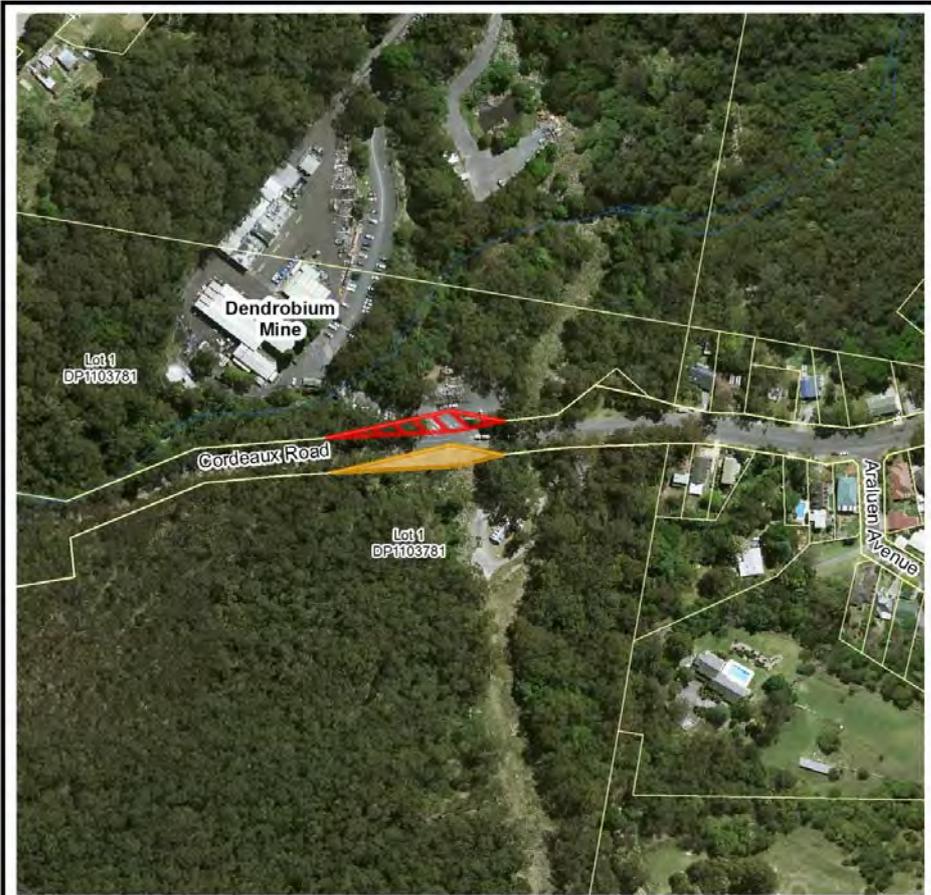
Portions of Road Widening still to be Acquired



Nos 35, 43 & 45 Murray Road - subject of this report



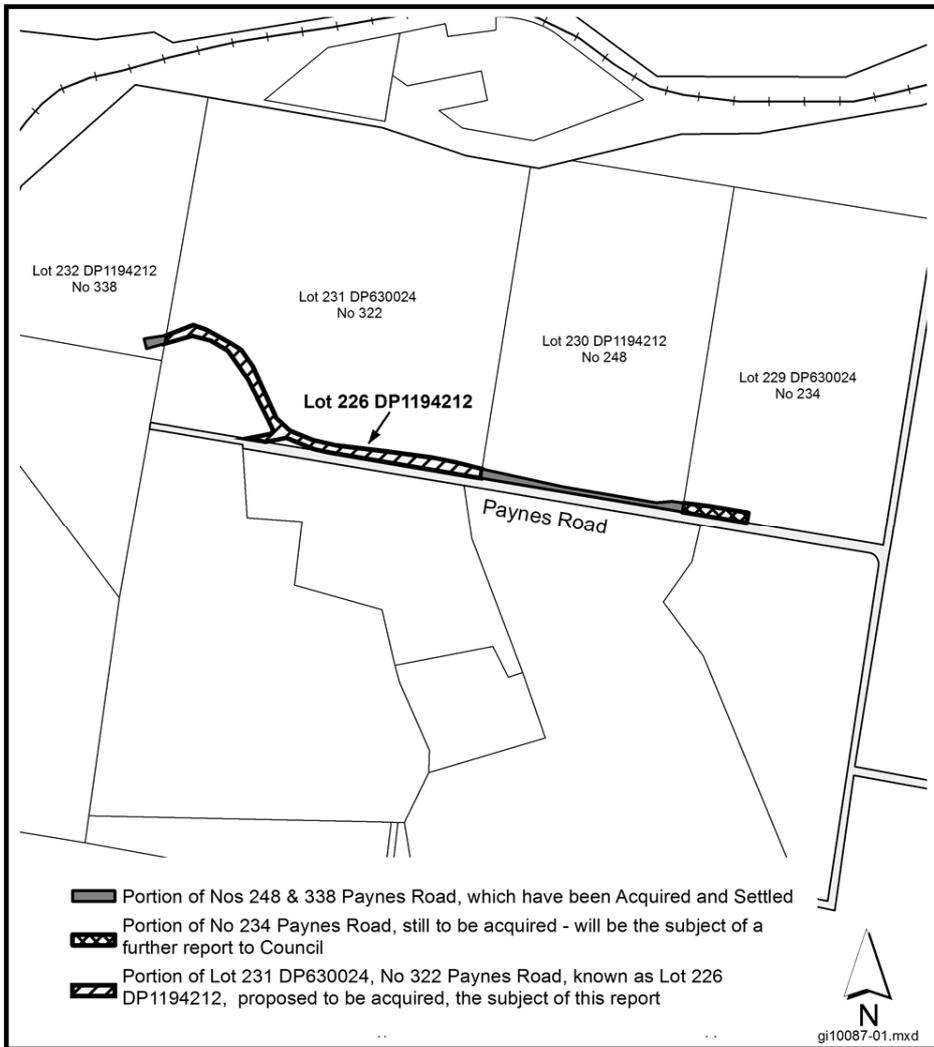
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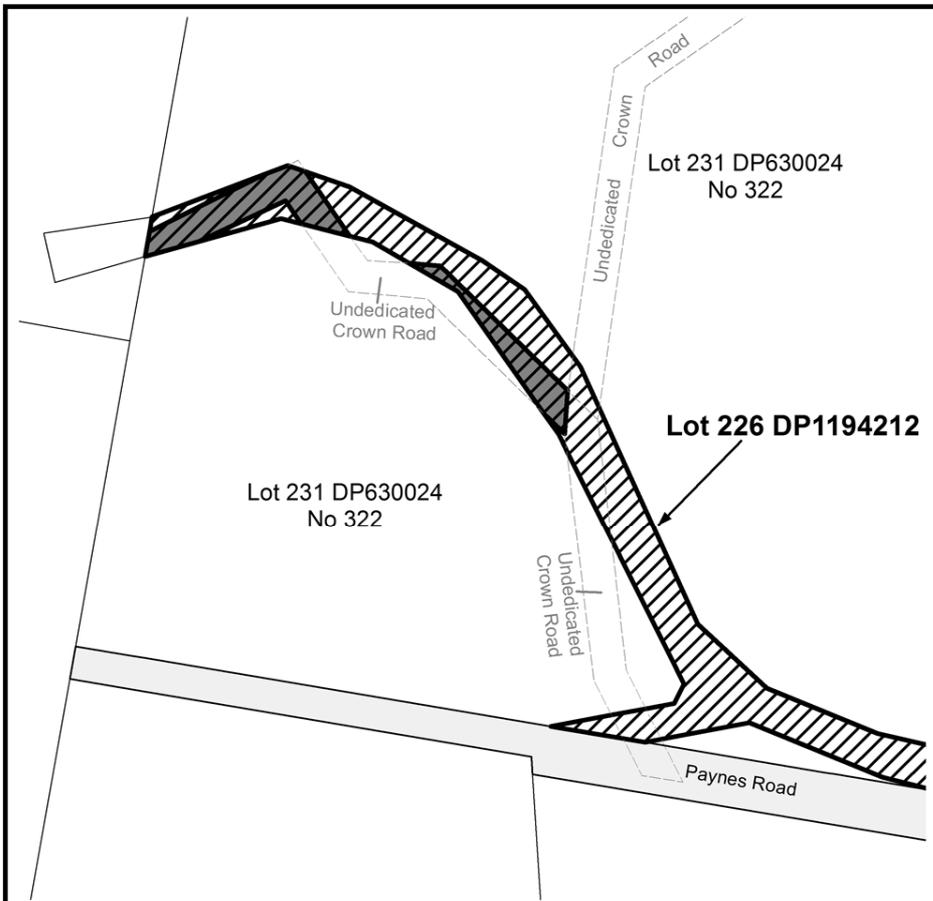
-  Portion of Cordeaux Road proposed to be compulsorily acquired and transferred to South32
-  Portion of Lot 1 DP1103781 proposed to be compulsorily acquired from South32



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Portion of Lot 231 DP630024, No 322 Paynes Road proposed to be Acquired

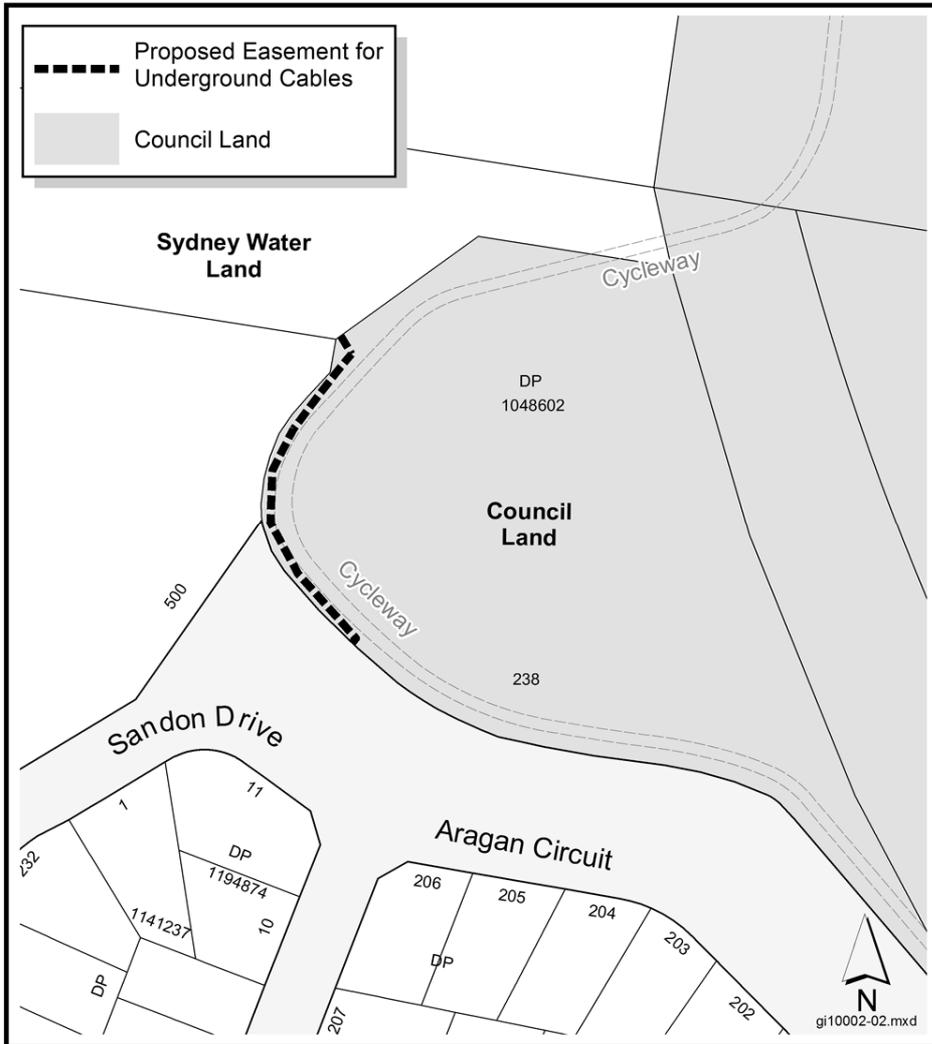


Portions of Lot 231 DP630024, No 322 Paynes Road, thought to be Crown Road but never dedicated - also proposed to be acquired

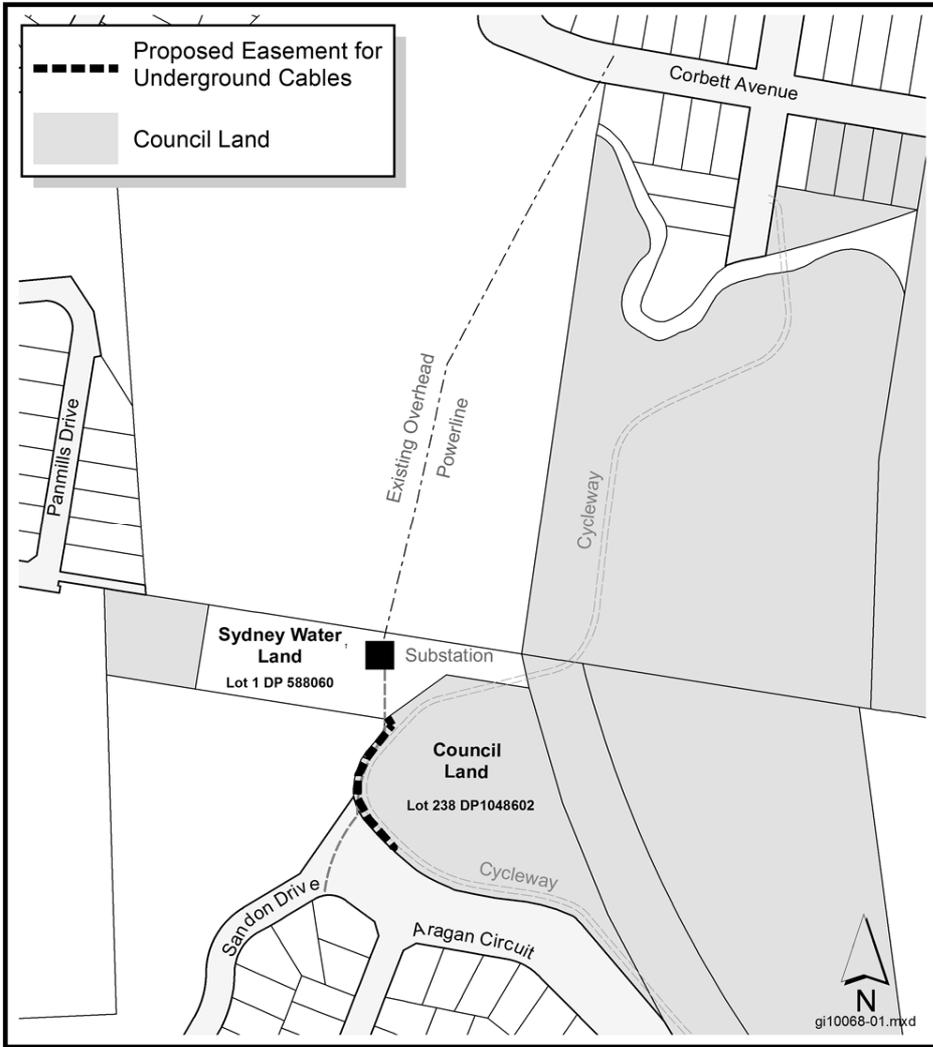


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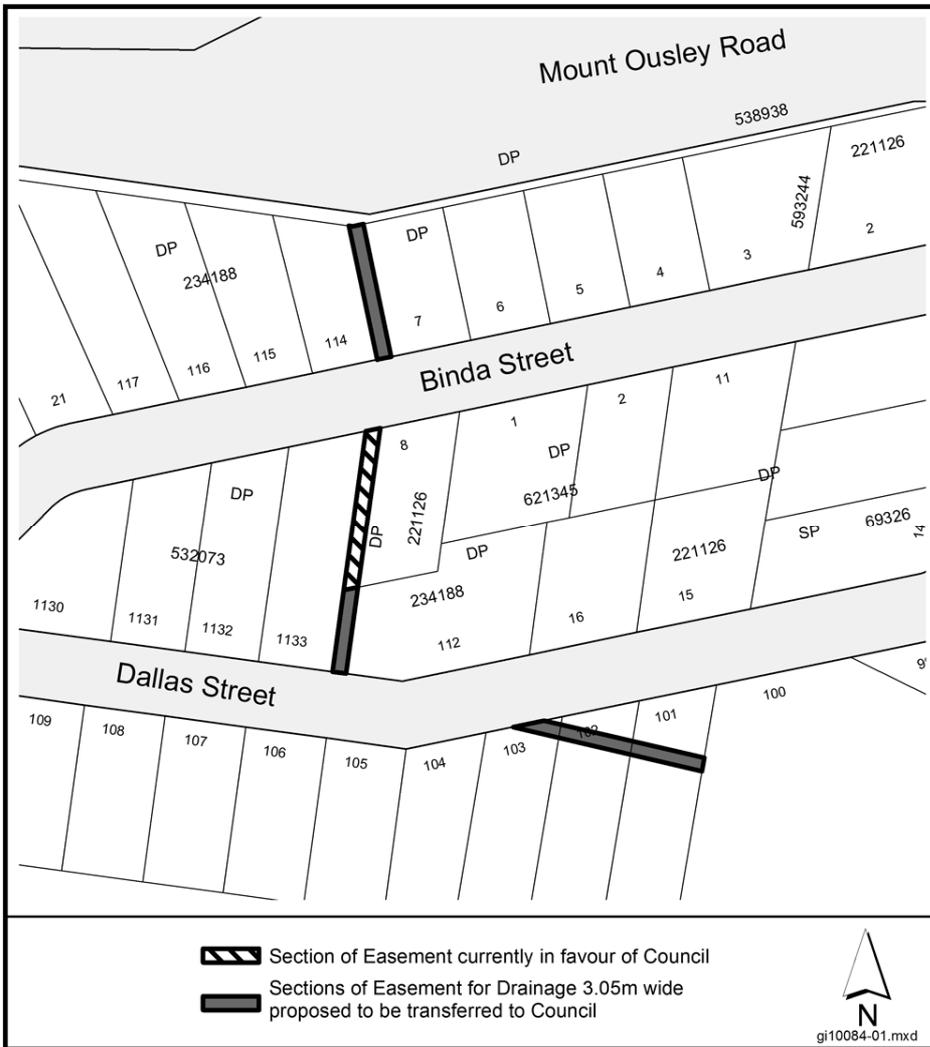
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**Sublime Point Water Treatment Facility - Permanent Works
T15/17**



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Area of Works
T15/07 - Debris Control Structure
for College Place



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Coledale Community Hall Fees and Charges

FEES AND CHARGES 2015/2016 PHONE: 4227 8181	FUNCTIONS	ALL OTHER ACTIVITIES	
	Social functions, weddings, balls, plays, conferences, exhibitions, dances, etc	NON PROFIT ORGANISATIONS (Community based and charity organization for non function activities)	ALL OTHER ORGANISATIONS (Commercial, private, government departments etc for non-function activities)
All Categories: Additional Costs (See Coledale Community Hall Conditions of Use)			
<ul style="list-style-type: none"> Preparation and clean up time 	½ hourly rate		
Main Hall and Meeting Room (upstairs)			
Bond	\$300.00	\$300.00	\$300.00
Bond – High Risk Function	\$600.00		
<ul style="list-style-type: none"> Hourly Rate 	\$45.00	\$20.00	\$25.00
Main Hall			
Bond	\$300.00	\$300.00	\$300.00
Bond – high Risk functions	\$600.00		
<ul style="list-style-type: none"> Hourly rate 	\$37.00	\$10.00	\$17.00
Meeting Room 1 (upstairs)			
Bond		\$200.00	\$200.00
Bond – high Risk functions			
<ul style="list-style-type: none"> Hourly rate per room 		\$10.00	\$14.00
Meeting Room 2 (downstairs)			
Bond		\$200.00	\$200.00
Bond – high Risk functions			
<ul style="list-style-type: none"> Hourly rate per room 		\$10.00	\$14.00

Double bond is required for 'high risk' activities – see Condition of Hire
 Security Guards are required for 18th/21st birthday parties & at the discretion of Centre Management
THIS FORM IS TO BE READ IN CONJUNCTION WITH THE CONDITIONS OF HIRE Z13/122823
 (Z15/114479)

BACKGROUND

Council's investment portfolio is managed by the Financial Services unit within the Finance Division. The portfolio requires daily management to ensure payroll and creditors' obligations are met and surplus funds are invested appropriately. Strategic management of the portfolio is required to ensure the timing of maturities corresponds with future obligations. Investment data is collated and verified to ensure monthly reporting requirements are met and internal controls are developed to support the investment function. The Investment Policy and Procedures document is designed to provide the internal controls required to achieve these outcomes whilst ensuring investments are made with regard to the prevailing Ministerial Investment Order and the Investment Guidelines.

