



Part C – Specific Land Use Controls

Chapter C8: Extractive Industries

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1 INTRODUCTION

1. This chapter of the DCP outlines Council's requirements for the establishment and operation of an extractive industry.
2. This chapter of the DCP should be read in conjunction with the relevant LEP applying to the site.
3. This chapter of the DCP should also be read in conjunction with Schedule 3 of the Environmental Planning and Assessment Regulation with respect to Designated Development – Extractive Industries; State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007; and State Environmental Planning Policy (Major Projects) 2005.
4. In the event that the proposed extractive industry is not determined as a major project by the Minister for Planning under State Environmental Planning Policy (Major Projects) 2005, the formal development consent for the proposal will be required to be obtained from Council, as the relevant consent authority.
5. In the event that the proposal is classified as a Designated Development – Extractive Industries under Schedule 3 of the Environmental Planning and Assessment Regulation 2000, the preparation of an Environmental Impact Statement (EIS) will be required instead of a normal Statement of Environmental Effects (SEE). Under the provisions of the Environmental Planning and Assessment Act 1979, a proponent is required to formally seek the written requirements of the Director – General of the NSW Department of Planning for the preparation of the EIS.
6. The preparation of an EIS or SEE for a proposed extractive industry operation must address the following requirements contained in this part of the DCP relating to Extractive Industries.
7. Additionally, it is recommended that proponents also take into consideration the NSW Department of Urban Affairs & Planning's EIS Guidelines (September 1996): Extractive Industries – Quarries Chapter, during the preparation of an EIS or SEE.

2 OBJECTIVES

- (a) To provide an effective barrier between quarrying or mining operations and other land uses;
- (b) To maintain the character and amenity of existing rural or rural residential land uses;
- (c) To maintain or improve the air quality in the city;
- (d) To minimise soil erosion and sedimentation problems by implementing appropriate mitigation measures;
- (e) To conserve and protect the habitat of threatened flora and fauna species by imposing development restrictions on the extractive industry operation;
- (f) To facilitate the orderly sequencing of extraction on sites;
- (g) To ensure extractive industry sites are progressively rehabilitated to enhance the environmental and scenic quality of the locality;
- (h) To guarantee the final landform is capable of being used for another land use compatible with the RU1 Primary Production zone;

3 DEFINITIONS

“Extractive industry” means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.

“Extractive material” means sand, soil, gravel, rock or similar substances that are not minerals within the meaning of the Mining Act 1992.

4 MINIMUM SETBACK REQUIREMENTS

1. Extractive industry operations are required to be setback (in a straight line distance) at least:
 - (a) 50 metres from any property boundary;
 - (b) 50 metres from any public road;
 - (c) 30 metres from any private road which is shared with other adjoining property owners not associated with the proposed extractive industry operation;
 - (d) 100 metres from any property boundary to a National Park, State Forest or Crown Land;
 - (e) 40 metres from the top of the bank of a watercourse or drainage line; and
 - (f) 250 metres from a residence not associated with the extractive industry.
2. Where an adjoining property is undergoing a similar extractive industry activity, Council may consider a variation to the extraction setback along the common property boundary, in order to provide an integrated final landform between the two sites.
3. Additionally, a proposed extractive industry operation shall also be setback an appropriate distance from any electricity transmission line as per the requirements of the relevant electricity authority / provider.

5 ACCESS ROAD REQUIREMENTS

5.1 General

1. The main internal access road reserve for an extractive industry operation should be at least 15 metres wide with a minimum road carriageway width of 12 metres.
2. The internal access road reserve associated with the extractive industry operation shall be setback at least:
 - (a) 30 metres from any property boundary;
 - (b) 40 metres from any environmentally sensitive area, including any natural watercourse or drainage line and habitat of any threatened flora or fauna species or endangered ecological community; and
 - (c) 250 metres from any residence not associated with the extraction industry operation.

Figure 1 below shows the minimum road carriageway design and setback requirements for internal access roads.

