

Chapter 18

Extractive Industries



18 Introduction

18.1 Objectives of this chapter

1. Ensure that extractive industries do not adversely impact on the environment and surrounding land uses;
2. Identify and protect mineral and extractive resources of significance and associated extractive industries;
3. Identify preferred haulage routes and desired road standards;
4. Ensure continued efficient, appropriate and responsible operation of extractive industries of regional and local significance;
5. Provide for adequate “buffer areas” around quarries and resources of significance, so as to prevent encroachment of inappropriate land uses such as residential and rural-residential development and to minimise land use conflicts;
6. Identify quarries which have been exhausted of resource, or are no longer required and encourage effective rehabilitation of these sites;
7. Outline requirements and information needed for obtaining development consent to establish new quarries and extend or intensify existing quarries;
8. Provide guidelines for preparation and implementation of management plans for operating and rehabilitating quarries, so as to minimise adverse environmental impacts.

18.2 Definitions

In this Chapter the following definitions apply:

“*Buffer Area*” means the area around an extractive industry which may be affected by quarrying activities eg noise, dust visual intrusion etc and which is created for the purposes of mitigating these impacts on adjoining land uses of a residential nature.

“*Extractive Industry*” means –

- a) the winning of extractive material; or
- b) an undertaking, not being a mine, which depends for its operations on the winning of extractive material from the land upon which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land.

“*Extractive Material*” means sand, gravel, clay, turf, soil, rock, stone or similar substances.

“*Primary Haulage Route*” means a road which carries in excess of 10,000m² of extractive material annually, as shown on Map No. 4.

“*Secondary Haulage Route*” means a road which carries between 2,000m³ and 10,000m² of extractive material annually, as shown on Map No. 4.

18.3 Extractive Resources in Lismore

Extractive resources, and in particular mineral and construction resources, are of fundamental importance to the development of our community, particularly in areas of high growth such as the North Coast and Gold Coast regions. The potential pressures of this high population growth and development will result in an increasing need for road base etc, a large proportion of which is likely to go outside our area.

Mineral resources are defined as “all known or undiscovered earth derived materials and ores (including liquids and gases) used in industry, commerce or construction”. Such resources are usually classified into categories of Energy Commodities, Minerals and Construction Materials.

Minerals can be metallic (eg gold, zinc, tin) or non-metallic – industrial (eg brick clay, gemstones, decorative building stone). Their value lies in their chemical, physical or decorative nature. Construction materials are those earth derived materials used in construction (eg sand, aggregate, dimension stone) or earthworks (eg shale, gravel, coarse aggregate).

The exploration, discovery, assessment and viable economic extraction of a mineral resource basically hinges upon its potential commercial value at any particular time. The physical nature (ie bulk, mass, weight) and locational nature (access and distance to markets in relation to transport costs) of the mineral resource, the actual costs of extraction, as well as the existence and strength of the market, are factors determining the commercial value of a resource commodity.

A substantial component of the price of construction material is the cost of transporting the material from the site where it is extracted, to the site where it is used. Hence it is imperative to minimise the distance between the resource and end-user construction sites. Where resource sites are sterilised by the encroachment of inappropriate development, construction projects in that area will have to rely on resources from less accessible extraction sites, with a consequent increase in costs. Transport of resources over longer distances also increases road construction and maintenance costs, because of extra wear and tear on roads.

The identification and assessment of mineral and extractive resource is intimately tied in with the geology of the area. Geological survey is an ongoing process, managed in NSW by the relevant State Government Agency. It is beyond the scope of this chapter to describe in detail, the geology of the City of Lismore. The attached Map No. 1 depicts in broad summary form, the region's geology and potential resources.

Production of extractive material varies considerably from year to year generally following highs and lows in the economy and the construction industry. The Lismore area on average, produces about 300,000 tonnes of extractive material per annum, the bulk of which comprises construction materials. In the busier years production has exceeded 400,000 tonnes per annum. The relevant State Government Agency estimates that average production levels will steadily increase by 1% to 5% per annum, over the next ten to fifteen years, as demand increases.

There are a number of quarry and resource sites in Lismore which are of regional significance and a further 30 or 40 sites which are of local significance, some of which may also become regionally important in the future. Map No. 2 shows the location of some 130 active and inactive quarry and resource sites which have been identified in Lismore. Map No. 3 identifies those sites which are of regional or local significance.

18.4 Extractive Industries – Haulage Routes

Efficient and safe movement of extractive material from the source of supply to the end user is of critical concern to the quarry operator, consumer, community and Council. The impact of quarry trucks on road surfaces (particularly when loaded), the safety of other road users and the amenity of residents living along haulage routes are of particular concern to Council.

Map No. 4 illustrates the main haulage routes to and from quarries in Lismore. Generally Council requires that primary haulage routes and routes servicing larger quarries (production greater than 10,000m³ pa) have a sealed road width of 6 metres. Where average daily traffic rates are less than 500 and quarry production is of an intermittent nature, a seal width of 5.5 metres for a haulage road to larger quarries would be acceptable. Where average traffic counts exceed 1,000 vehicles per day, a minimum road seal width of 6.5 metres should be provided along the haulage route.