OBJECTIVE

This Policy provides a framework for investing Council's funds at the most favourable return available at the time. Consideration is to be given to:

- The authority to invest;
- The preservation of capital;
- Liquidity;
- The risks involved in investments; and
- The return of the investment.

The authority to invest is given by the Local Government Act, Local Government Regulation, Ministerial Order and Council delegations.

Preservation of capital is the principal objective of the investment portfolio.– Investments are to be placed in a manner that seeks to ensure security and safeguarding of the investment portfolio. –This includes managing credit and interest rate risk within identified thresholds and parameters.

Investments obtained are to comply with a risk management framework represented by three key criteria:

- 1 Credit Risk: limit overall credit exposure of the portfolio.
- 2 Institutional Diversification: limit exposure to individual institutions.
- 3 Maturity Risk: manage liquidity and exposure to interest rate risk over a period of time.

Investments should be made while ensuring there is sufficient liquidity to meet all reasonably anticipated cash flow requirements as and when they fall due, without incurring the risk of significant costs of an unanticipated requirement to sell an investment.

The investment portfolio is generally expected to achieve a market average rate of return in line with the Council's risk tolerance.

POLICY STATEMENT

1 LEGISLATIVE REQUIREMENTS

All investments are to comply with the following:

- Local Government Act 1993 Section 625 and 412;
- Prevailing Ministerial Investment Order;
- Local Government (General) Regulation 2005 – Clause 212;
- The Trustee Amendment (Discretionary Investments) Act 1997 – Sections 14A (2), 14C (1) & (2);
- Local Government Code of Accounting Practice and Financial Reporting;
- Australian Accounting Standards;
- [Investment Policy Guidelines 2010](#); and
- Office of Local Government Circulars.

2 DELEGATION OF AUTHORITY

Authority for the implementation of the Investment Policy is delegated by Council to the General Manager in accordance with the Local Government Act 1993.

The General Manager may in turn sub delegate the day-to-day management of Council's investment portfolio to the Responsible Accounting Officer or other officers through Council's delegated authority process.

Council officers will have the appropriate level of skills and knowledge to undertake the investment functions of Council and not engage in activities that conflict with the proper implementation and management of Council's investments.

3 PRUDENT PERSON STANDARD

The investment portfolio will be managed with the care, diligence and skill that a prudent person would exercise. As trustees of public monies, officers are to manage Council's investment portfolios to safeguard the portfolio in accordance with the spirit of this Investment Policy.

Investments that are placed within this policy framework will be considered to be compliant with the prudent person standard.

4 ETHICS AND CONFLICTS OF INTEREST

Officers shall refrain from personal activities that would conflict with the proper execution and management of Council's investment portfolio. Disclosure of any conflict of interest should be made in accordance with the Code of Conduct.

Where appointed, independent [investment consultants/advisors](#) are also required to declare that they have no actual or perceived conflicts of interest.

5 APPROVED INVESTMENTS

Investments are limited to those allowed by the prevailing Ministerial Investment Order provided in the Appendix to this policy, [along with other prescriptive requirements within this policy](#).

6 RISK MANAGEMENT FRAMEWORK

Council has developed a risk management framework to assist in managing those risks outlined in the policy objective. This is achieved within identified thresholds and parameters represented by three key criteria.

i) Credit Risk Framework

To control the credit quality on the entire portfolio, the following credit framework limits the percentage of the portfolio exposed to any particular credit rating category.

PORTFOLIO CREDIT LIMITS		
S&P Long-Term Credit Ratings*	S&P Short-Term *	Maximum %
AAA Category	A-1+	100%
AA Category	A-1	80%
A Category or below	A-2	60%
BBB Category	A-3	20%
Unrated Category	Unrated	10%
Specific Ministerial Approved Forms of Investment		
NSW Treasury Corporation Deposits and Hour Glass Facilities		100%

* or Moody's / Fitch equivalents

ii) Institutional Diversification Framework

Exposure to an individual institution will be restricted by their credit rating so that single entity exposure is limited, as detailed in the table below:

INDIVIDUAL INSTITUTION LIMITS		
S&P Long-Term Credit Ratings *	S&P Short-Term *	Maximum %
AAA Category	A-1+	40%
AA Category	A-1	25%
A Category	A-2	15%
BBB Category	A-3	10%
Unrated ADIs	Unrated	10%
NSW Treasury Corporation Deposits and Hour Glass Facilities		
11am; Term Deposits; Bonds		45%
Hour Glass Facilities (managed funds)		
Cash Facility		45%
Strategic Cash Facility		35%
Medium Term Growth Facility		20%
Long Term Growth Facility		10%

iii) Maturity Risk Framework

The investment portfolio is to be invested within the following maturity constraints:

Overall Portfolio Term to Maturity Limits		
	Minimum	Maximum
Portfolio % < 1 year	40%	100%
<i>Cash available w/in 24 hrs</i>	5%	100%
Portfolio % > 1 year	0%	60%
Portfolio % > 3 years	0%	50%
Portfolio % > 5 years	0%	25%
Individual Investment Maturity Limits		
Authorised Deposit Taking Institutions (ADIs)	5 years	
State & Commonwealth Govt deposits/investments	10 years	
NSW T Corp Hour Glass Growth Facilities	time horizon: 7+ years	

Liquidity management: A minimum of 5% of the total portfolio will be available as cash within 24 hours, under normal circumstances, to finance day-to-day requirements.

Notes to the Risk Framework Tables:

- Investments in unrated institutions are restricted to those with a minimum total Asset Size of \$1 billion (Table 2).
- The short-term credit rating limit will apply in the case of discrepancies between short- and long-term ratings (Table 1 and Table 2).
- If any of the Council's investments are downgraded such that they no longer fall within the investment policy limits, a review will be undertaken in consultation with Council's investment advisors and a

recommendation in writing made to the General Manager for approval as to whether the investment will be held until maturity or divested. The decision will be reported to Council in the next monthly report (Table 1 and Table 2).

- Percentage limits are based on Council's investment balance at the time of deposit (Tables 1, 2 and 3).

7 INVESTMENT STRATEGY

An Investment Strategy will run in conjunction with the investment policy. The investment strategy will be reviewed with an independent investment ~~consultant~~ ~~advisor~~ twice a year. The Strategy will outline:

- Council's cash flow expectations;
- Optimal target allocation of investment types, credit rating exposure and term to maturity exposure; and
- Appropriateness of overall investment types for Council's portfolio.

The investment strategy will be prepared by the Accountant – Taxation and Finance and approved by the Executive Management Committee and referred to the Governance Committee.

8 INVESTMENT ~~CONSULTANT~~ ~~ADVISOR~~

Council's investment ~~consultant~~ ~~advisor~~ must be approved by Council and licensed by the Australian Securities and Investment Commission. The ~~consultant~~ ~~advisor~~ must be an independent person who has no actual or potential conflict of interest in relation to investment products and strategy being recommended, and is free to choose the most appropriate product within the terms and conditions of the Investment Policy.

The independent ~~investment consultant~~ ~~advisor~~ is required to provide written confirmation that they do not have any actual or potential conflicts of interest in relation to the investments they are recommending or reviewing, including that they are not receiving any commissions or other benefits in relation to the investments being recommended or reviewed.

Council's investment ~~consultant~~ ~~advisor~~ will be engaged in line with adopted tender guidelines and procedures.

9 MEASUREMENT

The investment return for the portfolio is to be regularly reviewed by an independent ~~consultant~~ ~~financial~~ ~~advisor~~ by assessing the market value of the portfolio. The market value is to be assessed at least once a month to coincide with monthly reporting.

10 PERFORMANCE BENCHMARKS

The performance of the investment portfolio shall be measured against the industry standard UBS-Bloomberg 90 Day Bank Bill Index.

11 REPORTING AND REVIEWING OF INVESTMENTS

Documentary evidence must be held for each investment and details thereof maintained in an Investment Register. Council has a registered Austraclear participant proxy account, which enables Council to hold all its securities in its own name and own account. Council will receive a monthly holding statement of all securities held and is to be reconciled to the Investment Register each month.

The documentary evidence must provide Council legal title to the investment.

Certificates must be obtained from the financial institutions confirming the amounts of investments held on the Council's behalf as at 30 June each year and reconciled to the Investment Register.

All investments are to be appropriately recorded in Council's financial records and reconciled at least on a monthly basis.

A monthly report will be provided to Council ~~and the Governance Committee~~. The report will detail the investment portfolio in terms of performance, percentage exposure of total portfolio, maturity date and changes in market value.

This Investment Policy will be reviewed every three years or as required in the event of legislative changes. The Investment Policy may also be changed as a result of other amendments that are to the advantage of the

Council and in the spirit of this policy. Any amendment to the Investment Policy must be by way of Council resolution.

STATEMENT OF PROCEDURES

STAKEHOLDERS

NAME	RESPONSIBILITIES
General Manager	<ul style="list-style-type: none"> Implementation of the Investment Policy as delegated by Council in accordance with the Local Government Act 1993 Sub delegation of the day-to-day management of the portfolio to the Responsible Accounting Officer or other officers through the delegated approval process
Director Corporate and Community Services	<ul style="list-style-type: none"> Approval of Monthly Investment Report to Council Approval of Half-Yearly Investment Strategy as a member of EMC Informal review of Investment Selections
Manager Finance	<ul style="list-style-type: none"> Approval of Monthly Investment Report to Council as the Responsible Accounting Officer Approval of Half-Yearly Investment Strategy to EMC and Governance Informal Review of Investment Selections
Financial Services Manager	<ul style="list-style-type: none"> Oversee the investment function Approve investment journals to General Ledger Review Monthly Investment Report and submit to Manager Finance Preparation of the Half-Yearly Investment Strategy
Authorised Bank Signatories (two signatures required)	<ul style="list-style-type: none"> Authorise bank transfers from bank accounts Authorise acquisition of investments Authorise redemption of matured investments (when requested)
Accountant – Taxation and Finance	<ul style="list-style-type: none"> Oversee daily monitoring of General Fund and At-Call Bank Accounts Cash flow monitoring and reporting Liaise with aApproved iInvestment Advisor cConsultant regarding investment acquisitions, fair values of investments, monthly reports, strategic reports and general enquiries Generate accrual and actual fair value and interest received investment journals Update Interest Received Summary Report and forward to Grants and Restricted Assets officer Produce Monthly Investment Report and submit to Financial Services Manager with working papers Provide Bank Account interest received for month and end-of-month balance to Approved Investment Consultant/Advisor to assist in preparation of their Monthly Report Trim File all investment documents in TRIM
Financial Services UDP	<ul style="list-style-type: none"> Daily monitoring of General Fund and At-Call Bank Accounts Transfer of surplus funds between Wollongong Council bank accounts via Commbiz Create investment journals to General Ledger Update daily the Register of Investments Compare Register of Investments to General Ledger and monthly iInvestment cConsultant/Advisor rReport monthly Trim File Settlement Advice and Confirmation Advice in TRIM
Project Accounting UDP	<ul style="list-style-type: none"> Perform end-of-Month reconciliation between General Ledger and Subsidiary Ledgers for interest received, fair value movements and Balance Sheet Adjustments

~~The following procedures are to be followed to ensure:~~

- ~~• there is sufficient liquidity to meet all anticipated cash-flow requirements as and when they fall due;~~
- ~~• probity in the investment of Council's surplus Funds;~~
- ~~• financial controls are adhered to;~~
- ~~• appropriate accounting and reporting is maintained.~~

Wollongong City Council holds the following bank accounts to hold funds received:

General Fund Bank Account

General working account.

At-Call Account

Cash Investment account – earns a higher interest rate than General Fund Bank Account. Surplus funds from the General Fund Bank Account are transferred to the At-Call Account.

Investments relating to other accounts held such as the Lord Mayor's Relief Fund and the Trust Account are managed separately in the spirit of this policy and prevailing legislation.

~~The following procedures are to be followed to ensure:~~

- ~~• there is sufficient liquidity to meet all anticipated cash-flow requirements as and when they fall due;~~
- ~~• probity in the investment of Council's surplus Funds;~~
- ~~• financial controls are adhered to; and~~
- ~~• appropriate accounting and reporting is maintained.~~

Monitoring

A forecasting monitoring tool is used to identify the cash flow requirements a year ahead. Monthly actual and estimated Cash Receipts, Investment Maturities, Government Grants, Payroll, Operational Payments, Large Capital Payments are updated regularly to assist in liquidity requirements and used in estimating the amount of future investments and when they are to be made liquid.

A cash-monitoring tool is used to identify the daily bank balance and forecasting for the following day. It identifies the day's cash at hand and the estimated cash flow outputs for the day. Surplus funds are then invested in line with the investment policy.

Selection of Investment

The Accountant – Taxation and Finance liaises with the approved investment ~~adviser-consultant and Australian Authorised Deposit-taking Institutions (ADIs), investment institutions~~ to investigate available options before selecting the optimum investment ensuring compliance with the investment policy.

The Financial Services Manager is notified of the selected investment and provides email approval on all investment purchases (other than the At-Call Account).

~~The Manager Finance and Director Corporate and Community Services are copied into the Financial Services Manager approval email to allow periodic informal review of investment selections.~~

~~An approval checklist is maintained by the Accountant – Taxation and Finance for all new investments and this is stored in TRIM with key documentation.~~ **Authorisation/Settlement Process**

The transfer of funds ~~between from~~ Council's bank accounts ~~and any direct investments in an ADI to the Investment Funds bank account~~ are to be is authorised by two bank signatories. Investments into ADI's which hold an Austraclear account, can be settled using the Council's Austraclear account code, where written instructions are provided to the ADI and the investment consultant to settle the transaction on Council's behalf. –Appropriate documentation is provided with each transfer to identify sufficient funds in the bank account to make the investment and the details of the acquisition of the new investment. These documents are filed in TRIM. The bank account details are verified by the authorising signatories using a Masterfile controlled by the Financial Services Manager.

Register of Investments

A register of all investments is updated daily to reflect acquisition and maturity adjustments to the investment portfolio.

The register includes the purchase date, maturity date, face value, investment type, term of investment, interest rate, interest receivable, investment institution and date of report.

Journal Posting to General Ledger

An investment journal is to be posted to reflect the transfer of funds to and from bank accounts and investment types.

These journals are approved by Financial Services Manager.

Fair value of investment assets

Investment assets other than bank accounts and term deposits require fair valuation to record the value of the investment each month for reporting purposes. This information is provided from the Approved Investment [Consultant Advisor](#) as per Investment Policy.

Reconciliation

Reconciliation between the General Ledger and Subsidiary Ledgers occurs monthly.

Applicable reconciliations are interest received, fair value adjustments and Balance Sheet.

Monthly Investment Report

The Investment Report including the Statement of Investments and commentary is prepared and submitted to the Financial Services Manager for review. The Manager Finance approves the final version before the Monthly Council Meeting.

SUMMARY SHEET

Responsible Division	Finance
Date adopted by Council	[To be inserted by Corporate Governance]
Date of previous adoptions	14 March 2005 (EMC), 26 February 2007 (EMC), 21 June 2011, 13 August 2012
Date of next review	<u>31 May 2018</u>
Prepared by	Financial Services Manager <u>(Acting)</u>
Authorised by	Manager Finance

DRAFT

LOCAL GOVERNMENT ACT 1993 – INVESTMENT ORDER

(Relating to investments by councils)

I, the Hon. Barbara Perry MP, Minister for Local Government, in pursuance of section 625(2) of the *Local Government Act 1993* and with the approval of the Treasurer, do, by this my Order, notify for the purposes of section 625 of that Act that a council or county council may only invest money (on the basis that all investments must be denominated in Australian Dollars) in the following forms of investment:

- (a) any public funds or securities issued by or guaranteed by, the Commonwealth, any State of the Commonwealth or a Territory;
- (b) any debentures or securities issued by a council (within the meaning of the *Local Government Act 1993* (NSW));
- (c) interest bearing deposits with, or any debentures or bonds issued by, an authorised deposit-taking institution (as defined in the *Banking Act 1959* (Cwth)), but excluding subordinated debt obligations;
- (d) any bill of exchange which has a maturity date of not more than 200 days; and if purchased for value confers on the holder in due course a right of recourse against a bank which has been designated as an authorised deposit-taking institution by the Australian Prudential Regulation Authority;
- (e) a deposit with the New South Wales Treasury Corporation or investments in an Hour-Glass investment facility of the New South Wales Treasury Corporation;

All investment instruments (excluding short term discount instruments) referred to above include both principal and investment income.

Transitional Arrangements

- (i) Subject to paragraph (ii) nothing in this Order affects any investment made before the date of this Order which was made in compliance with the previous Ministerial Orders, and such investments are taken to be in compliance with this Order.
- (ii) Paragraph (i) only applies to those investments made before the date of this Order and does not apply to any restructuring or switching of investments or any re-investment of proceeds received on disposal or maturity of such investments, which for the avoidance of doubt must comply with this Order.

Key Considerations

An investment is not in a form of investment notified by this order unless it also complies with an investment policy of council adopted by a resolution of council.

All councils should by resolution adopt an investment policy that is consistent with this Order and any guidelines issued by the Chief Executive (Local Government), Department of Premier and Cabinet, from time to time.

The General Manager, or any other staff member, with delegated authority by a council to invest funds on behalf of a council must do so in accordance with the council's adopted investment policy.

Councils have a fiduciary responsibility when investing. Councils should exercise the care, diligence and skill that a prudent person would exercise in managing the affairs of other persons.

When exercising the power of investment councils should consider, but not be limited by, the risk of capital or income loss or depreciation, the likely income return and the timing of income return, the length of the term of the proposed investment, the liquidity and marketability of the proposed investment, the likelihood of inflation affecting the value of the proposed investment and the costs (including commissions, fees, charges and duties payable) of making the proposed investment.

Dated this 12th day of January 2011


Hon BARBARA PERRY MP
Minister for Local Government

Council's Investment Policy

Social and Ethical Investing Can Council Do It & Provide Value?



Overview

1. Recap from Council Meeting held on 9 June 2015
2. Case Study 1: Local Government Super
3. Initial view on the inclusion of ESG principles in Council's Investment Policy
4. Council request more information on the social, environmental and corporate governance principles which have been provided as examples within the UN definition for responsible investment
5. Other Councils- What are they Doing?
6. Case Study 2: Tweed Council
7. Council's portfolio under the Tweed Council model
8. Options
9. Questions

Through our investigation our aim has been to determine if we can achieve the integration of Ethical Social and Governance (ESG) principles into our policy in a way that provides value and within a manageable governance framework.