However, the actual location of an internal haulage road may vary depending upon existing topographical, environmental or other physical constraints and the nature and value of the underlying extractive material resource.

3. The design of an internal haulage road should take into consideration the following matters:
 - (a) Cross –sectional characteristics of internal access arrangements;
 - (b) Horizontal and vertical alignment characteristics;
 - (c) Pavement and drainage proposals;
 - (d) Satisfactory vehicle grades not exceeding 6%; and
 - (e) Other road construction parameters.

4. The actual road design for internal access roads (including haulage roads) and connection to the intersection with public roads shall be in accordance with the following guidelines:
 - (a) Austroad: Guide to Traffic Engineering Practice;
 - (b) NSW Roads & Traffic Authority’s Road Design Code;
 - (c) NSW Roads & Traffic Authority’s Guide to Traffic Generating Developments; and / or
 - (d) Other designs approved by Council and / or the NSW Roads & Traffic Authority (depending on the classification of the connecting public road).

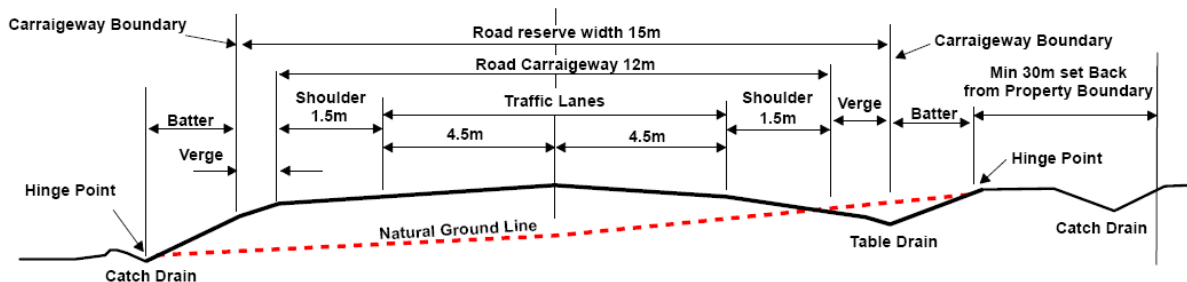


Figure 1: Road Carriageway Design & Setback Requirements

5.2 Traffic Impact Assessment Report

1. The preparation of a traffic impact assessment report (ie prepared by a suitably qualified and experienced traffic engineer) will be required for any proposed extraction industry operation.
2. The traffic impact assessment report shall address a range of matters / issues including (but not necessarily limited to) the following:

- (a) Estimated average and maximum hourly, daily and weekly truck movements (ie laden and unladen truck movements), based upon the truck type and size proposed for the operation;
- (b) Proposed truck routes (for both laden and unladen trucks) and possible alternative routes or other alternative transport modes such a rail transport;
- (c) The physical condition of existing roads and / or bridges on the proposed truck routes to / from the site;
- (d) The traffic generation impact of both laden and unladen truck movements along the proposed truck routes to / from the site;
- (e) Potential road safety impacts upon other road users arising from the additional truck movements occurring along the proposed truck routes to / from the site, taking into account the location of any schools, bus stops etc;
- (f) Assessment of sight distances for trucks entering / exiting the site and at other key intersections along the proposed truck routes to / from the site;
- (g) Recommended additional road upgrading and / or traffic management works to improve sight distances at key intersections and along the road and general road improvement works such as road widening and / or the provision of safer overtaking lanes etc; and
- (h) Recommended restrictions on the type or number of trucks operating from the extractive industry operation and / or the hours of truck movement to / from the site.

