

ATTACHMENT 2

Agency Correspondence



Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Swati Sharma

Notice Number 1530818
File Number EF15/9127 SF15/21321
Date 20-May-2015

RE: Coraki Quarry Proposal (SSD 15_7036)

I refer to your request for the Environment Protection Authority's (EPA) requirements for the Environmental Impact Statement (EIS) in regard to the above proposal received by EPA on 1 May 2015.

The EPA has considered the details of the proposal as provided by Department of Planning & Environment and has identified the information it requires to issue its general terms of approval in Attachment A. Attachment B provides a list of Guidance Material for assessing environmental impacts.

In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

1. Air quality impacts, particularly relating to dust management;
2. Noise impacts;
3. Soil and water management; and
4. Waste.

Land-based extractive activity which involves the extraction, processing or storage of more than 30,000 tonnes/year of extractive materials triggers schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act). Given the proposed maximum annual extraction rate of 1,000,000 tonnes per year, the proponent will require an environment protection licence (EPL) from the EPA. The proponent will need to apply to the EPA separately to obtain an EPL.

Please note that this response does not cover biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

The Proponent should be made aware that any commitments made in the EA may be formalised as approval conditions and may also be placed as formal licence conditions.

The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* ("the Act") the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and required as a condition of an EPL.



In addition, as a requirement of an EPL, the EPA will require the Proponent to prepare, test and implement a Pollution Incident Response Management Plan and/or Plans in accordance with Section 153A of the Act.

The EPA requests that the applicant provide two (2) electronic copies of the EIS.

These documents should be lodged at the Grafton office of the EPA at PO Box 498, GRAFTON NSW 2460.

If you have any queries regarding this matter please contact Geff Cramb of the Grafton office on 6640 2510.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R Donohoe', written over a dotted line.

Robert Donohoe

A/Head Environmental Management Unit

North - North Coast

(by Delegation)

ATTACHMENT A: EIS Requirements for the Coraki Quarry proposal SSD 15_7036

How to use these requirements

The EPA requirements have been structured in accordance with the Department of Planning and Environment Register of Development Assessment Guidelines (<http://www.planning.nsw.gov.au/DevelopmentAssessments/RegisterofDevelopmentAssessmentGuidelines/tabid/207/language/en-AU/Default.aspx>), as follows. It is suggested that the EIS follow the same structure:

- A. Executive summary
- B. The proposal
- C. The location
- D. Identification and prioritisation of issues
- E. The environmental issues
- F. List of approvals and licences
- G. Compilation of mitigation measures
- H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
 - a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
 - b) a life cycle approach to the production, use or disposal of products
 - c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
 - d) the staging and timing of the proposal and any plans for future expansion
 - e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
 - a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
 - b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
 - a) measures to minimise waste (typically through addressing source reduction)
 - b) proposals for use or recycling of by-products
 - c) proposed disposal methods for solid and liquid waste
 - d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
 - e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
 - f) soil contamination treatment and prevention systems.
- Outline construction works including:
 - a) actions to address any existing soil contamination

- b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)
- c) construction timetable and staging; hours of construction; proposed construction methods
- d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.

Air

- Identify all sources of air emissions from the development.

Note: emissions can be classed as either:

- *point (eg emissions from stack or vent) or*
- *fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).*
- Provide details of the project that are essential for predicting and assessing air impacts including:
 - a) the quantities and physio-chemical parameters (eg concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
 - b) an outline of procedures for handling, transport, production and storage
 - c) the management of solid, liquid and gaseous waste streams with potential for significant air impacts.

Noise and vibration

- Identify all noise sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters:
 - a) including the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on www.environment.nsw.gov.au/ieo, using technical criteria derived from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000)
 - b) the management of discharges with potential for water impacts
 - c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts eg effluent ponds) and showing potential areas of modification of contours, drainage etc.

- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Waste and chemicals

- Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-liquid Wastes* (NSW EPA, 1999).
- Provide details of liquid waste and non-liquid waste management at the facility, including:
 - a) the transportation, assessment and handling of waste arriving at or generated at the site
 - b) any stockpiling of wastes or recovered materials at the site
 - c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
 - d) the method for disposing of all wastes or recovered materials at the facility
 - e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
 - f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
 - a) the quantity of spoil material likely to be generated
 - b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
 - c) the need to maximise reuse of spoil material in the construction industry
 - d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material

designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the guidelines: *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (NSW EPA, 1999).