Recap from Council Meeting held on 9 June 2015

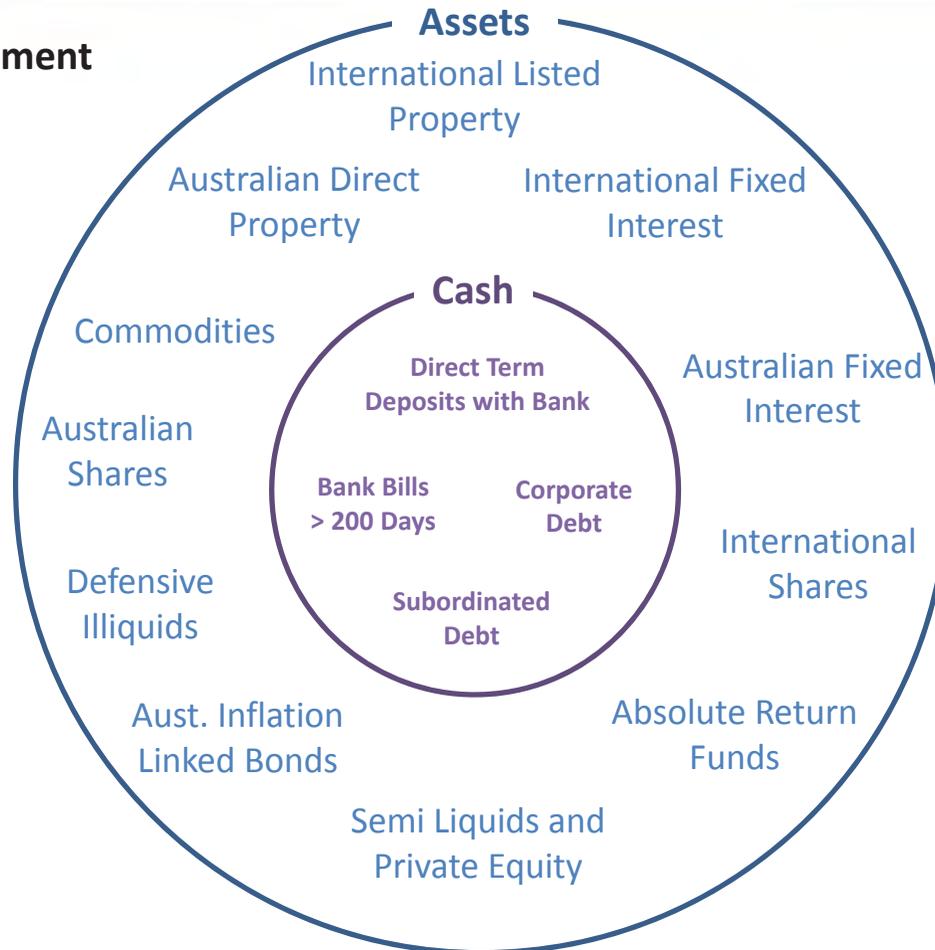
- Council's current investment framework
- Invest within the Ministerial Order
- Authorised Deposit Taking Institution
- Within Council's Investment Policy

Case Study 1

Local Government Super Compared to Council

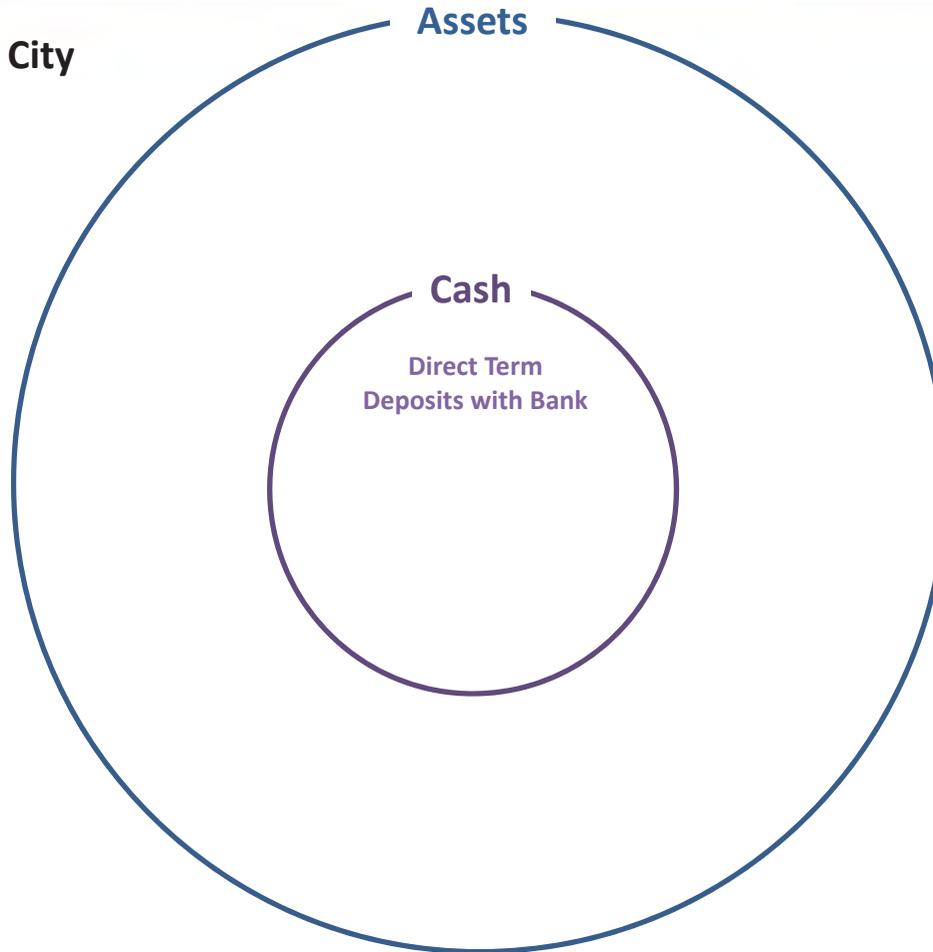
COUNCILLOR BRIEFING SESSION

Local Government Super



LGS invests on behalf of our members in a range of assets using a sustainable and responsible investment approach. We believe that this approach minimises risks, generates better long-term returns and is in line with our members' interests.

Wollongong City
Council



Our initial View on the Inclusion of ESG Principles in Council's Investment Policy

To be successful we would need to set up:

- Processes and procedures for each investment required
- Outcomes that are measurable and with consequence
- Resources required to manage
- Potential cost to Council in the short term

More information on the UN principles for Responsible Investment:

- **Socially Responsible Investing in practice**

An investment strategy that aims to maximise returns whilst also investing towards socially and environmentally beneficial outcomes. The strategy usually involves a negative screen as well as a positive screen, which weights investment away from environmentally or socially detrimental industries and towards socially or environmentally beneficial investments. Such an investment strategy is values based.

- **Positive and Negative Screening**

We seek out positive investments that support:



People, quality and sustainability

We avoid investments that harm:



People, animals, society and the environment

Other Councils – What are they doing?

- Some have adopted broad statements with little or no implication on practice.
- One has undertaken a negative screening process (Marrickville).
- One has a structured approach that includes a committee that oversees each investment and is coordinated by the Sustainability Manager (Sydney).
- One has moved to highlight investments assessed as ethical in their monthly report to Council.

Tweed: A Case Study

- Highlight investments acknowledged by Australian Ethical Fund.
- Australian Ethical Fund are signatories to the UN's Principles for Responsible Investing.
- Tweed do not exclude investments in those companies not on the list.

Council's Portfolio under the Tweed Model

WOLLONGONG CITY COUNCIL extract of STATEMENT OF INVESTMENTS 30 June 2015						
DIRECT INVESTMENTS						
Investment Body	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupon Rate	
* NAB Professional Maximiser	19,405,468	11am	30/06/2015	30/06/2015	2.25%	
* Bank of Queensland	2,000,000	T/Deposit	13/03/2015	13/07/2015	3.10%	
* Bendigo Bank	5,000,000	T/Deposit	15/06/2015	15/07/2015	2.50%	
* Bank of Queensland	2,000,000	T/Deposit	28/01/2015	28/07/2015	3.45%	
* ANZ	3,000,000	T/Deposit	29/08/2014	29/07/2015	3.74%	
* Bendigo Bank	3,000,000	T/Deposit	29/06/2015	29/07/2015	2.65%	
* IMB	2,000,000	T/Deposit	30/01/2015	29/07/2015	3.20%	
* IMB	5,000,000	T/Deposit	1/05/2015	30/07/2015	2.85%	
* ANZ	2,500,000	T/Deposit	6/08/2013	6/08/2015	4.05%	
* NAB	2,000,000	T/Deposit	27/02/2014	27/08/2015	3.94%	
* Bank of Queensland	3,000,000	T/Deposit	28/11/2014	28/08/2015	3.57%	
* ING Australia	5,000,000	T/Deposit	29/08/2013	31/08/2015	4.15%	
* ING Australia	4,000,000	T/Deposit	29/08/2013	31/08/2015	4.15%	
* NAB	1,500,000	T/Deposit	29/08/2013	31/08/2015	4.21%	
* Bank of Queensland	3,000,000	T/Deposit	18/02/2015	18/09/2015	3.20%	
* NAB	2,000,000	T/Deposit	18/02/2015	18/09/2015	3.16%	
* Members Equity Bank	2,500,000	T/Deposit	24/04/2015	21/09/2015	2.95%	
* Bank of Queensland	3,000,000	T/Deposit	26/03/2015	23/09/2015	3.10%	
* Bendigo Bank	2,000,000	T/Deposit	26/03/2015	28/09/2015	3.00%	
* ANZ	2,000,000	T/Deposit	29/08/2014	29/09/2015	3.74%	
* Bendigo Bank	2,000,000	T/Deposit	29/06/2015	29/09/2015	3.00%	
* Bank of Queensland	2,000,000	T/Deposit	7/01/2015	7/10/2015	3.50%	
* Commonwealth Bank	3,000,000	T/Deposit	13/03/2015	9/10/2015	3.10%	
* Bendigo Bank	1,500,000	T/Deposit	24/04/2015	26/10/2015	2.85%	
* Members Equity Bank	1,000,000	T/Deposit	1/04/2015	28/10/2015	2.95%	
* ANZ	2,000,000	T/Deposit	29/08/2014	29/10/2015	3.74%	
* IMB	2,000,000	T/Deposit	18/05/2015	16/11/2015	2.80%	
* Members Equity Bank	3,000,000	T/Deposit	28/05/2015	24/11/2015	2.85%	
* ANZ	2,000,000	T/Deposit	29/08/2014	29/11/2015	3.74%	
* NAB	2,000,000	T/Deposit	28/11/2014	30/11/2015	3.61%	
* IMB	2,000,000	T/Deposit	17/12/2014	17/12/2015	3.20%	
* NAB	1,030,000	T/Deposit	17/12/2014	17/12/2015	3.60%	
* Bendigo Bank	3,000,000	T/Deposit	29/05/2015	4/01/2016	2.85%	
* Bank of Queensland	2,000,000	T/Deposit	26/03/2015	4/01/2016	3.00%	
* Members Equity Bank	3,000,000	T/Deposit	18/02/2015	18/01/2016	3.20%	
* Commonwealth Bank	5,000,000	T/Deposit	27/02/2015	27/01/2016	3.08%	
* Bank of Queensland	2,000,000	T/Deposit	27/02/2014	26/02/2016	4.05%	
* NAB	4,000,000	T/Deposit	27/02/2014	29/02/2016	4.13%	
* Members Equity Bank	2,000,000	T/Deposit	18/02/2015	18/03/2016	3.20%	
* Commonwealth Bank	3,000,000	T/Deposit	26/03/2015	24/03/2016	2.95%	
* IMB	2,000,000	T/Deposit	28/05/2015	28/04/2016	2.80%	
* Westpac	1,011,960	FRN	30/01/2012	9/05/2016	3.27%	
* NAB	2,500,000	T/Deposit	6/08/2014	8/08/2016	3.74%	
* Commonwealth Bank	2,000,000	T/Deposit	27/02/2015	22/08/2016	3.05%	
* Members Equity Bank	2,500,000	T/Deposit	27/02/2015	22/08/2016	2.90%	
* Westpac	2,000,000	T/Deposit	24/04/2015	19/10/2016	2.90%	
* Commonwealth Bank Australia zero coupon bond with a \$4M face value	3,578,000	BOND	21/01/2008	22/01/2018		
* NAB	2,994,570	FRN	24/06/2015	3/06/2020	2.95%	
* EMERALD A Mortgage Backed Security *	581,039	M/Bac	17/07/2006	22/08/2022	2.58%	
* EMERALD B Mortgage Backed Security *	1,346,320	M/Bac	17/07/2006	23/08/2027	2.88%	

* Ethical Financial Institutions highlighted \$ 65,511,960.00 which represents 46% of the total portfolio

Recommendation:

As proposed to Council in July.

Alternatives considered:

- 1 Council highlights within the monthly investment report those investments (similar to Tweed) that are assessed as worthy ethical investments based on publically available and accredited list such as that provided by Australian Ethical.
- 2 As above and Council gives preference to those investments assessed as ethical where the rate of return quoted is the same.
- 3 As above but preference given within a cost range, say up to a discrepancy in rate of 10 basis points.

Potential cost of \$140K based on Council's current portfolio in regards to alternative 3.

WOLLONGONG CITY COUNCIL
STATEMENT OF INVESTMENTS
28 August 2015

DIRECT INVESTMENTS

Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupon Rate
NAB Professional Maximiser	A-1+	-	25,309,113	11am	28/08/2015	28/08/2015	2.25%
ING Australia	A-2	5,000,000	5,000,000	T/Deposit	29/08/2013	31/08/2015	4.15%
ING Australia	A-2	4,000,000	4,000,000	T/Deposit	29/08/2013	31/08/2015	4.15%
NAB	A-1+	1,500,000	1,500,000	T/Deposit	29/08/2013	31/08/2015	4.21%
Bank of Queensland	A-2	3,000,000	3,000,000	T/Deposit	18/02/2015	18/09/2015	3.20%
NAB	A-1+	2,000,000	2,000,000	T/Deposit	18/02/2015	18/09/2015	3.16%
ME Bank	A-2	2,500,000	2,500,000	T/Deposit	24/04/2015	21/09/2015	2.95%
Bank of Queensland	A-2	3,000,000	3,000,000	T/Deposit	26/03/2015	23/09/2015	3.10%
Bendigo Bank	A-2	2,000,000	2,000,000	T/Deposit	26/03/2015	28/09/2015	3.00%
ANZ	A-1+	2,000,000	2,000,000	T/Deposit	29/08/2014	29/09/2015	3.74%
Bendigo Bank	A-2	2,000,000	2,000,000	T/Deposit	29/06/2015	29/09/2015	3.00%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	7/08/2015	6/10/2015	2.65%
Bank of Queensland	A-2	2,000,000	2,000,000	T/Deposit	7/01/2015	7/10/2015	3.50%
Commonwealth Bank	A-1	3,000,000	3,000,000	T/Deposit	13/03/2015	9/10/2015	3.10%
Bendigo Bank	A-2	1,500,000	1,500,000	T/Deposit	24/04/2015	26/10/2015	2.85%
ME Bank	A-2	1,000,000	1,000,000	T/Deposit	1/04/2015	28/10/2015	2.95%
ANZ	A-1+	2,000,000	2,000,000	T/Deposit	29/08/2014	29/10/2015	3.74%
ME Bank	A-2	2,000,000	2,000,000	T/Deposit	31/07/2015	29/10/2015	2.85%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	7/08/2015	5/11/2015	2.80%
IMB	A-2	2,000,000	2,000,000	T/Deposit	18/05/2015	16/11/2015	2.80%
ME Bank	A-2	3,000,000	3,000,000	T/Deposit	28/05/2015	24/11/2015	2.85%
ANZ	A-1+	2,000,000	2,000,000	T/Deposit	29/08/2014	29/11/2015	3.74%
NAB	A-1+	2,000,000	2,000,000	T/Deposit	28/11/2014	30/11/2015	3.61%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	7/08/2015	7/12/2015	2.85%
IMB	A-2	2,000,000	2,000,000	T/Deposit	17/12/2014	17/12/2015	3.20%
NAB	A-1+	1,030,000	1,030,000	T/Deposit	17/12/2014	17/12/2015	3.60%
Commonwealth Bank	A-1	1,000,000	1,000,000	T/Deposit	28/08/2015	29/12/2015	2.83%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	7/08/2015	4/01/2016	2.85%
Bendigo Bank	A-2	3,000,000	3,000,000	T/Deposit	29/05/2015	4/01/2016	2.85%
Bank of Queensland	A-2	2,000,000	2,000,000	T/Deposit	26/03/2015	4/01/2016	3.00%
ME Bank	A-2	3,000,000	3,000,000	T/Deposit	18/02/2015	18/01/2016	3.20%
Commonwealth Bank	A-1	5,000,000	5,000,000	T/Deposit	27/02/2015	27/01/2016	3.08%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	7/08/2015	3/02/2016	2.85%
Bank of Queensland	A-2	2,000,000	2,000,000	T/Deposit	27/02/2014	26/02/2016	4.05%
NAB	A-1+	4,000,000	4,000,000	T/Deposit	27/02/2014	29/02/2016	4.13%
ME Bank	A-2	2,000,000	2,000,000	T/Deposit	18/02/2015	18/03/2016	3.20%
Commonwealth Bank	A-1	1,000,000	1,000,000	T/Deposit	28/08/2015	24/03/2016	2.79%
Commonwealth Bank	A-1	3,000,000	3,000,000	T/Deposit	26/03/2015	24/03/2016	2.95%
BankWest	A-2	1,000,000	1,000,000	T/Deposit	31/07/2015	27/04/2016	2.90%
IMB	A-2	2,000,000	2,000,000	T/Deposit	28/05/2015	28/04/2016	2.80%
Westpac	A-1+	1,000,000	1,007,780	FRN	30/01/2012	9/05/2016	3.27%
IMB	A-2	1,000,000	1,000,000	T/Deposit	28/08/2015	1/07/2016	2.80%
BankWest	A-2	2,000,000	2,000,000	T/Deposit	31/07/2015	29/07/2016	2.90%
ANZ	A-1+	2,500,000	2,500,000	T/Deposit	6/08/2015	6/08/2016	3.06%
NAB	A-1+	2,500,000	2,500,000	T/Deposit	6/08/2014	8/08/2016	3.74%
Commonwealth Bank	A-1	2,000,000	2,000,000	T/Deposit	27/02/2015	22/08/2016	3.05%
ME Bank	A-2	2,500,000	2,500,000	T/Deposit	27/02/2015	22/08/2016	2.90%
Westpac	A-1+	2,000,000	2,000,000	T/Deposit	24/04/2015	19/10/2016	2.90%
Westpac	A-1+	3,000,000	3,000,000	T/Deposit	31/07/2015	31/01/2017	2.74%
IMB	A-2	2,000,000	2,000,000	T/Deposit	28/08/2015	28/02/2017	2.80%
Bendigo Bank	A-2	2,000,000	2,000,000	T/Deposit	31/07/2015	31/07/2017	3.00%
IMB	A-2	5,000,000	5,000,000	T/Deposit	30/07/2015	31/07/2017	2.80%
Bank of Queensland	A-2	3,000,000	3,000,000	T/Deposit	28/08/2015	28/08/2017	2.80%
Commonwealth Bank Australia zero coupon bond with a \$4M face value	A-1+	2,000,000	3,608,000	BOND	21/01/2008	22/01/2018	
NAB	A-1+	3,000,000	3,016,920	FRN	24/06/2015	3/06/2020	2.95%
Bendigo Bank	A-2	2,000,000	2,001,860	FRN	18/08/2015	18/08/2020	3.24%
EMERALD A Mortgage Backed Security *	AAA	715,214	561,801	M/Bac	17/07/2006	22/08/2022	2.58%
EMERALD B Mortgage Backed Security *	AA	2,000,000	1,341,100	M/Bac	17/07/2006	23/08/2027	2.88%

MANAGED FUNDS

Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Purchase Date	Monthly Return (Actual)	Annualised % p.a.	FYTD (Actual)
Tcorp Long Term Growth Facility Trust	N/A	1,131,841	1,708,429	13/06/2007	-3.89%	-50.73%	-5.30%

Investment Body	Face Value	Security
Southern Phone Company	2	shares

TOTAL \$ 152,585,005

* The maturity date provided is the weighted-average life of the security. This is the average amount of time that will elapse from the date of security's issuance until each dollar is repaid based on an actuarial assessment. Assessments are carried out on a regular basis which can potentially extend the life of the investment. Current assessments anticipate an extension of life of the investment.