6 SOIL AND WATER MANAGEMENT

1. Extractive industries should minimise the disturbance of land in order to minimise the potential for erosion and deposition of silt and associated nutrients upon downstream watercourses.
2. Drainage from sites is required to reflect the pre-existing or natural situation in terms of location, quantity, quality and velocity of flow waters discharging from the site. The discharge of water shall be directed towards the existing natural watercourse or drainage line and not directly onto any adjoining downstream property (other than within the natural watercourse or drainage line).
3. Drainage measures must also be put in place which direct upstream overland run-off to by pass the extraction site.
4. Extractive industry operations should also minimise excavation works in areas of steep slopes and ridge top sites.
5. Any extractive industry proposal should include a Soil and Water Management Plan which incorporates best practice and includes the following matters:
 - (a) Soil conservation and pollution / nutrient control measures to be installed prior to land clearing and earthworks and maintained until landscaping measures are complete;
 - (b) Proposed protection measures for site access points;
 - (c) Catchment drainage characteristics of existing and proposed drainage patterns;
 - (d) Proposed protection measures for existing overland flowpaths, watercourses, stormwater kerb inlets and drains;

- (e) Upslope clean surface run-off diversions around the disturbed areas;
 - (f) Proposed staging program for the extraction of the site;
 - (g) Proposed method of controlling water flows through the disturbed or extraction area of the site;
 - (h) Proposed procedures for the installation and maintenance of disturbed areas;
 - (i) Proposed measures for the protection of remnant vegetation outside the extraction site; and
 - (j) Proposed details for the stripping and storage of topsoil from the extraction area.
6. Topsoil stockpiles over 3 metres in height should be benched to ensure stability and also include internal drains to minimise soil erosion problems.
7. The batter slopes should be no steeper than 1:2 (vertical: horizontal) for stable soils or 1:4 (vertical: horizontal) for highly erodible soils or lands subject to instability.

6.1 Stormwater Run-off Controls

1. Surface run-off from upstream undisturbed areas should be diverted around the proposed extraction and operational areas and then returned to the natural watercourse or drainage line downstream. All drainage channels shall be designed to convey run-off waters at velocities of less than 1 metre / second for vegetated channels or 0.4 metres per second for bare earth channels.
2. All channels and detention ponds shall be designed to accommodate peak discharge for a minimum 1 in 20 year average recurrence interval storm event with appropriate 1 metre flood freeboard margin.
3. Sediment control dams are required to be located downstream of extraction areas and other operational areas (including any screening plant areas) and between tailing dams and the downstream property boundaries.
4. The sediment control dams should be designed to have a sediment trapping capacity of at least 50% of the volume of the largest tailing dam.
5. All sediment control dams should be sized to retain at least the equivalent volume of 10mm depth of run-off over the entire disturbed area. The settling volume is to be provided as active storage with a minimum depth of 0.6 metres. A sediment storage volume of at least half of this allowance should be provided below the settling volume.
6. The design of the sediment control dam should include details of the proposed dewatering method for the settling volume and spillway configuration. All sediment control dams should incorporate an impermeable barrier in the dam wall.
7. Batter slopes for sediment control dams / detention basins shall be a maximum of 1 (vertical) to 4 (horizontal) and should be stabilised by vegetative cover. Any sediment loss during the establishment of the vegetative cover should be controlled by the installation of catch drains and sediment traps along the downstream toe of the embankment. These should be maintained until such time as 80% vegetative cover is achieved on the batters.

6.2 Tailing (Sludge) Pond Measures

1. Tailing (sludge) ponds should be designed to take into consideration the following matters:
 - (a) Soil profiles, groundwater table depth;
 - (b) Topographical, geotechnical and meteorological conditions in the locality;
 - (c) Physical, mineral and chemical properties of tailings;
 - (d) Stability of embankments, including the height, slope, natural strength and degree of compaction of foundations;
 - (e) Potential seepage into the groundwater, including high groundwater (piezometric) pressures resulting from high watertable levels within the embankment; and
 - (f) Potential seepage through embankments to surface water streams or overtopping from heavy storm events.
2. The remediation of tailing dams (once extraction is finished to no longer require the use of the tailing dam) should prevent any potential leaching into groundwater table or direct discharge into waters flowing into the downstream watercourse or drainage line.