In the case of secondary haulage routes and routes servicing smaller quarries (with annual production in the range of 5,000m³ to 10,000m³ per annum), Council requires a sealed road width of at least 3.6 metres, where average daily traffic counts are less than 150, increasing to a seal width of 5.5 metres where such traffic exceeds 500 vehicles per day. An unsealed gravel road formation may be acceptable to Council where quarry production is intermittent, and traffic counts are less than 150 vehicles per day, with few dwellings located along the haulage route.

The change in classification of a non-haulage road to become a secondary haulage road, or a secondary haulage road to become a primary haulage road can only be dealt with upon the receipt of a development application for either the establishment of, or the enlargement of, an existing extractive industry.

Classification of haulage routes may change if a large new quarry or major expansion of an existing quarry is proposed. A significant increase in haulage may, for example, require a secondary haulage route to be upgraded to a primary haulage route. The EIS or Statement of Environmental Effects accompanying a development application shall include an assessment of the need for, and impact of, additional secondary haulage routes or reclassification of secondary haulage routes to primary routes.

Development applications must specify the haulage routes to be utilised and the expected number of laden and unladen truck movements on each route. Where haulage routes do not meet Council's road standard requirements, a development application may be refused, or a levy applied, either in a lump sum or by quarterly payment per tonne of production, to fund upgrading of the haulage road. The amount of the levy will be assessed in relation to the amount of quarry production and the extent of road upgrading works required.

All quarries will be levied a road maintenance levy to fund additional road maintenance costs associated with extra wear and tear created by quarry trucks on local roads. Road maintenance levies are payable quarterly and are calculated as a rate per tonne per kilometre of material extracted. The larger the tonnage and the longer the distance hauled on local roads, the greater is the amount that is payable to Council for road maintenance. Council may consider negotiating an "average levy" applying to material hauled from a quarry, based on the average distance that material is hauled.

Calculation of the levy is based on a percentage of the RTA Standard Truck Hire Rates multiplied by the tonnage and distance (calculation of road levies for quarries are identified within Council's Section 94 Contribution Plan). As a guide, the current recommended maintenance levy charge is around 4.0 cents per tonne kilometre for a main road. A quarry producing 10,000 tonnes of material and hauling this material over a distance of 10 kilometres, would pay an annual road maintenance levy of \$4,000 in four quarterly instalments, each of \$1,000. Production figures may be described in cubic metres provided that the nature of the material is identified, so that a tonnage calculation may be made.

18.5 Buffer areas around Extractive Industry sites

Extractive industries involve the use of an extensive range of plant and equipment which creates noise, dust and even odour, as material is won from the quarry face and then crushed and screened for loading and transport. In some cases blasting is necessary to extract the material. Quarrying activities are incompatible with many land uses, particularly those of a residential nature. Even some farming activities may also experience problems, when located close to a quarry. It is therefore desirable to provide a buffer area around quarries to minimise land use conflicts.

In fast growing and intensively settled areas like Lismore, extractive industries and resources may be sterilised as a result of the encroachment of residential land uses. It is therefore desirable to identify significant quarries and resources and provide an appropriate buffer to prevent encroachment of residential and other land uses, which may sterilise a resource or lead to community pressures to restrain or cease production.

The extent of buffer required depends on the size of the quarry, whether blasting is utilised, nature of production methods, extent of crushing and screening operations, topography and site conditions and the intensity of surrounding development and land uses. A two level buffer standard has therefore been implemented, with a primary and a secondary buffer area established.

Urban/village-residential and rural-residential development is excluded from both the primary and secondary buffer area. Farmhouses on agricultural holdings may be permitted in the secondary

buffer area (but generally not in the primary buffer area), if no alternative suitable location is available. All other non-residential land uses are permitted in the secondary buffer area. As a general rule only bushland, rural industries, or agricultural and forestry uses and rural outbuildings will be permitted in the primary buffer area. The following table summarises the minimum radii of buffer areas required by Council around extractive industries and resources:

Quarry Size	Primary Buffer Zone	Secondary Buffer Zone
Large Quarries (10,000m ³ pa)	500 metres	800 metres
Medium Quarries (5,000m ³ – 10,000m ³ pa)	400 metres	600 metres
Minor Quarries (< 5,000m ³ pa)	300 metres	400 metres

Buffer areas may be reduced where topographic, climatic, site conditions or production techniques are favourable to reducing distance separation. For example a quarry located within a confined and enclosed basin, or a quarry which operates only on an intermittent basis, may enable a reduction in the extent of the buffer. Very small quarries, essentially used only as borrow pits, and minor quarries with intermittent use may require a buffer of only one or two hundred metres. A section of buffer zone could be reduced where a hill or ridge separates the quarry from a potential development area, or where the quarry is downwind of the development area (ie less affected by noise and dust).