This is to certify that all of the above investments have been placed in accordance with the Act, the regulations and Council's Investment Policies.

Brian Jenkins

RESPONSIBLE ACCOUNTING OFFICER

Investment Income Compared to Budget 2015-2016



WOLLONGONG CITY COUNCIL

1 July 2015 to 28 August 2015

	2015/16 Original Budget \$'000	2015/16 Current Budget \$'000	2015/16 YTD Budget \$'000	2015/16 Actual YTD \$'000
Income Statement				
Income From Continuing Operations				
Revenue:				
Rates and Annual Charges	173,253	173,253	27,929	28,114
User Charges and Fees	33,194	33,194	5,226	4,790
Interest and Investment Revenues	4,772	4,772	785	775
Other Revenues	9,454	9,454	1,474	1,467
Grants & Contributions provided for Operating Purposes	28,846	28,846	4,762	5,468
Grants & Contributions provided for Capital Purposes	14,520	14,520	2,218	2,357
Profit/Loss on Disposal of Assets	0	0	0	9
Total Income from Continuing Operations	264,040	264,040	42,394	42,980
Expenses From Continuing Operations				
Employee Costs	113,797	113,797	18,552	17,464
Borrowing Costs	4,206	4,206	678	712
Materials, Contracts & Other Expenses	89,130	89,130	13,750	14,508
Depreciation, Amortisation + Impairment	62,074	62,074	10,515	10,515
Internal Charges (labour)	(11,876)	(11,876)	(1,901)	(1,706)
Internal Charges (not labour)	(1,400)	(1,400)	(226)	(215)
Total Expenses From Continuing Operations	255,932	255,932	41,369	41,277
Operating Results From Continuing Operations	8,108	8,108	1,025	1,703
Net Operating Result for the Year	8,108	8,108	1,025	1,703
Net Operating Result for the Year before Grants & Contributions provided for Capital Purposes	(6,412)	(6,412)	(1,193)	(654)
NET SURPLUS (DEFICIT) [Pre capital] %	3.1%	3.1%	2.4%	4.0%
Funding Statement				
Net Operating Result for the Year	8,108	8,108	1,025	1,703
Add back :				
- Non-cash Operating Transactions	77,378	77,378	13,081	13,013
- Restricted cash used for operations	15,464	15,464	1,874	1,174
- Income transferred to Restricted Cash	(34,812)	(34,812)	(5,008)	(5,942)
- Payment of Accrued Leave Entitlements	(11,550)	(11,550)	(1,898)	(1,994)
- Payment of Carbon Contributions	0	0	0	0
Funds Available from Operations	54,588	54,588	9,074	7,952
Advances (made by) / repaid to Council	0	0	0	0
Borrowings repaid	(6,371)	(6,371)	(792)	(792)
Operational Funds Available for Capital Budget	48,217	48,217	8,282	7,160
CAPITAL BUDGET				
Assets Acquired	(86,256)	(88,738)	(11,370)	(7,579)
Contributed Assets	0	0	0	0
Transfers to Restricted Cash	0	0	0	0
Funded From :-				
- Operational Funds	48,217	48,217	8,282	7,160
- Sale of Assets	2,008	2,008	137	224
- Internally Restricted Cash	5,136	5,031	341	8
- Borrowings	0	0	0	0
- Capital Grants	9,439	12,793	1,190	805
- Developer Contributions (Section 94)	6,510	6,131	588	470
- Other Externally Restricted Cash	9,460	9,284	1,753	1,476
- Other Capital Contributions	2,365	2,152	243	72
TOTAL FUNDS SURPLUS / (DEFICIT)	(3,122)	(3,122)	1,164	2,637

**Manager Project Delivery Division
Commentary on August 2015 Capital Budget Report**

As at 28 August 2015, year to date expenditure was \$7.6M of the approved capital budget of \$88.7M. This value is \$3.8M behind the initial forecast expenditure of \$11.4M for this period.

The following table summarises the proposed changes to the total Capital budget by transfer of budget between programs and reduction or introduction of various types of external or loan funding. These changes result in a net increase in the capital budget of \$1.3M to \$90.0M.

Program	Major Points of change to Capital Budget
Traffic Facilities	Introduce additional funding (Roads to Recovery and Restart Illawarra) for Bald Hill Roadworks Upgrade project. Allocate funds from contingency for various existing projects in this program. Multiple adjustments to R.M.S. funding for existing projects.
Road Works	Allocate funds from contingency for various existing projects in this program. Reallocate external funding from Cycle/Shared paths program for existing project
Footpaths	Introduce Section 94 funding for existing projects
Cycle/Shared Paths	Reallocate external funding to Roadworks program for existing project.
Car Park Reconstruction/ Upgrade	Transfer existing project to Community Bldg.s Program.
Community Buildings	Transfer existing project from Car Park Recon/Upgrade program Reallocate budget to Public Facilities and Rock and Tidal Pools program
Public Facilities (Shelters toilets etc)	Reallocate budget from Community Buildings program
Recreation Facilities	Introduce Restart Illawarra funding for Bald Hill Reserve Upgrade project.
Sporting Facilities	Introduce Sports Priority funding for new project
Rock/Tidal Pools	Reallocate budget from Community Buildings and Environmental Management Program
Environmental Management	Reallocate budget to Rock/tidal Pools Program
Natural Area Management	Introduce external funding for existing project.
Motor Vehicles	Reallocate budget to Capital Project Contingency
Land Acquisitions	Reallocate budget from contingency
Capital Project Contingency	Distributions to various capital programs as detailed above.

CAPITAL PROJECT REPORT

as at the period ended 28 August 2015

ASSET CLASS PROGRAMME	\$'000		\$'000		YTD EXPENDITURE	\$'000	
	CURRENT BUDGET		WORKING BUDGET			VARIATION	
	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING		EXPENDITURE	OTHER FUNDING
Roads And Related Assets							
Traffic Facilities	2,558	(1,388)	3,576	(2,356)	84	1,018	(968)
Public Transport Facilities	441	(172)	441	(172)	71	(0)	(0)
Roadworks	11,927	(3,511)	12,232	(3,666)	1,117	305	(155)
Bridges, Boardwalks and Jetties	1,750	(350)	1,750	(350)	192	(0)	(0)
TOTAL Roads And Related Assets	16,676	(5,421)	17,999	(6,544)	1,463	1,323	(1,123)
West Dapto							
West Dapto Infrastructure Expansion	7,794	(6,705)	7,794	(6,705)	153	0	0
TOTAL West Dapto	7,794	(6,705)	7,794	(6,705)	153	0	0
Footpaths And Cycleways							
Footpaths	6,652	(4,212)	7,017	(4,527)	1,405	365	(315)
Cycle/Shared Paths	8,195	(5,715)	8,040	(5,560)	850	(155)	155
Commercial Centre Upgrades - Footpaths and Cyclew	4,140	(435)	4,140	(435)	61	(0)	0
TOTAL Footpaths And Cycleways	18,987	(10,362)	19,197	(10,522)	2,316	210	(160)
Carparks							
Carpark Construction/Formalising	710	(500)	710	(500)	158	(0)	0
Carpark Reconstruction or Upgrading	1,051	0	1,040	0	55	(11)	0
TOTAL Carparks	1,761	(500)	1,750	(500)	213	(11)	0
Stormwater And Floodplain Management							
Floodplain Management	2,210	(800)	2,210	(680)	58	(0)	120
Stormwater Management	1,740	(310)	1,740	(430)	128	(0)	(120)
Stormwater Treatment Devices	250	(150)	250	(150)	0	(0)	(0)
TOTAL Stormwater And Floodplain M	4,200	(1,260)	4,200	(1,260)	186	(0)	(0)
Buildings							
Cultural Centres (IPAC, Gallery, Townhall)	1,100	0	1,100	0	20	(0)	0
Administration Buildings	1,280	0	1,280	0	23	(0)	0
Community Buildings	13,373	(3,375)	13,309	(3,375)	1,210	(64)	(0)
Public Facilities (Shelters, Toilets etc.)	590	0	615	0	127	25	0
TOTAL Buildings	16,343	(3,375)	16,304	(3,375)	1,379	(39)	(0)
Commercial Operations							
Tourist Park - Upgrades and Renewal	750	0	750	0	15	(0)	0
Crematorium/Cemetery - Upgrades and Renewal	390	(200)	390	(200)	28	(0)	0
Leisure Centres & RVGC	195	0	195	0	1	(0)	0
TOTAL Commercial Operations	1,335	(200)	1,335	(200)	43	(0)	0
Parks Gardens And Sportfields							
Play Facilities	1,148	(53)	1,145	(50)	32	(3)	3
Recreation Facilities	2,998	(1,625)	3,398	(2,025)	51	400	(400)
Sporting Facilities	779	(151)	804	(176)	15	25	(25)
Lake Illawarra Foreshore	200	0	200	0	8	(0)	0
TOTAL Parks Gardens And Sportfield	5,125	(1,829)	5,547	(2,251)	107	422	(422)
Beaches And Pools							
Beach Facilities	555	0	555	0	32	(0)	0
Rock/Tidal Pools	1,105	0	1,180	0	231	75	0
Treated Water Pools	650	0	650	0	167	(0)	0
TOTAL Beaches And Pools	2,310	0	2,385	0	430	75	0

CAPITAL PROJECT REPORT

as at the period ended 28 August 2015

ASSET CLASS PROGRAMME	\$'000		\$'000		YTD EXPENDITURE	\$'000		
	CURRENT BUDGET		WORKING BUDGET			VARIATION		
	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING		EXPENDITURE	OTHER FUNDING	
Natural Areas								
Environmental Management Program	25	0	0	0	0	(25)	0	
Natural Area Management and Rehabilitation	150	0	175	(25)	17	25	(25)	
TOTAL Natural Areas	175	0	175	(25)	17	(0)	(25)	
Waste Facilities								
Whytes Gully New Cells	400	(400)	1,061	(1,061)	55	661	(661)	
Whytes Gully Renewal Works	300	(300)	300	(300)	(0)	(0)	0	
Helensburgh Rehabilitation	2,259	(2,259)	1,598	(1,598)	6	(661)	661	
TOTAL Waste Facilities	2,959	(2,959)	2,959	(2,959)	60	0	0	
Fleet								
Motor Vehicles	2,448	(1,512)	1,748	(1,130)	0	(700)	382	
TOTAL Fleet	2,448	(1,512)	1,748	(1,130)	0	(700)	382	
Plant And Equipment								
Portable Equipment (Mowers etc.)	480	(296)	480	(296)	4	(0)	0	
Mobile Plant (trucks, backhoes etc.)	2,021	(221)	2,021	(221)	42	(0)	0	
Fixed Equipment	300	0	300	0	(0)	(0)	0	
TOTAL Plant And Equipment	2,801	(517)	2,801	(517)	46	(0)	0	
Information Technology								
Information Technology	895	0	895	0	0	(0)	0	
TOTAL Information Technology	895	0	895	0	0	(0)	0	
Library Books								
Library Books	1,150	0	1,150	0	365	(0)	0	
TOTAL Library Books	1,150	0	1,150	0	365	(0)	0	
Public Art								
Public Art Works	200	0	200	0	11	(0)	0	
Art Gallery Acquisitions	110	0	110	0	0	0	0	
TOTAL Public Art	310	0	310	0	11	(0)	0	
Emergency Services								
Emergency Services Plant and Equipment	635	0	635	0	24	(0)	0	
TOTAL Emergency Services	635	0	635	0	24	(0)	0	
Land Acquisitions								
Land Acquisitions	100	0	130	0	93	30	0	
TOTAL Land Acquisitions	100	0	130	0	93	30	0	
Non-Project Allocations								
Capital Project Contingency	2,204	0	2,242	0	0	38	0	
Capital Project Plan	530	0	530	0	671	(0)	0	
TOTAL Non-Project Allocations	2,734	0	2,772	0	671	38	0	
Loans								
West Dapto Loan	0	(2,760)	0	(2,760)	0	0	0	
TOTAL Loans	0	(2,760)	0	(2,760)	0	0	0	
GRAND TOTAL	88,738	(37,400)	90,086	(38,748)	7,579	1,349	(1,349)	

WOLLONGONG CITY COUNCIL

	Actual 2015/16 \$'000	Actual 2014/15 \$'000
BALANCE SHEET		
	as at 28/08/15	as at 30/06/15
CURRENT ASSETS		
Cash Assets	136,625	124,611
Investment Securities	13,036	11,046
Receivables	21,162	22,108
Inventories	6,056	6,040
Other	7,301	4,313
Total Current Assets	184,179	168,118
NON-CURRENT ASSETS		
Non Current Cash Assets	9,000	9,000
Property, Plant and Equipment	2,248,043	2,251,345
Investment Properties	2,750	2,750
Westpool Equity Contribution	1,159	1,159
Intangible Assets	1,219	1,219
Total Non-Current Assets	2,262,171	2,265,474
TOTAL ASSETS	2,446,350	2,433,592
CURRENT LIABILITIES		
Current Payables	41,204	29,868
Current Provisions payable < 12 months	16,856	16,790
Current Provisions payable > 12 months	34,871	34,871
Current Interest Bearing Liabilities	6,369	6,369
Total Current Liabilities	99,300	87,899
NON-CURRENT LIABILITIES		
Non Current Interest Bearing Liabilities	39,112	39,758
Non Current Provisions	42,855	42,554
Total Non-Current Liabilities	81,966	82,312
TOTAL LIABILITIES	181,266	170,210
NET ASSETS	2,265,084	2,263,381
EQUITY		
Accumulated Surplus	1,132,436	1,132,670
Asset Revaluation Reserve	1,011,062	1,011,064
Restricted Assets	121,586	119,648
TOTAL EQUITY	2,265,084	2,263,381

WOLLONGONG CITY COUNCIL

CASH FLOW STATEMENT as at 28 August 2015

	YTD Actual 2015/16 \$ '000	Actual 2014/15 \$ '000
CASH FLOWS FROM OPERATING ACTIVITIES		
Receipts:		
Rates & Annual Charges	25,854	166,562
User Charges & Fees	24,491	33,505
Interest & Interest Received	754	5,789
Grants & Contributions	10,218	54,189
Other	1,751	23,908
Payments:		
Employee Benefits & On-costs	(12,337)	(92,705)
Materials & Contracts	(8,851)	(58,052)
Borrowing Costs	(258)	(1,311)
Other	(11,325)	(42,795)
Net Cash provided (or used in) Operating Activities	30,297	89,090
CASH FLOWS FROM INVESTING ACTIVITIES		
Receipts:		
Sale of Infrastructure, Property, Plant & Equipment	224	12,570
Deferred Debtors Receipts	-	10
Payments:		
Purchase of Investments	-	-
Purchase of Investment Property	-	-
Purchase of Infrastructure, Property, Plant & Equipment	(15,702)	(85,072)
Purchase of Interests in Joint Ventures & Associates	-	-
Net Cash provided (or used in) Investing Activities	(15,478)	(72,492)
CASH FLOWS FROM FINANCING ACTIVITIES		
Receipts:		
Proceeds from Borrowings & Advances	-	15,000
Payments:		
Repayment of Borrowings & Advances	(814)	(5,244)
Repayment of Finance Lease Liabilities	-	-
Net Cash Flow provided (used in) Financing Activities	(814)	9,756
Net Increase/(Decrease) in Cash & Cash Equivalents	14,005	281
plus: Cash & Cash Equivalents and Investments - beginning of year	144,656	144,375
Cash & Cash Equivalents and Investments - year to date	158,661	144,656

WOLLONGONG CITY COUNCIL

CASH FLOW STATEMENT as at 28 August 2015

	YTD Actual 2015/16 \$ '000	Actual 2014/15 \$ '000
Total Cash & Cash Equivalents and Investments - year to date	158,661	144,656
Attributable to:		
External Restrictions (refer below)	74,520	63,961
Internal Restrictions (refer below)	47,066	24,384
Unrestricted	37,075	56,311
	158,661	144,656
External Restrictions		
Developer Contributions	15,282	11,758
RMS Contributions	299	238
Specific Purpose Unexpended Grants	6,766	10,910
Special Rates Levy Wollongong Centre Improvement Fund	-	-
Special Rates Levy Wollongong Mall	201	251
Special Rates Levy Wollongong City Centre	40	11
Local Infrastructure Renewal Scheme	22,874	18,791
Unexpended Loans	7,058	12,877
Domestic Waste Management	10,762	6,408
Private Subsidies	4,866	1,883
West Dapto Home Deposit Assistance Program	5,816	-
Stormwater Management Service Charge	556	834
Total External Restrictions	74,520	63,961
Internal Restrictions		
Property Development	4,122	(252)
Property Investment Fund	7,845	-
Strategic Projects	11,208	-
Future Projects	6,917	-
Sports Priority Program	558	850
Car Parking Strategy	445	489
MacCabe Park Development	715	391
Darcy Wentworth Park	170	99
Garbage Disposal Facility	9,922	20,281
Telecommunications Revenue	124	279
West Dapto Development Additional Rates	179	71
Southern Phone Natural Areas	482	-
Carbon Price	4,379	2,176
Total Internal Restrictions	47,066	24,384

Standard Conditions for Road Closures

For Special Events and Work Related activities Within Council Road Reserves.

Following approval by Wollongong City Council, road closures are subject to the additional Council conditions:

1. **The Applicant must complete the Council form** *'Application to Open and Occupy or Underbore a Roadway or Footpath'* (Refer to Checklist below – relates to Section 138 of the Roads Act.)
2. **NSW Police Approval:** The Applicant must obtain written approval from NSW Police, where required under the Roads Act.
3. **If the Road Closure is within 100m of any traffic control signals or on a 'State Classified Road'** the Applicant must obtain a Road Occupancy Licence (ROL) from NSW Roads & Maritime Services (RMS).
4. **The Applicant must advise all affected residents and business owners** within the closure area of the date/s and times for the closure, at least 7 days prior to the intended date of works.
5. **The Applicant must advise Emergency Services:** Ambulance, Fire Brigade and Police, Taxi and Bus Companies of the closure dates and times in writing, 7 days prior to the intended date of works. The Applicant must endeavour to minimise the impact on bus services during the closure.
6. **Traffic Management Plan:** The closure must be set up in accordance with the approved **Traffic Management Plan (TMP)** prepared by an appropriately qualified traffic controller; a copy of whose qualifications must be included with the submitted TMP.
7. **Traffic Management Plan Setup:** The Traffic Management Plan must be set up by appropriately qualified traffic control persons or the NSW Police.
8. **Access to properties affected by the road closure must be maintained where possible.** Where direct access cannot be achieved, an alternative arrangement must be agreed to by both the applicant and the affected person/s.
9. **Public Notice Advertisement:** The Applicant must advertise the road closure in the Public Notices section of the local paper, detailing closure date/s and times at least 7 days prior to the closure.
10. **Public Liability Policy:** The Applicant must provide Council with a copy of their current insurance policy to a value of no less than \$20 million dollars to cover Wollongong City Council from any claims arising from the closure.