7 WATER RESOURCE AND WATER QUALITY ISSUES

7.1 Objectives

- (a) To protect the integrity and quality of groundwater resources;
- (b) To protect groundwater dependent ecosystems and natural habitats; and
- (c) To protect downstream drainage patterns.

7.2 Planning and Design Criteria

7.2.1 Extraction Depth Limits to the Groundwater Table

1. The extraction depth shall be restricted to an absolute minimum freeboard level of 2 metres (in Australian Height Datum (AHD)) above the wet weather high groundwater level and any other requirements of the NSW Department of Water & Energy, in order to help to protect groundwater flow patterns and water quality on each extraction area.
2. Any proposed bore or extractive operation which intercepts any groundwater table must be licensed by the NSW Department of Water & Energy. In this respect, the NSW Department of Water & Energy and / or Council will generally require the installation of groundwater monitoring bores, should Council and the department ultimately support any such extraction operation.

7.2.2 Preparation of a Groundwater Impact Assessment Report

1. The preparation of a groundwater impact assessment report which identifies the nature and depth of any groundwater table within the proposed extractive industry operation will be required where groundwater resources may be in existence.
2. The groundwater impact assessment report should address the following matters / issues:

- (a) Identification of the depth and nature of the underlying groundwater table;
- (b) Identification of aquifer systems within the proposed extraction area, including any perched aquifers;
- (c) Assess the vulnerability of the groundwater resource, particularly with respect to other existing land uses in the locality whom rely upon the groundwater resource for their operations;
- (d) Identification of a suitable freeboard level (to AHD) above high wet weather groundwater level, in order to protect the groundwater flow patterns and water quality;
- (e) Identification of any potential impacts associated with the proposed extractive industry operation upon groundwater recharge areas; and
- (f) Recommend appropriate groundwater protection measures and on-going groundwater monitoring requirements, where necessary, in order to protect groundwater flow patterns and water quality.

7.2.3 Preparation of an On-site Water Management Plan

1. The preparation of an on-site water management plan will be required for any proposed extractive industry operation. The on-site water management plan shall address the following matters /issues:
 - (a) Description of potential sources of water pollution such as (a) increased turbidity impacts from the extraction area, haul roads or other disturbed areas with the site (b) sewage from amenities facilities and (c) petroleum product spillages from truck repair workshop and fuelling areas and / or truck washdown areas;
 - (b) Proposed stormwater drainage measures such as sediment traps, settlement ponds, water diversion banks or canals, to control water flow within the quarry area to minimise the volume, slope or speed of water flow and the movement of sediment;
 - (c) Proposed sedimentation dams to contain dirty run-off from the quarry area or any processing area from storm events up to and including the 1% AEP storm event, in order to prevent any uncontrolled discharge from the site into an adjoining watercourse or drainage line;
 - (d) Procedures for maintaining natural surface water flow and quality conditions downstream of the extraction site;
 - (e) Proposed on-going maintenance works including methods for the removal of fines and /or dewatering of temporary sediment control systems;
 - (f) Proposed chemical treatment of contaminated stormwater or process water due to the level of fines or other pollutants prior to reuse or discharge;
 - (g) Proposed wastewater storage and / or recycling / reuse strategies for amenities facilities, truck wash down areas and / or other activity areas;
 - (h) Proposed run-off controls for the accidental spillage of petroleum products or other chemicals;
 - (i) Proposed measures to prevent any breach or contamination of the groundwater table;

- (j) Potential impacts upon the water balance particularly the dependence upon off-site water sources or impact of water usage from any adjoining watercourse or groundwater source; and
- (k) Recommended strategies for the maximum reuse or recycling of stormwater run-off, particularly during extended dry periods.