In some cases buffer zones may need to be increased where, for example, the topography is very flat or a development site is located upwind of a quarry. Where blasting is utilised at a quarry, a primary buffer zone of at least 800m – 1,000m is desirable. This buffer could be reduced to 400m – 500m, or even less, depending on blasting technique and where blasting is infrequent and/or only small “staggered” blasts are used.

Whilst buffer zones are not required along haulage routes, Council will encourage a maximum building setback to haulage roads, to reduce noise and dust nuisance. Residential and rural-residential development will generally not be approved along or near unsealed quarry haulage routes. Such development should even be discouraged along or near sealed haulage routes servicing major quarries (production in excess of 50,000m³ with 50 truck movements daily) unless an adequate buffer can be provided to the haulage road. Individual dwellings fronting unsealed haulage roads should be setback at least 50 to 60 metres from the road and be provided with a planting buffer to minimise dust nuisance.

18.6 Rehabilitation of Quarries

Extractive industries are acknowledged as ‘temporary’ land uses, and controls as imposed by conditions of consent indicate the life expectancy of a quarry. The imposed conditions require that at the end life of the quarry, appropriate rehabilitation measures are carried out within 12 months.

Quarries should be progressively rehabilitated by initially removing and storing topsoil for replacement onto worked out areas. These worked areas should be reshaped, stabilised, topsoiled and replanted to prevent erosion and sedimentation and enable the land to be returned to agricultural or other appropriate uses. Stock should not have access to areas being rehabilitated.

Exhausted and disused quarries **must not** be left in an unrestored state. Such quarries can result in land and water degradation because of increased incidence of erosion and sedimentation and they may become a danger to both humans and stock. Quarries that have ceased operation prior to this DCP coming into force and which did not have a requirement for rehabilitation, may apply to Council to permit removal of additional extractive material from a disused quarry to finance its

restoration. Owners of unrestored, disused quarries may also be eligible for specific Federal or State environmental grants to assist in the cost of rehabilitation.

Guidelines for the rehabilitation of quarries are included with the Rehabilitation Guidelines and Environmental Management Plans for Extractive Industries Section attached as Annexure 4. Further advice is obtainable from the relevant State Government Agency. Council has identified those exhausted or disused quarries which it believes warrant a high priority for rehabilitation. Locations of these quarries are shown on Map No. 5.

18.7 Obtaining Development Consent for Extractive Industries

All extractive industries without a current valid development approval from Council are required to obtain Council's development consent for an increase in production or for any lateral extension of the area quarried. Existing unauthorised quarries and new extractive industries require submission and approval of a development application and environmental impact statement prior to any site works commencing, or production continuing in the case of unauthorised quarries.

Development consent may not be required where material is extracted for 'on farm' use on the property on which material is extracted (ie for purposes ancillary to the agricultural use of the land eg stockyards driveways etc). In this regard, should the farmer be of the opinion that the extractive activities are wholly ancillary to the agricultural pursuits of the land, then Council should be advised, in writing, that the extractive activities are for agricultural purposes only with material not removed from the farm and justification for this conclusion provided. Should Council be of the opinion that those extractive activities do not require development consent, the Council will supply written verification of that fact.

In the above situation, Council reserves the right to require the farmer to use and operate the extractive area in an environmentally sensitive manner, and implement such rehabilitation works as may be required by Council.

Annexure 2 – "Guidelines for Preparation of Development Application", lists Council's requirements for preparation and submission of a development application and Statement of Environmental Effects or EIS, where appropriate, for extractive industries. Even when an EIS is not required, a thorough assessment of potential environmental impacts must be made and details of protection measures included. Extractive industries if not properly designed and managed, can create erosion, degrade water quality, create noise and dust nuisance, damage roads, destroy habitat and leave a scar on the landscape.

Further guidelines on identifying and assessing the impact of proposed quarries are contained in the Department of Planning's public "Extractive Industry – Environmental Impact Assessment Guidelines".

18.8 Extractive Industry Management Plans

An extractive industry management plan is a document which describes how extractive activities are to be carried out, machinery, processes and methods to be utilised, staging of quarrying and rehabilitation, transport of materials, site management, and measures by which adverse environmental impacts are to be minimised.

Council, as a condition of development approval for all extractive industries, requires the developer to prepare a management plan for the continuing operation and rehabilitation of the extractive industry and site. This management plan must be consistent with the EIS or Statement of Environmental Effects and development consent, and must be approved by Council prior to any site works commencing.

The management plan should be prepared in consultation with Council and relevant government agencies. Council will require submission of a rehabilitation bond (as a bank guarantee) as part of the approval of the Management Plan. Management Plans shall also provide for periodic site

inspection (every one to five years depending on quarry size) by Council Officers, to ensure compliance with the management plan. Council's requirements for the form and content and preparation of management plans are summarised in Annexure 4.