Checklist:

- Completed Council Form:**

'Application to Open and Occupy or Underbore a Roadway or Footpath'.

Required information as shown below MUST be attached:

- A copy of the letter from the Traffic Committee authorising the closure
- The Traffic Management Plan (TMP)
- The Road Occupancy Licence (ROL) *if required*
- Written approval from NSW Police
- Public Liability Insurance

Applications may be lodged in the Customer Service Centre located on the Ground Floor of Council's Administration Building, 41 Burelli Street Wollongong between 8.30am and 5pm Monday to Friday.

STANDARD CONDITIONS FOR ROAD CLOSURES FOR STREET PARTIES

- 1 Each road affected by the closure approval shall be restored to full and uninterrupted traffic flow prior to the end of the closure.
- 2 The road shall be cleared sufficiently to allow an emergency vehicle access to a property within the closure area. For this reason, no barbeques, heavy tables or other heavy equipment is to be set up on the road pavement.
- 3 You are required to advertise the road closure in the local newspaper
e.g. Temporary Road Closure – Larkins Lane, Yallah
Date: 18 December 2015
Time: 2 pm – 7 pm
Event: Street Party
- 4 Council will notify emergency services and the Police Service.
- 5 NSW Police Service directions are to be strictly adhered to.
- 6 Council will endeavour to make available to you the following equipment for the closure

Regular Street Equipment Requirements	Cul - De - Sac Street Equipment Requirements
6 Barrier legs	3 Barrier legs
12 Road Barriers	6 Road Barriers
2 Road Closed Signs	1 Road Closed Signs
4 Flashing Lights	2 Flashing Lights

It should be noted that Council does not supply 9 volt batteries for flashing lights, however batteries can be made available for approximately \$3.40 each.

The flashing lights must be fixed to the barriers and operating prior to sunset.

It is your responsibility to collect this equipment from Council's Works Depot Store, Montague Street, North Wollongong, prior to 2.00 pm on the last working day prior to your proposed road closure, and return same on the next working day following the closure. Please ensure you sign a receipt when collecting and returning this equipment.

Equipment, which is returned damaged beyond use or not returned at all, will be replaced at your cost.

A sufficient number of people (at least 2), together with a vehicle suitable for the purpose of transporting the relevant equipment, are to be provided by the organisers for the loading and unloading of this equipment at the Depot.

- 7 You are requested to email Council's Events and Functions Coordinator events@wollongong.nsw.gov.au **two weeks prior to pick-up** to ensure availability of the equipment.
- 8 If Council's Store does not have sufficient equipment to lend, you are to obtain equipment from another source (e.g. hire firm), at your expense.

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AETAS 2.0 15 TOWNS 2015
- ALL TRAFFIC CONTROL DIAGRAMS TO BE READ CONJUNCTION WITH THE TOWNS 2015
- NON APPROVED EXISTING SIGNAGE SHALL BE COVERED UP SPECIFIC REFER TO THE TEMPORARY SPEC ZONE
- ALL SIGNAGE DISTANCE SHALL COMPLY WITH AS 1923 & TOWNS 2015
- IN ACCORDANCE WITH TOWNS 2015 TRAFFIC CONTROLLER TO ASSIST FRICTIANS WITH MOVEMENT THROUGH & AROUND THE WORKSITE
- SIGNAGE SHALL BE PLACED ON THE SIDE OF THE ROAD ADJACENT TO THE TRAFFIC FLOW
- REMOVAL OF TRAFFIC CONTROL SIGNS AND VEHICLES SHOULD BE UNDERTAKEN IN THE REVERSE ORDER OF ERECTION, PROGRESSING FROM THE WORK AREA, OUT TOWARDS THE APPROACHES

RECOMMENDED TAPER LENGTHS

APPROXIMATE SPEED OF TRAFFIC (KM/H)	TRAFFIC CONTROL SIGNS TAPER	LATERAL MERGE TAPER
45 OR LESS	15	0 - 15
46 - 55	15	15 - 30
56 - 65	30	30 - 45
66 - 75	N/A	75 - 110
76 - 85	N/A	80 - 130
86 - 95	N/A	80 - 140
96 - 105	N/A	100 - 160
> 105	N/A	110 - 190

DIMENSION "D"

WHERE THERE IS ONLY ONE ADVANCE SIGN IT SHALL BE PLACED AT 20% FOR APPROACH SPEEDS OF 60KM/H OR MORE, OR 10% FOR APPROACH SPEEDS LESS THAN 60KM/H

TOLERANCES

POSITIONING OF SIGNS MINIMUM 10% LESS THAN THE DISTANCE OR LENGTHS GIVEN MAXIMUM 25% MORE THAN THE DISTANCE OR LENGTHS GIVEN SPACING OF DELINEATING DEVICES MAXIMUM 10% MORE THAN THE SPACING GIVEN NO MINIMUM

LANE WIDTHS

THE MIN LANE WIDTH TO BE PROVIDED THROUGH OR PAST THE WORKSITE SHALL BE 3.0m (3.0m DESIRABLE)

QUEUE MANAGEMENT PLAN

AT ALL TIMES DURING THE COURSE OF THE WORK TRAFFIC QUEUES SHALL BE MONITORED TO ENSURE THAT TRAFFIC DOES NOT EXCEED BEYOND THE LIMIT OF ADVANCED WARNING SIGNS

VEHICLE MOVEMENT PLAN

ALL WORK VEHICLES TO ENTER AND EXIT WORKSITE UNDER THE DIRECTION OF TRAFFIC CONTROLLER WITH THE TRAFFIC FLOW ON DESIGNATED OFF CHANNEL



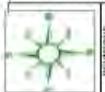
1x ROAD CLOSED AHEAD	5x
1x 40 km/h	1x ROAD CLOSED
1x 40 ROAD WORK	10x
2x 40 ROAD WORK	4x
	4x STOP
	1x STOP

ADDITIONAL INFORMATION

COMMENCEMENT DATE:
COMPLETION DATE:
JOB/ORDER NUMBER:
REQUESTED BY:

evolution

407 Wagmans Road
PO BOX 1000, 2001
Ph: 02 9490 6300
Email: info@evolutiontraffic.com.au



REV	DATE	DESCRIPTION	Client	Convoy	Term	Short	DRAWN BY
00	16/7/15	PRODUCED FOR CLIENT REVIEW	Board Inverke	Old Princes Hwy		2Way 2Lane	Matthew Jones
01			Location of Works	Maddens Plain		30Km	Design & Fabric
02		3x T/C	Site/Shop	Maddens Plain		Past	Checked by:
03			Map reference		Operator	Lane Closure	THIS PLAN IS NOT TO SCALE

Drawn by:	Matthew Jones
Design & Fabric:	016316156 & 02 9490 6300
Checked by:	
Operator:	
TAS PLAN REF NO:	

Attachment 3 – Part 2 - Convoy 2015 – Old Princes Highway, Bulli Tops

GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AUSTROADS & TCAMS 2010.
2. ALL TRAFFIC CONTROL DIAGRAMS TO BE READ CONJUNCTION WITH THE TCAMS 2010.
3. NON-APPLICABLE EXISTING SIGNAGE SHALL BE COVERED TO SPECIES SIGNAGE TO THE TEMPORARY SPEED ZONE.
4. ALL SIGNAGE DISTANCES SHALL COMPLY WITH THE TCAMS 2010.
5. IN ACCORDANCE WITH TCAMS 2010 TRAFFIC CONTROLLERS WITH MOVEMENT THROUGH & AROUND THE WORKSITE.
6. SIGNAGE SHALL BE PLACED ON THE SIDE OF THE ROAD ADJACENT TO THE TRAFFIC FLOW.
7. REMOVAL OF TRAFFIC CONTROL SIGNS AND DEVICES SHOULD BE UNDERTAKEN IN THE REVERSE ORDER OF INSTALLATION, PROGRESSING FROM THE WORK AREA OUT TOWARD THE APPROACHES.

RECOMMENDED TAPER LENGTH

APPROXIMATE TRAFFIC SPEED (KMH)	TRAFFIC CONTROL SIGNAGE OF TAPER	LATERAL SPACING (M)	TAPER LENGTH (M)
45 OR LESS	10	0	10
46 - 55	10	15	30
56 - 65	30	20	60
66 - 75	N/A	30	115
76 - 85	N/A	60	130
86 - 95	N/A	60	145
96 - 105	N/A	140	160
> 105	N/A	110	190

DIMENSION IN

WHERE THERE IS ONLY ONE ADVANCE SIGN, IT SHALL BE PLACED AT 20 FOR APPROACH SPEEDS OR MORE, OR 10 FOR APPROACH SPEEDS LESS THAN 40KMH.

TOLERANCES

POSITIONING OF SIGNS
 MINIMUM 10% LESS THAN THE DISTANCE OR LENGTH GIVEN
 MAXIMUM 20% MORE THAN THE DISTANCE OR LENGTHS GIVEN
 SPACING OF DELINEATING DEVICES
 MAXIMUM 10% MORE THAN THE SPACING GIVEN
 NO MINIMUM

LANE WIDTHS

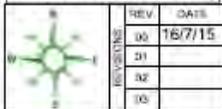
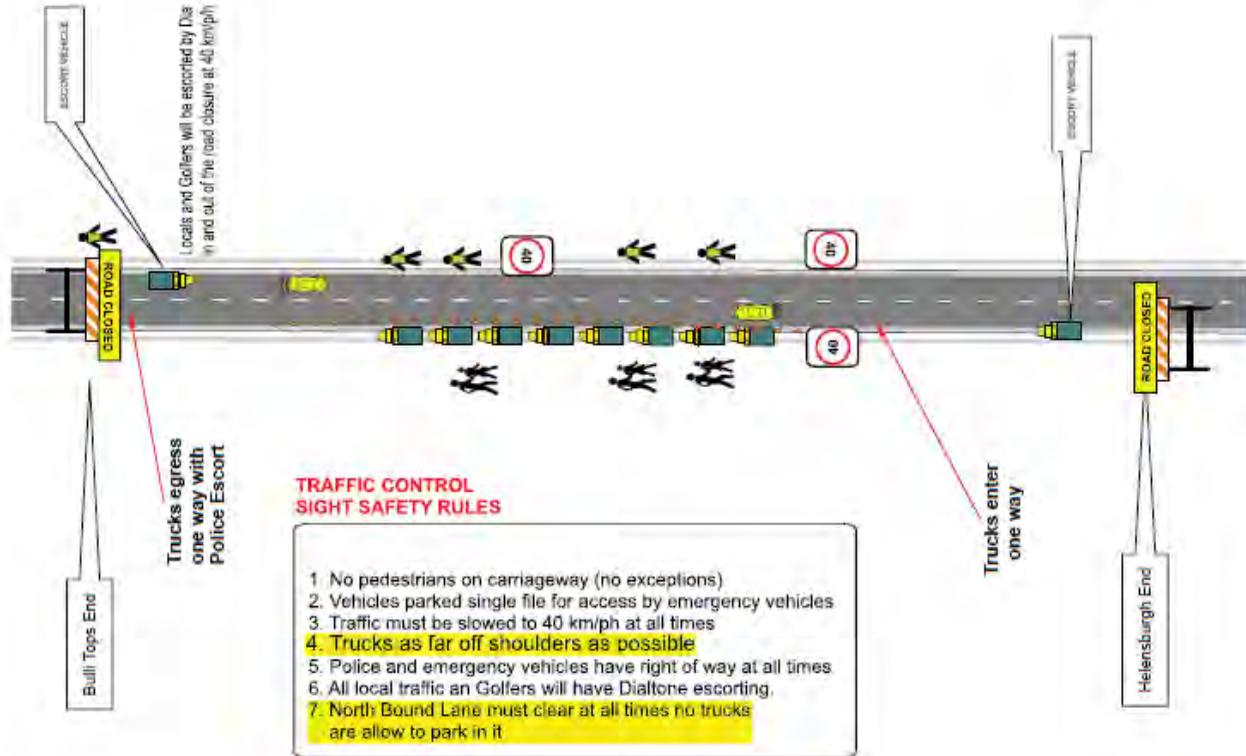
THE MIN LANE WIDTH TO BE PROVIDED THROUGH OR PAST THE WORKSITE SHALL BE 3.0m (3.5m DESIRABLE)

QUEUE MANAGEMENT PLAN

AT ALL TIMES DURING THE COURSE OF THE WORK TRAFFIC QUEUES SHALL BE MONITORED TO ENSURE THAT TRAFFIC DOES NOT EXCEED BEYOND THE LIMITS OF ADVANCED WARNING SIGNS

VEHICLE MOVEMENT PLAN

ALL WORK VEHICLES TO ENTER AND EXIT WORKSITE UNDER THE DIRECTION OF TRAFFIC CONTROLLER WITH THE TRAFFIC FLOW IN DESIGNATED LANE CHANNEL.



REV	DATE	DESCRIPTION	Client	Convoy	Item	Short	Drawn by
00	16/7/15	PRODUCED FOR CLIENT REVIEW	Road Name:	Old princes Hwy	Road Type:	2Way 2Lane	Mezhan Jones Design & Impact 316316135 EXP 10/05/2017
01			Location of Work:		Speed Limit:	80KMH	CHECKED BY
02		10x T/C	Suburb:	Bulli Tops	Travel Dir:	East	THIS PLAN IS NOT TO SCALE
03			Map Reference:		Operation:	Lane Closure	TCS PLAN REF NO

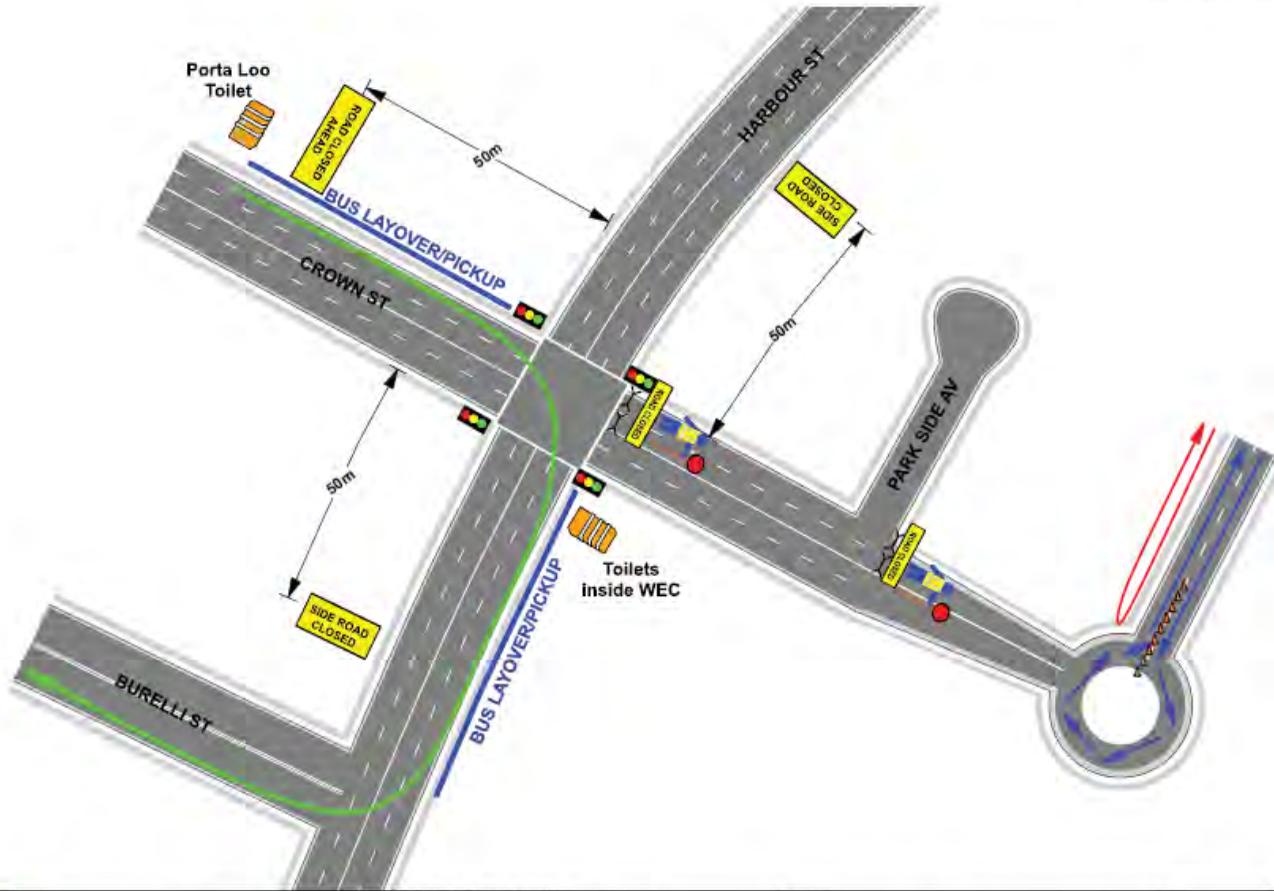
ADDITIONAL INFORMATION

COMMENCEMENT DATE:
 COMPLETION DATE:
 JOB/ORDER NUMBER:
 REQUESTED BY:

evolution
 CONSULTANTS

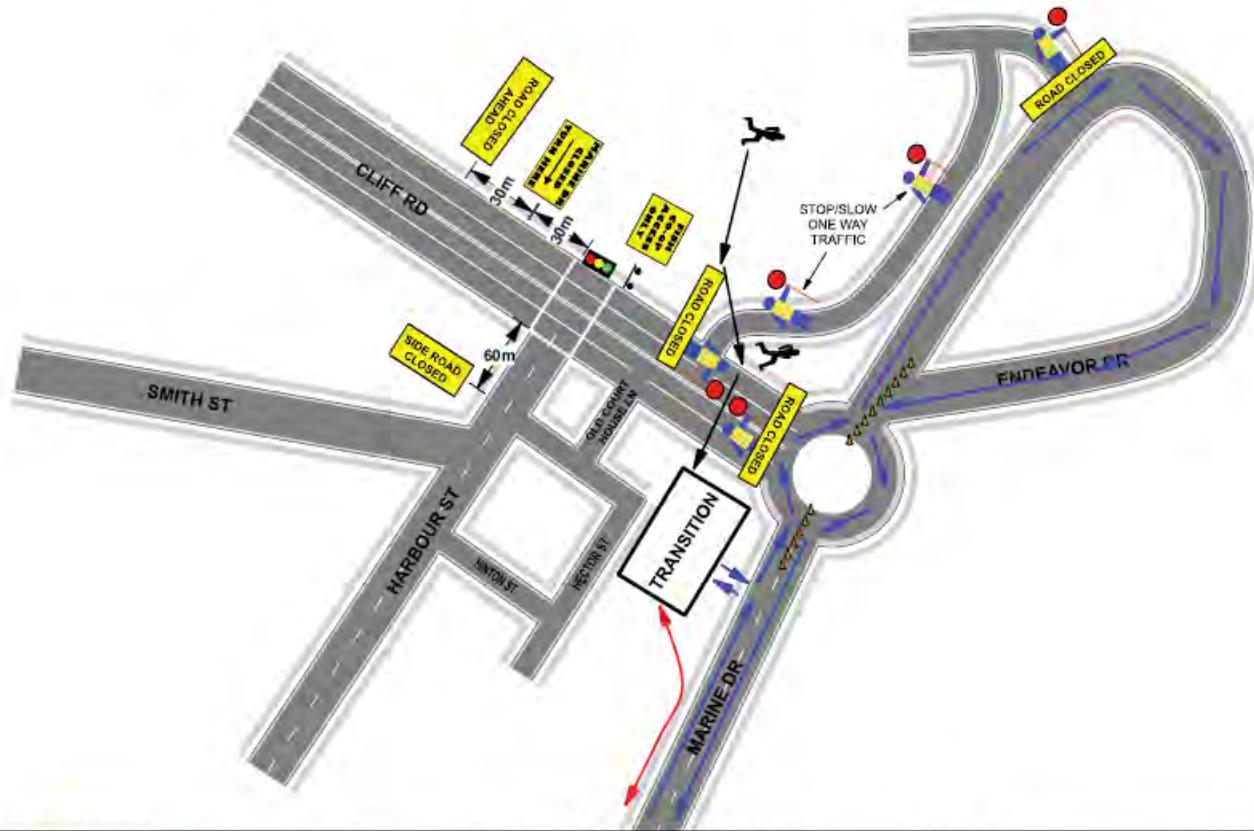
407 Willson Road
 Mt. Esuna, NSW 2864
 Ph: 08 835 8333
 Email: info@evolutionconsultants.com.au