8 AIR QUALITY ISSUES

1. All stockpiles of material should be effectively stabilised and maintained so as to prevent any dust nuisance.
2. The preparation of an air quality impact assessment report will be required for extraction industry proposals. The air quality impact assessment report shall be prepared by a suitably qualified and experienced civil engineering consultant or a scientist specialising in air quality management.
3. The air quality impact assessment report shall address a range of air quality the matters / issues including (but not necessarily limited to) the following:
 - (a) Existing meteorological conditions of the site, including temperature, humidity, prevailing winds and wind roses and average precipitation;
 - (b) Identification of likely fixed and mobile sources of air emissions from the site, especially extraction areas, processing handling areas and / or transport haulage of extracted materials etc;
 - (c) Identification of baseline data on the ambient quality of the air;
 - (d) Projected dust emission and deposition rates;
 - (e) Meteorological conditions under which adjoining dwellings and other sensitive land uses are likely to be affected;
 - (f) Compliance with NSW Department of Environment & Climate Change criteria for dust emission concentration and deposition levels;
 - (g) Proposed mitigation measures to control the generation of dust emissions and to ensure compliance with air quality standards including: (i) ceasing dust generating activities during certain meteorological events (ii) sealing or watering of haulage roads (iii) dust control measures on open stockpiles, processing and material loading areas (iv) proposed dust suppression equipment to be used during the extraction, crushing or screening processes, including mobile excavation or earthmoving equipment (v) proposed dust suppression screens on trucks to prevent spillage or blow-off of materials from trucks and (vi) provision of dense buffer screen planting around the site to ameliorate or reduce wind impacts; and
 - (h) Proposed on-going air emission monitoring program.

9 NOISE IMPACT ASSESSMENT – BLASTING AND NOISE IMPACTS

1. The preparation of a noise impact assessment report is required for any proposed extractive industry operation. The noise impact assessment report shall be prepared by a suitably qualified and experienced acoustic consultant who is a member of the Australian Acoustical Society or the Australian Association of Acoustical Consultants.

2. The noise impact assessment report shall address a range of potential noise emission impact matters / issues including (but not necessarily limited to) the following:
 - (a) The existing acoustic environment including a statistical breakdown of the meteorological conditions (prevailing winds, temperature, humidity and inversion details) and any topographical features of the subject site and surrounding locality which may influence potential noise, blasting and / or vibration impacts;
 - (b) Proposed hours of operation of the extractive industry operation including proposed hours of operation of trucks entering and exiting the site;
 - (c) Likely noise levels of fixed and mobile extractive industry equipment which generates noise, including haulage trucks operating in the early morning or late afternoon;
 - (d) Existing ambient noise levels at potentially affected residential dwellings or other sensitive land uses not associated with the extractive industry operation;
 - (e) Likely noise levels at potentially affected residential dwellings or other sensitive land uses not associated with the extractive industry operation;
 - (f) Proposed blasting measures (including instantaneous charge, site factors, firing patterns and delays, frequency of blasting etc);
 - (g) Predicted blast overpressures and ground vibration impacts upon neighbouring dwellings;
 - (h) Proposed mitigation measures to ameliorate blast impacts and to ensure compliance with relevant blast overpressure and ground vibration standards; and
 - (i) Proposed management practices to restrict blasting to favourable meteorological conditions and / or reduce the size, depth or direction of blast holes.

10 ECONOMIC ISSUES

1. The Statement of Environmental Effects (SEE) / Environmental Impact Statement (EIS) shall also address the potential economic impacts associated with the proposed extractive industry. The issues to be considered should include:
 - (a) The costs and benefits of the project to the community taking into consideration the environmental impacts identified in the SEE / EIS
 - (b) The potential economic benefits of the proposed extractive industry;
 - (c) Level of employment directly and indirectly as a result of the proposed development;
 - (d) Flow- on costs from the need to upgrade any road or other infrastructure;
 - (e) Potential impact upon property values in the surrounding locality.