Attachment 4 – Tri the Gong – Saturday Event - Plan 1 of 6



 PLANING - DESIGN - MANAGEMENT Plan not to scale	LEGEND Accredited Traffic Controller Cones Metal Crowd Barriers Vehicle Movement Advisory Marshal Barrier Boards Signage Swim to Transition Cyclist Movement Runner Movement	PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2015	2016 tri the gong Wollongong Triathlon Festival 5:30am - 2:00pm Saturday 5th March 2016 TCP-TTGTF-2016-Sat (Plan 1)	NOTES 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited.	
		EVENT "trithegong" TRIATHLON FESTIVAL		SATURDAY ONLY	

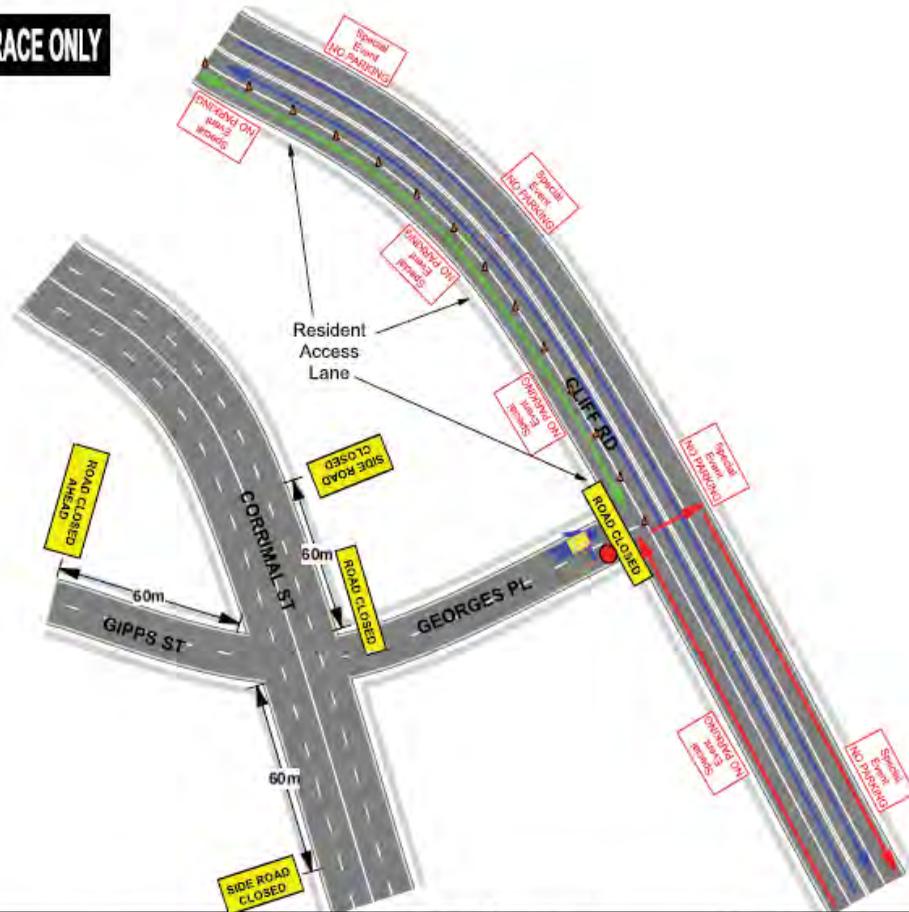
Attachment 4 – Tri the Gong – Saturday Event - Plan 2 of 6



<p>elitsenergy empowering triathlon athletes</p> <p>Plan not to scale</p>	<p>LEGEND</p> <p> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Metal Crowd Barriers Swim to Transition Cyclist Movement Vehicle Movement Runner Movement </p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2016</p>	<p>2016 tri the gong Wollongong Triathlon Festival 5:30am - 2:00pm Saturday 5th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited <p>SATURDAY ONLY</p>	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGF-2016-Sat (Plan 2)</p>		

USE THIS PLAN OTU RACE ONLY

Attachment 4 – Tri the Gong – Saturday Event - Plan 4 of 6



<p>elitsenergy MARIBYRNIE TRIATHLON CLUB</p> <p>Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller Advisory Marshal</p> <p>Cones Barrier Boards Signs</p> <p>Metal Crowd Barriers Swim to Transition</p> <p>Vehicle Movement Cyclist Movement</p> <p> Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/06/2018</p>	<p>2016 triethegong Wollongong OTU Triathlon 2:00pm - 4:00pm Saturday 5th March 2016</p>	<p>NOTES</p> <p>1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited.</p>	
		<p>EVENT "trithegong" OTU TRIATHLON</p>	<p>TCP-TTGTf-2016-Sat (Plan 4)</p>		

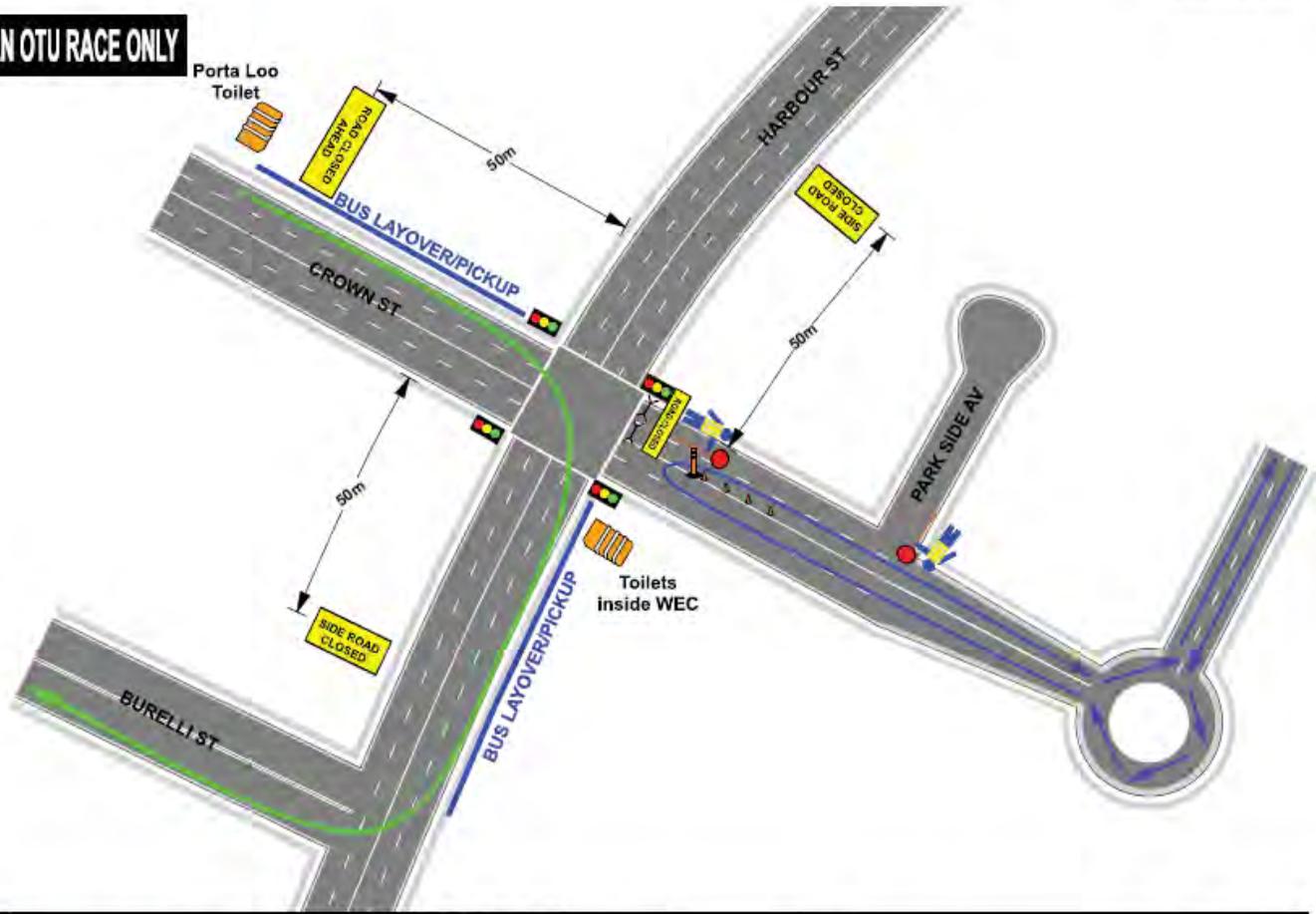
USE THIS PLAN OTU RACE ONLY

Attachment 4 – Tri the Gong – Saturday Event - Plan 5 of 6



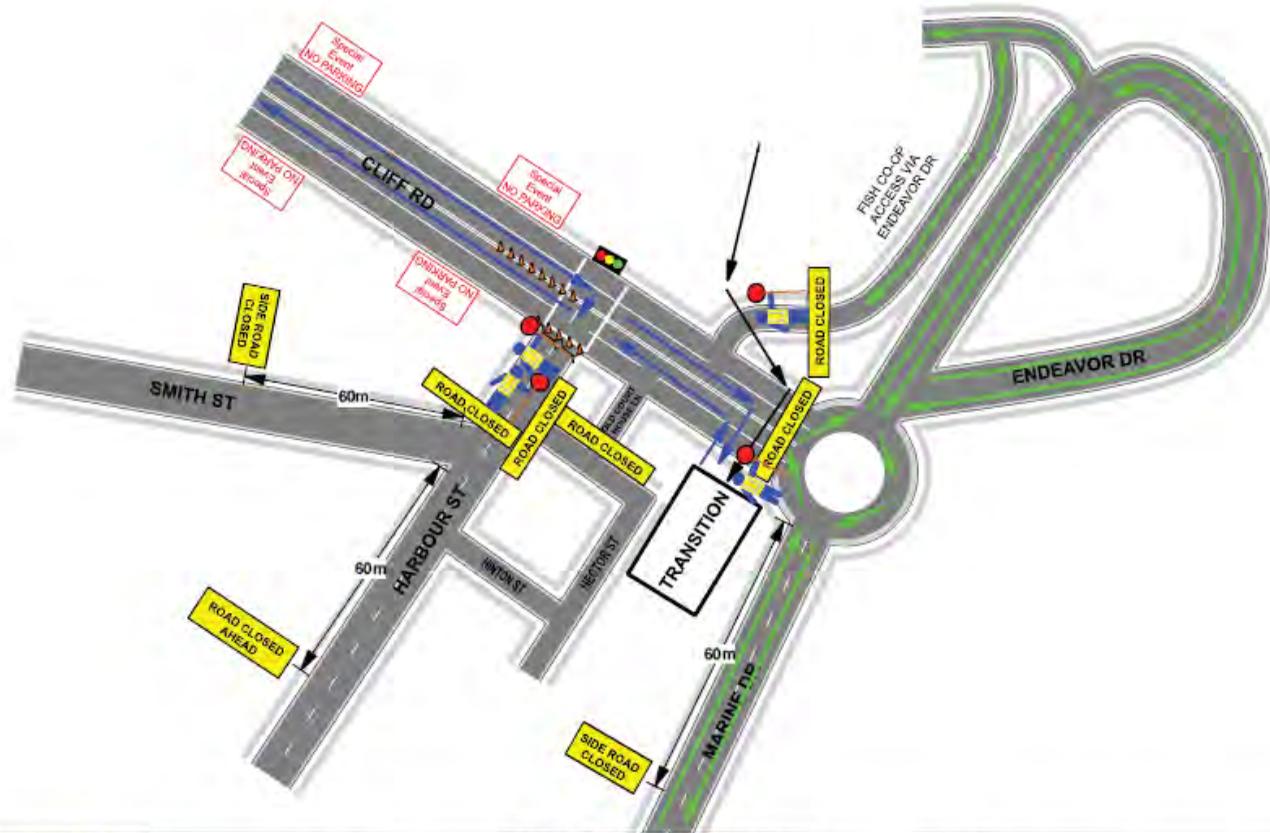
 <p>Plan not to scale</p>	<p>LEGEND</p> <ul style="list-style-type: none">  Accredited Traffic Controller  Advisory Marshal  Cone  Barrier Boards  Signage  Metal Crowd Barriers  Vehicle Movement  Swim to Transfer  Cyclist Movement  Runner Movement 	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 trithegong Wollongong OTU Triathlon 2:00pm - 4:00pm Saturday 5th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" OTU TRIATHLON</p>	<p>TCP-TTGTF-2016-Sat (Plan 5)</p>		

USE THIS PLAN OTU RACE ONLY



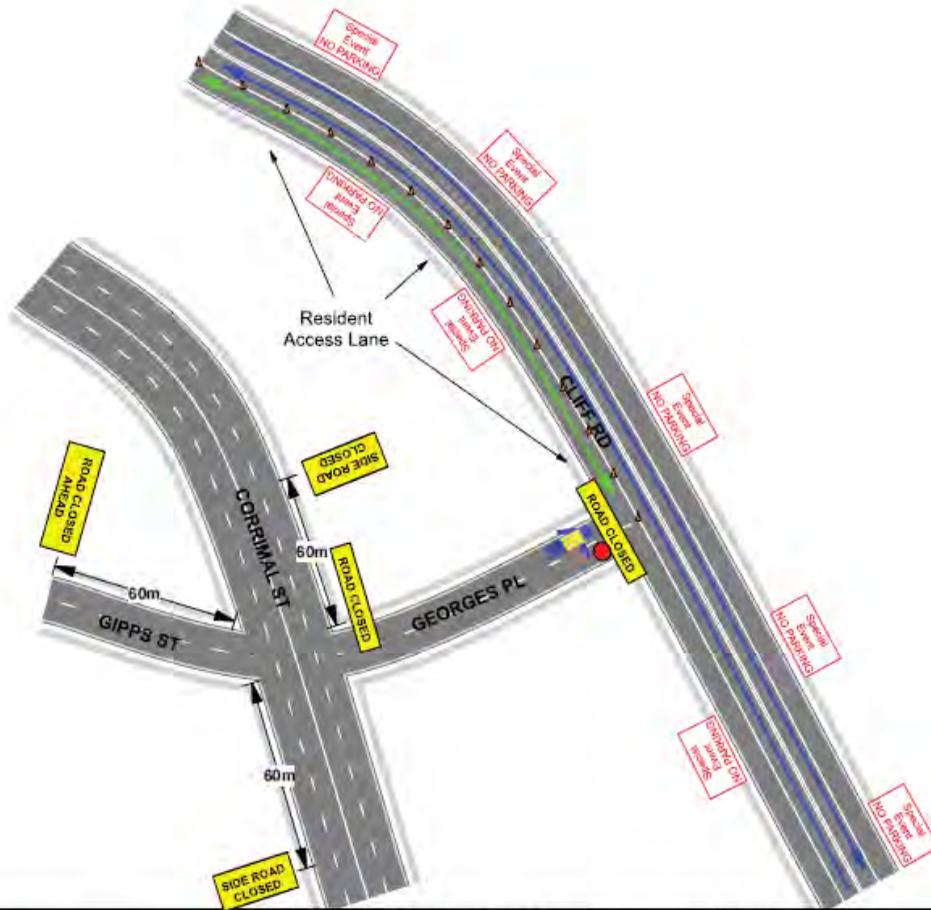
<p>Plan not to scale</p>	<p>LEGEND</p> <ul style="list-style-type: none"> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Metal Crowd Barriers Swim to Transition Cyclist Movement Runner Movement Vehicle Movement 	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2016</p>	<p>2016 trithegong Wollongong OTU Triathlon 2:00pm - 4:00pm Saturday 5th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only. Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" OTU TRIATHLON</p>	<p>TCP-TTGTF-2016-Sat (Plan 6)</p>	<p>SATURDAY ONLY</p>	

Attachment 4 – Tri the Gong – Sunday Event - Plan 1 of 12



<p>Plan not to scale</p>	<p>LEGEND</p> <ul style="list-style-type: none"> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Metal Crowd Barriers Swim to Transition Cyclist Movement Vehicle Movement Runner Movement 	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGF-2016-Sun (Plan 1)</p>		

Attachment 4 -- Tri the Gong -- Sunday Event - Plan 2 of 12

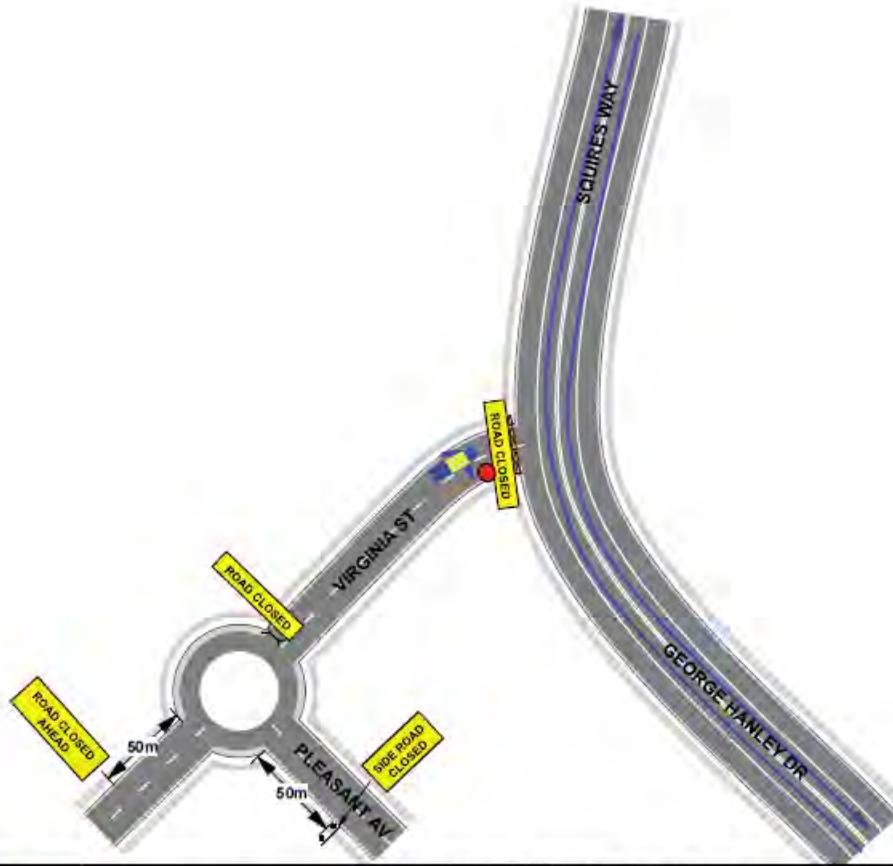


<p>elitsenergy QUALITY EVENT MANAGEMENT Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller Advisory Marshal</p> <p>Cones Barrier Boards Signage</p> <p>Metal Crowd Barriers Swim to Transition</p> <p>Vehicle Movement Cyclist Movement</p> <p> Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <p>1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit.</p> <p>2. All signage is to be removed on completion of works.</p> <p>3. Sign distances may vary due to obstruction, driveways etc.</p> <p>4. All marshals directing traffic must be RMS accredited.</p>	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 2)</p>		

Attachment 4 – Tri the Gong – Sunday Event - Plan 3 of 12

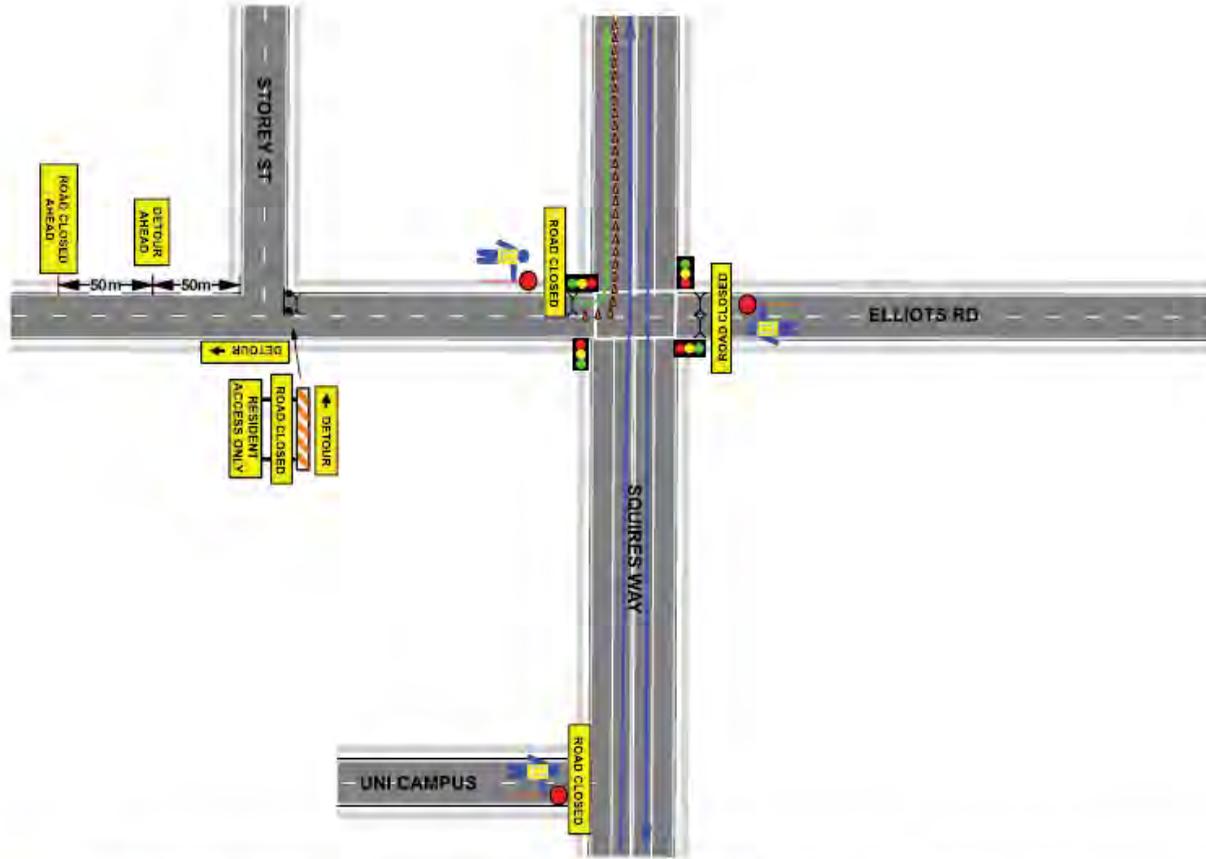


<p>eliteenergy WARRIOR SPORTS PERFORMANCE</p> <p>Plan not to scale</p>	<p>LEGEND</p> <p> Accredited Traffic Controller Advisory Marshals</p> <p> Cones Barrier Boards Signage</p> <p> Metal Crowd Barriers Swim to Transition</p> <p> Vehicle Movement Cyclist Movement</p> <p> Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021686725 Exp: 05/05/2016</p> <p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>2016 trithegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p> <p>TCP-TTGTF-2016-Sun (Plan 3)</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
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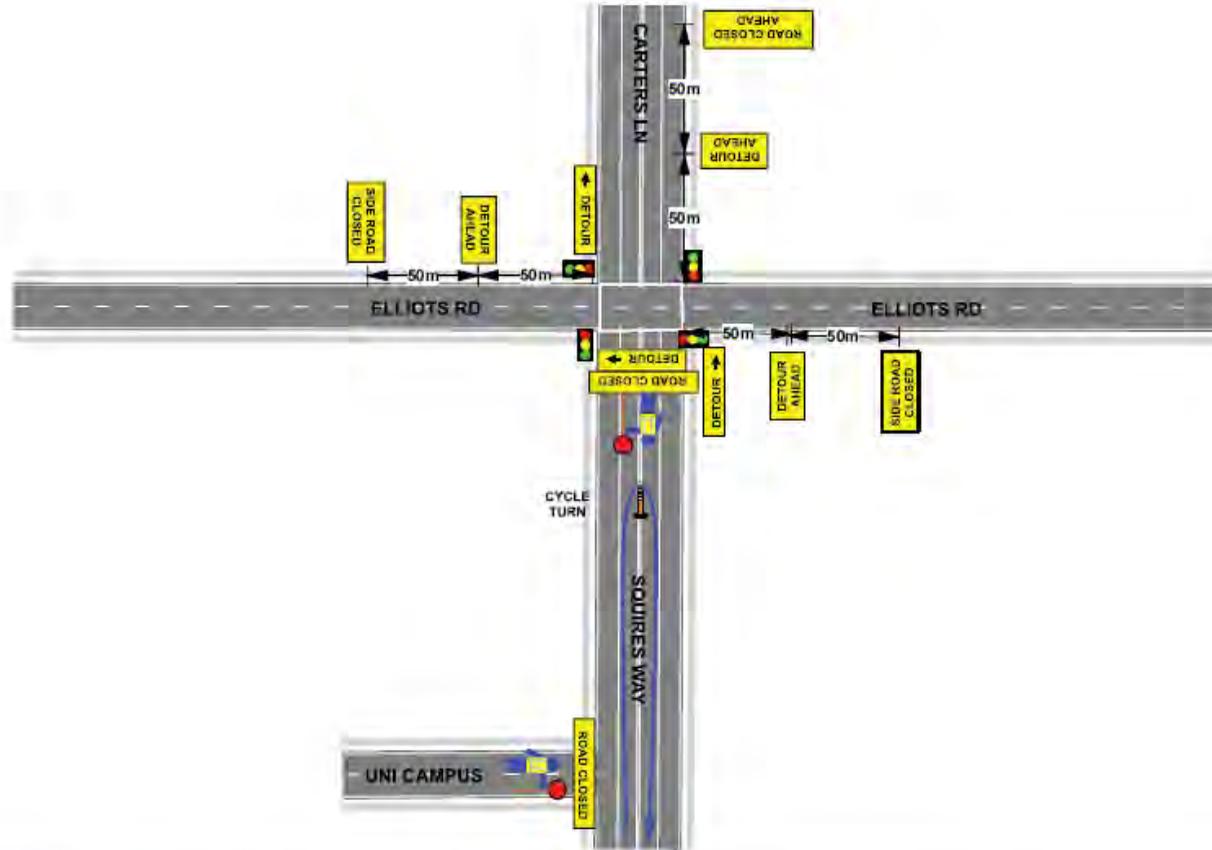


 <p>elitsenergy <i>enabling your potential</i></p> <p>Plan not to scale</p>	<p>LEGEND</p> <p> Accredited Traffic Controller  Advisory Marshal</p> <p> Cones  Barrier Boards  Signage</p> <p> Metal Crowd Barriers  Swim to Transition</p> <p> Vehicle Movement  Cyclist Movement</p> <p> Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p> 	<p>2016 Irithegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 4)</p>		

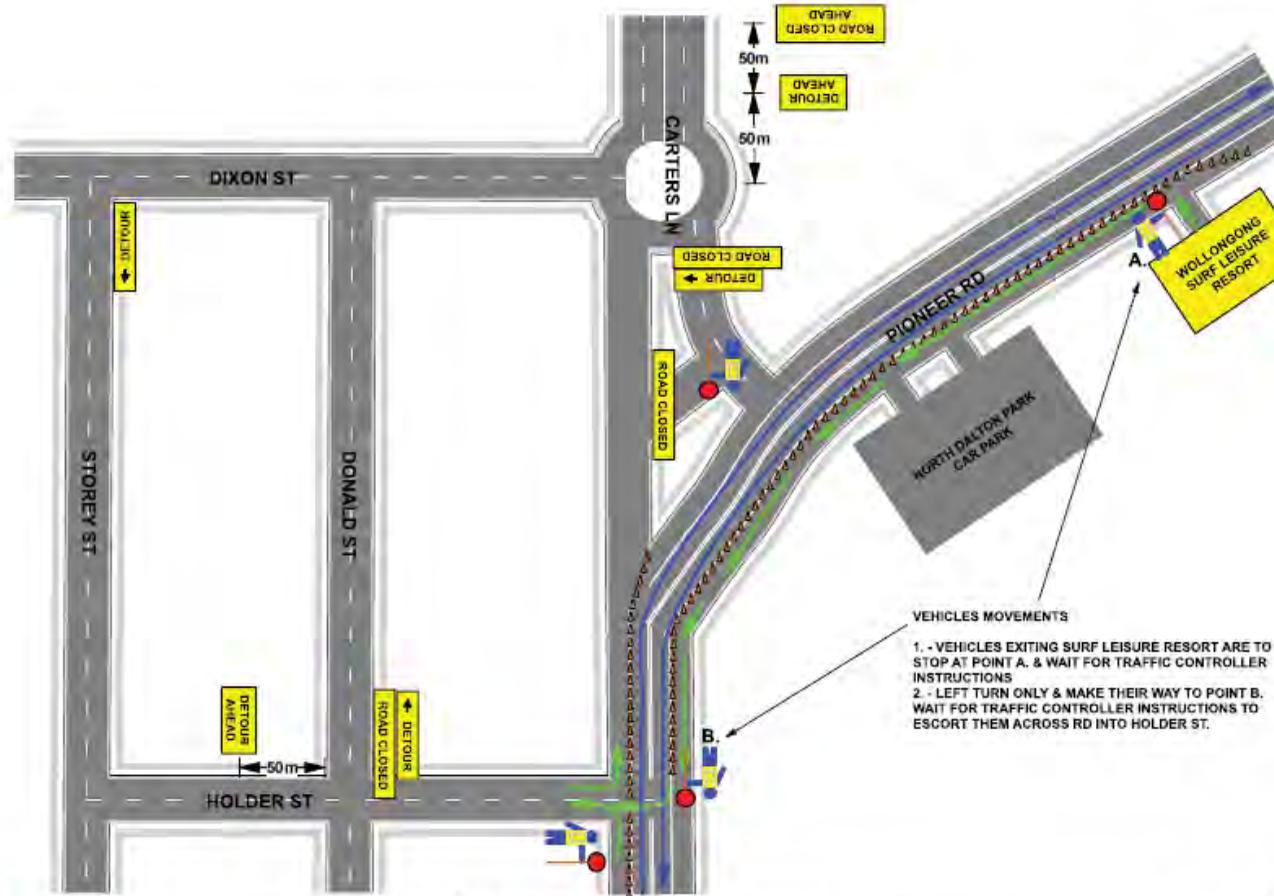
Attachment 4 – Tri the Gong – Sunday Event - Plan 5 of 12



<p>elitsenergy WOLLONGONG COMMUNITY</p> <p>Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller</p> <p>Advisory Marshals</p> <p>Cones</p> <p>Barrier Boards</p> <p>Signage</p> <p>Metal Crowd Barriers</p> <p>Vehicle Movement</p> <p>Swim to Transition</p> <p>Cyclist Movement</p> <p>Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2016</p>	<p>2016 Irithegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. All signage is to be removed on completion of works. Sign distances may vary due to obstruction, driveways etc. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 5)</p>		



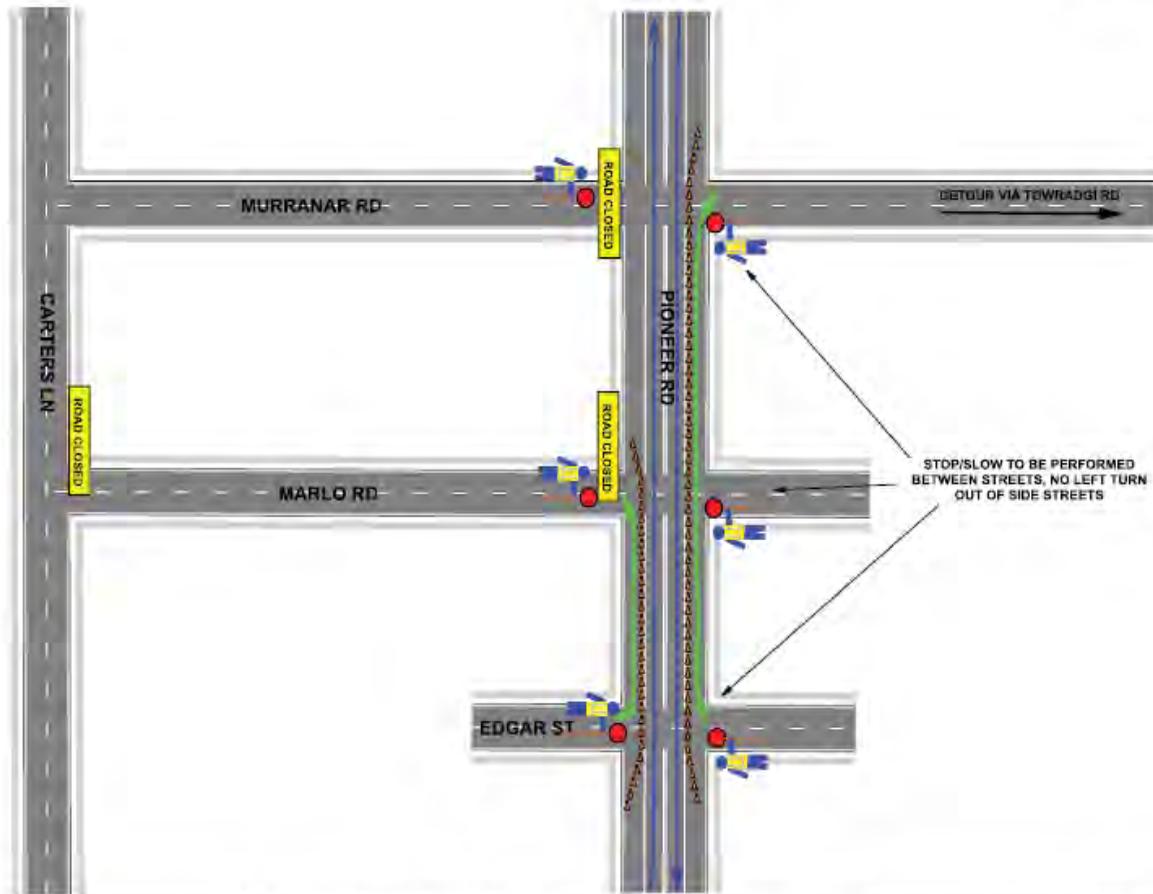
<p>Plan not to scale</p>	<p>LEGEND</p> <p> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Metal Crowd Barriers Salm to Transition Cyclist Movement Vehicle Movement Runner Movement </p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2015</p> <p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>2016 trihegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p> <p>TCP-TTGTF-2016-Sun (Plan 5A)</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
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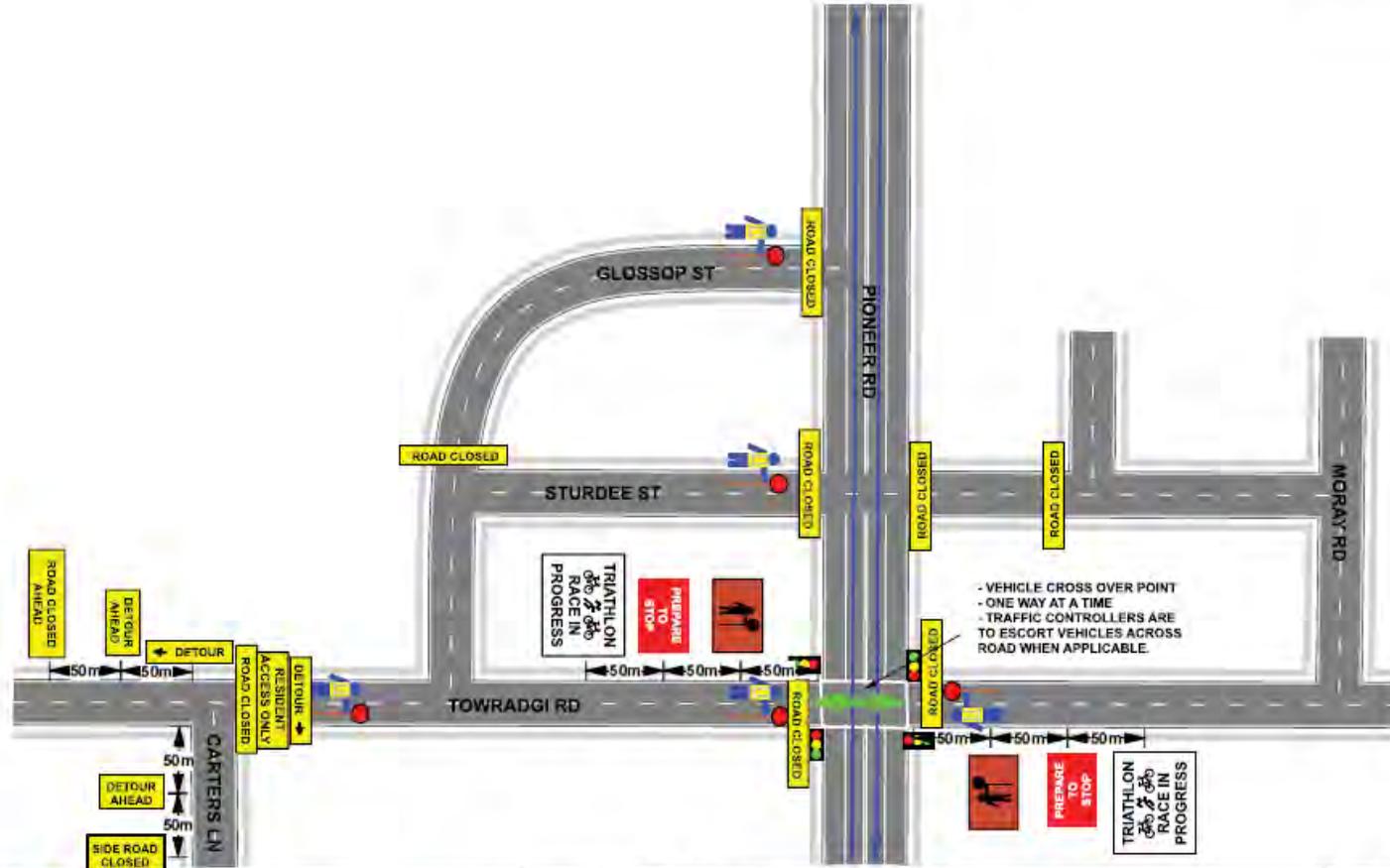
VEHICLES MOVEMENTS

1. - VEHICLES EXITING SURF LEISURE RESORT ARE TO STOP AT POINT A. & WAIT FOR TRAFFIC CONTROLLER INSTRUCTIONS
2. - LEFT TURN ONLY & MAKE THEIR WAY TO POINT B. WAIT FOR TRAFFIC CONTROLLER INSTRUCTIONS TO ESCORT THEM ACROSS RD INTO HOLDER ST.