11 CUMULATIVE ISSUES

1. The SEE or EIS should also consider a range of potential cumulative issues including (but not necessarily limited to) the following:

- (a) Identify other existing extractive industries in the locality or on the site presently or within the last five (5) years;
- (b) Identify other extractive industries or other significant traffic generating industries in the locality;
- (c) Potential cumulative effects from other existing extractive industries or other industries in the locality;
- (d) Advantages or disadvantages from clustering industry in the area considering the environmental characteristics;
- (e) Potential short-term and long-term cumulative impacts taking into consideration the environmental impacts identified in the SEE / EIS;
- (f) Potential for the receiving environment to achieve and maintain environmental objectives.

12 JUSTIFICATION OF THE PROPOSED DEVELOPMENT

1. The SEE or EIS is required to provide written justification for the proposed extractive industry operation. The written justification should address the potential environmental impacts associated with the proposed development and also consider the proposal's compliance with the principles of ecologically sustainable development.
2. The SEE or EIS should also address alternative sources for the specific extractive material.
3. The SEE or EIS should also address alternative options to the proposed extractive industry operation.

13 STAGING OF EXTRACTION

1. The SEE or EIS is required to include a staging of extraction program which shows the progressive extraction and progressive rehabilitation of the site. The SEE or EIS should also contain a staging plan (ie at the same scale of the site plan and / or topographical map) which shows the sequential staging of proposed extraction works and rehabilitation works with reference to the proposed final landform of the site.
2. The timing for each stage of extraction should also be included in the SEE or EIS.

14 PROGRESSIVE REHABILITATION OF EXTRACTION SITE

1. Extraction areas are required to be progressively rehabilitated under the supervision of a suitably qualified and experienced horticulturalist or ecologist so that the vegetative cover is established as soon as practicable. The rehabilitation of an extraction cell should take place sequentially as the next extraction cell commences.
2. Topsoil and overburden used for bund walls during the extraction phase for each cell should be stabilised using appropriate native species and rehabilitation under the supervision of the horticulturalist or ecologist. The rehabilitation of the cells should include native trees, shrubs and groundcovers which are endemic to the locality, wherever possible.
3. The SEE or EIS should include a rehabilitation strategy which outlines the proposed rehabilitation program including the likely timing for the progressive rehabilitation of each extractive cell as well as the comprehensive details of the vegetative cover on the final landform.

4. The final landform of the site must integrate with adjoining properties and be designed to achieve a uniform landform on all property boundaries.
5. A site plan showing the proposed post-extraction final land use is required. This site plan shall include the following requirements:
 - (a) The nature, location and duration of post – extraction land uses;
 - (b) Expected final land form, including drainage lines; and
 - (c) Proposed areas designated for the final proposed land use and other areas reserved for revegetation.
6. The SEE or EIS should also address the program for the removal of all buildings and structures from the site.

15 DEVELOPMENT APPLICATION REQUIREMENT - SITE PLAN & CROSS SECTION PLANS

1. The site plan and cross sectional plans are to be at a 1:200, 1:500 or 1:1000 scale (depending upon the size of the proposed extractive industry site) and shall include the following information:
 - (a) The existing and proposed land contours on the Australian Height Datum (AHD) and plotted at 1 or 2 metre contour intervals;
 - (b) The land on which the extraction site is to be located;
 - (c) The external surface dimensions of the subject site;
 - (d) The location and depth of the proposed extraction of the site;
 - (e) The location of existing and proposed access roads in the vicinity of the subject site;
 - (f) The location of buildings, weighbridge station, processing areas, extractive material stockpile areas, sedimentation basins, tailings dams, workshop areas, truck storage areas, truck washdown areas etc;
 - (g) The location of any existing electricity lines, water and sewerage pipelines etc;
 - (h) The location of all existing dams, watercourses and drainage lines upon the subject site and adjoining properties;
 - (i) The location of an existing fences and gates;
 - (j) The location of areas proposed to be used for the stockpiling of excavated material, overburden and topsoil; and
 - (k) The proposed final landform for the site (i.e. integrated with adjoining properties not associated with the extractive industry operation).