<p>Plan not to scale</p>	<p>LEGEND</p> <ul style="list-style-type: none"> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Metal Crowd Barriers Vehicle Movement Swim to Transition Cyclist Movement Runner Movement 	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 6)</p>		

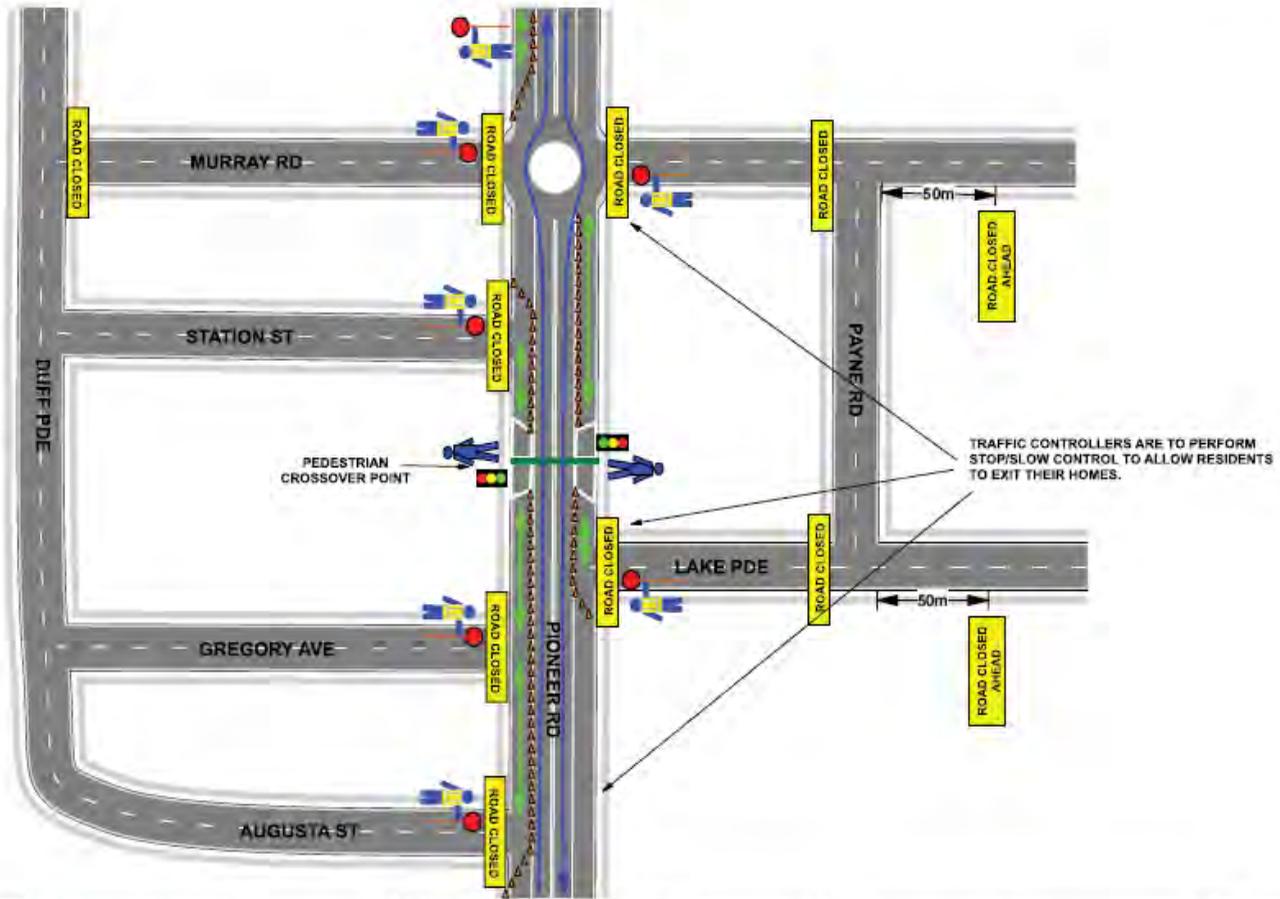


<p>Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller (blue icon) Advisory Marshal (red icon)</p> <p>Cones (orange triangle) Barrier Boards (white rectangle)</p> <p>Metal Crowd Barriers (black rectangle) Signage (red square)</p> <p>Vehicle Movement (green arrow) Swirl to Transition (black arrow)</p> <p>Cyclist Movement (blue arrow) Runner Movement (red arrow)</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2016</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <p>1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited.</p>	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 7)</p>		

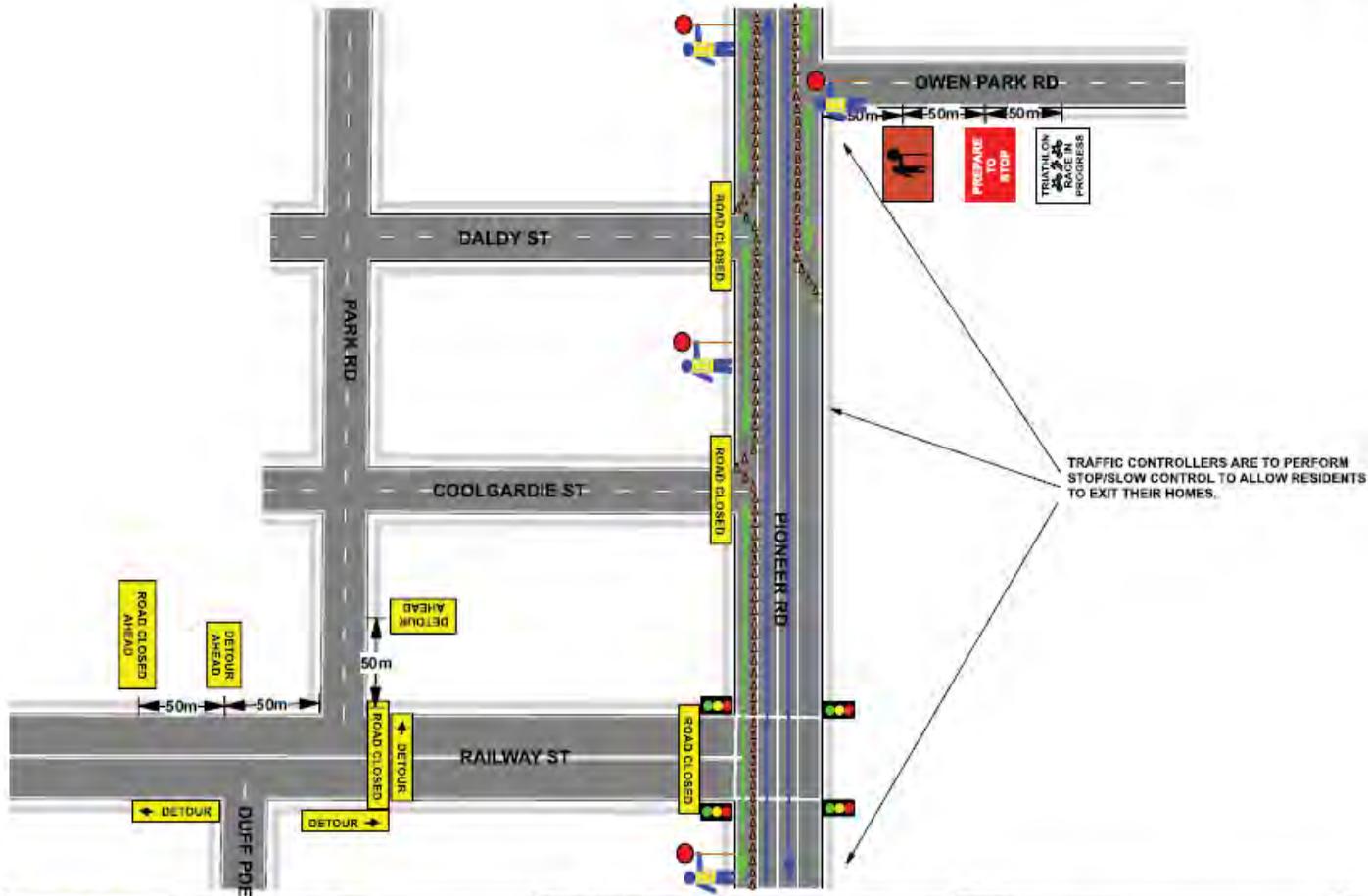


<p>Plan not to scale</p>	<p>LEGEND</p> <ul style="list-style-type: none"> Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Swim to Transition Cyclist Movement Runner Movement Vehicle Movement 	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. All signage is to be removed on completion of works. Sign distances may vary due to obstruction, driveways etc. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithe gong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 8)</p>		

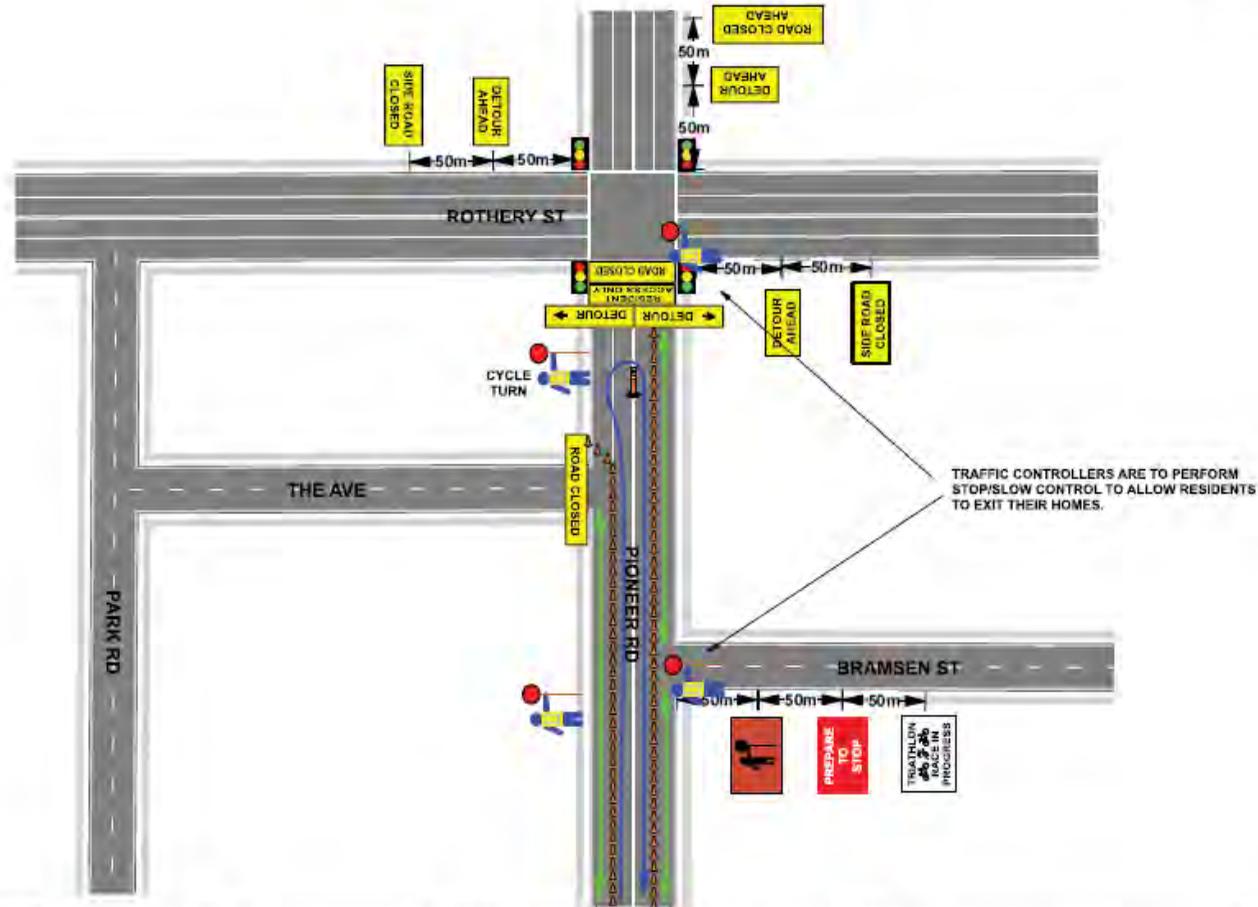
Attachment 4 – Tri the Gong – Sunday Event - Plan 9 of 12



<p>elitsenergy Wollongong Triathlon Festival Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller (red figure with sign) Advisory Marshal (blue figure) Cones (orange triangles) Barrier Boards (black and white rectangles) Signage (red and white signs) Metal Crowd Barriers (black and white rectangles) Vehicle Movement (green arrow) Swim to Transition (black arrow) Cyclist Movement (blue arrow) Runner Movement (red arrow)</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 Irithegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 9)</p>		

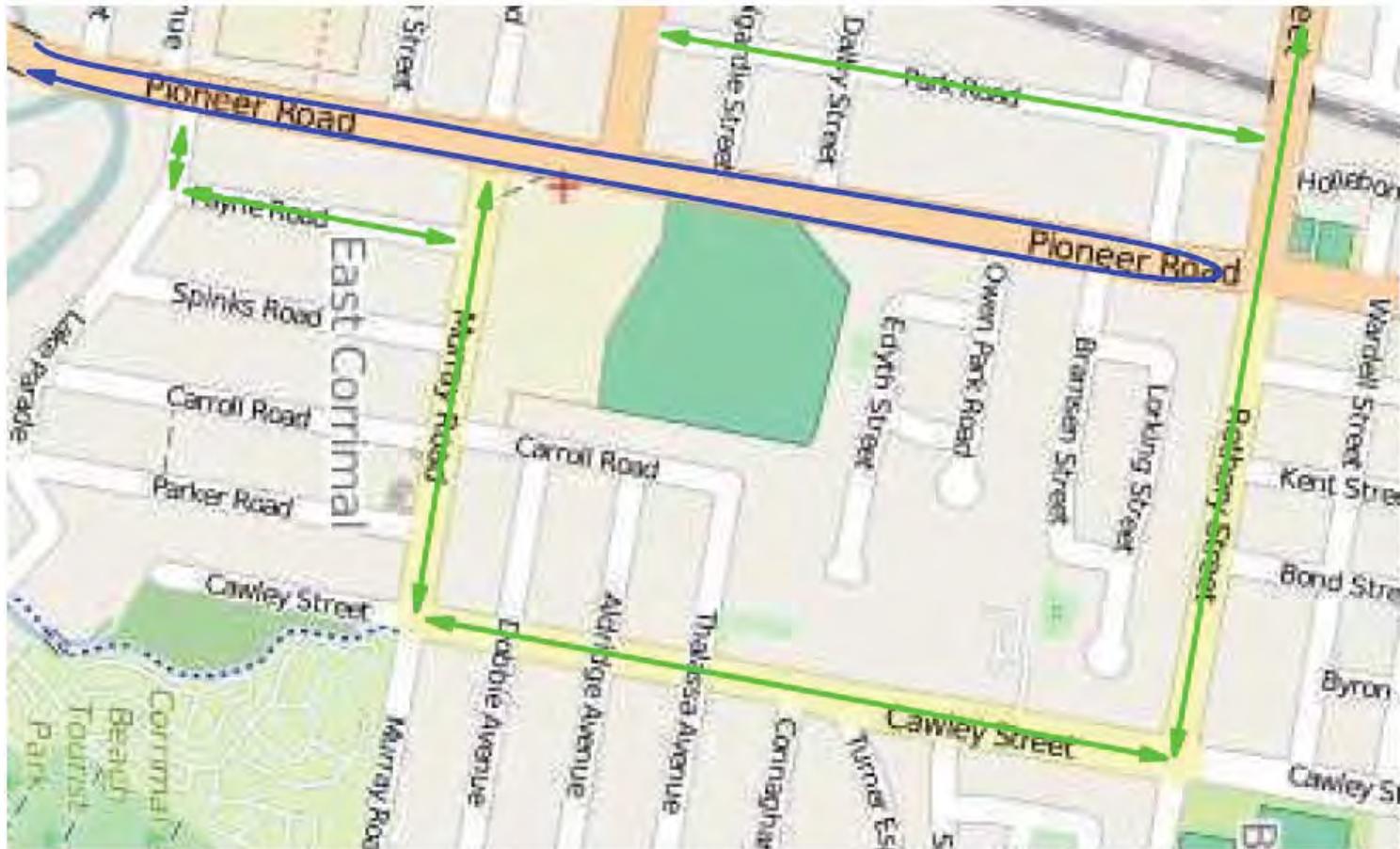


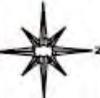
<p>Plan not to scale</p>	LEGEND Accredited Traffic Controller Advisory Marshal Cones Barrier Boards Signage Matter Crowd Barrier Vehicle Movement Swim to Transition Cyclist Movement Runner Movement	PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018	2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016	NOTES 1 TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2 All signage is to be removed on completion of works. 3 Sign distances may vary due to obstruction, driveways etc. 4 All marshals directing traffic must be RMS accredited.	
		EVENT "tri the gong" TRIATHLON FESTIVAL	TCP-TTGF-2016-Sun (Plan 10)		



<p>elitsenergy MARATHON TRIATHLON MANAGEMENT</p> <p>Plan not to scale</p>	<p>LEGEND</p> <p>Accredited Traffic Controller Cones Barrier Boards Metal Crowd Barriers Vehicle Movement</p> <p>Advisory Marshal Signage Swim to Transition Cyclist Movement Runner Movement</p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 triithegong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. 2. All signage is to be removed on completion of works. 3. Sign distances may vary due to obstruction, driveways etc. 4. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGF-2016-Sun (Plan 11)</p>		

Attachment 4 – Tri the Gong – Sunday Event – Plan 12 of 12



 <p>elitsenergy MAKING EVENTS MEMORABLE Plan not to scale</p>	<p>LEGEND</p> <p>  Accredited Traffic Controller  Advisory Marshal  Cones  Barrier Boards  Signage  Metal Crowd Barriers  Vehicle Movement  Swim to Transition  Cyclist Movement  Runner Movement </p>	<p>PREPARED BY: Philippe Jones RMS # 0021688725 Exp: 05/05/2018</p>	<p>2016 tri the gong Wollongong Triathlon Festival 6:45am - 4:00pm Sunday 6th March 2016</p>	<p>NOTES</p> <ol style="list-style-type: none"> TCP Designed as a guide only Team Leader to Select & Modify TCP to suit. All signage is to be removed on completion of works. Sign distances may vary due to obstruction, driveways etc. All marshals directing traffic must be RMS accredited. 	
		<p>EVENT "trithegong" TRIATHLON FESTIVAL</p>	<p>TCP-TTGTF-2016-Sun (Plan 12)</p>	<p>DETOUR OVERVIEW PLANS 9, 10 & 11</p>	