Ecologically Sustainable Development

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving Ecologically Sustainable Development (ESD), including:
 - a) an assessment of a range of options available for use of the resource, including the benefits of each option to future generations
 - b) proper valuation and pricing of environmental resources

- c) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

4. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
 - a) sites and site layouts
 - b) access modes and routes
 - c) materials handling and production processes
 - d) waste and water management
 - e) impact mitigation measures
 - f) energy sources
- Selection of the preferred option should be justified in terms of:
 - a) ability to satisfy the objectives of the proposal
 - b) relative environmental and other costs of each alternative
 - c) acceptability of environmental impacts and contribution to identified environmental objectives
 - d) acceptability of any environmental risks or uncertainties
 - e) reliability of proposed environmental impact mitigation measures
 - f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

In preparing the site description the proponent should consider:

- Using map(s) showing the locality of the proposed development in a regional and local context. Local context maps should be based on 1:25000 topographic plans. Photographs of the site's key attributes may provide useful documentation.
- The area subject to development should be clearly identified on an appropriately scaled plan. This includes all ancillary works such as buildings and other structures, parking areas, loading / processing / treatment areas, access roads, and material stockpiling areas.
- The applicability or otherwise of Local Environment Plans (LEP), Regional Environment Plans (REP) and State Environmental Planning Policies (SEPP).
- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
 - a) meteorological data (eg rainfall, temperature and evaporation, wind speed and direction)
 - b) topography (landform element, slope type, gradient and length)
 - c) surrounding land uses (potential synergies and conflicts)
 - d) geomorphology (rates of landform change and current erosion and deposition processes)
 - e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
 - f) ecological information (water system habitat, vegetation, fauna)
 - g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may effect plume dispersion.
- Provide and analyse site representative data on following meteorological parameters:
 - a) temperature and humidity
 - b) rainfall, evaporation and cloud cover
 - c) wind speed and direction
 - d) atmospheric stability class
 - e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
 - f) katabatic air drainage
 - g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: www.environment.nsw.gov.au/ieo should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
 - a) relevant NSW government guidelines
 - b) industry guidelines
 - c) EISs for similar projects
 - d) relevant research and reference material
 - e) relevant preliminary studies or reports for the proposal
 - f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
 - a) all issues identified including local, regional and global impacts (eg increased/ decreased greenhouse emissions)
 - b) key issues which will require a full analysis (including comprehensive baseline assessment)
 - c) issues not needing full analysis though they may be addressed in the mitigation strategy

- d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:
 - a) operational procedures to manage environmental impacts
 - b) monitoring procedures
 - c) training programs
 - d) community consultation
 - e) complaint mechanisms including site contacts
 - f) strategies to use monitoring information to improve performance
 - g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

a. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (eg potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- Reference should be made to *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2001); *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA, 2001).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

b. Noise and vibration

Any residences that surround the proposed site could be subject to unacceptable noise impacts if not managed appropriately.

A Noise Impact Assessment (NIA) for the proposal must be conducted by an appropriately qualified acoustics consultant. The NIA must be conducted in accordance with the State Government's *Industrial Noise Policy* and address the potential impacts of the quarry operations on any nearby residents including the following:

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels in accordance with the *NSW Industrial Noise Policy*.
- Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
 - a. details of equipment used for the measurements
 - b. a brief description of where the equipment was positioned
 - c. a statement justifying the choice of monitoring site, including the procedure used to choose the site, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*
 - d. details of the exact location of the monitoring site and a description of land uses in surrounding areas
 - e. a description of the dominant and background noise sources at the site
 - f. day, evening and night assessment background levels for each day of the monitoring period
 - g. the final Rating Background Level (RBL) value
 - h. graphs of the measured noise levels for each day should be provided
 - i. a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*
 - j. determination of LAeq noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:
 - a) determination of the intrusive criterion for each identified potentially affected receiver

- b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
- c) determination of the amenity criterion for each receiver
- d) determination of the appropriate sleep disturbance limit.
- **Maximum** noise levels during night-time period (10pm-7am) should be assessed to analyse possible **affects** on sleep. Where LA1(1min) noise levels from the site are less than 15 dB above the **background** LA90 noise level, sleep disturbance impacts are unlikely. Where this is not the case, **further** analysis is required. Additional guidance is provided in Appendix B of the *NSW Road Noise Policy*.
- **Determine** expected noise level and noise character (eg tonality, impulsiveness, vibration, etc) likely to **be** generated from noise sources during:
 - a) site establishment
 - b) construction
 - c) operational phases
 - d) transport including traffic noise generated by the proposal
 - e) other services.

Note: *The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).*

- **Determine** the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any **identified** significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.
- **The noise impact assessment report should include:**
 - a) a plan showing the assumed location of each noise source for each prediction scenario
 - b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
 - c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc
 - d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated
 - e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions
 - f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate
 - g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
 - h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy*.

- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:
 - a) locations where the noise level exceeds the criteria and extent of exceedence
 - b) numbers of people (or areas) affected
 - c) times when criteria will be exceeded
 - d) likely impact on activities (speech, sleep, relaxation, listening, etc)
 - e) change on ambient conditions
 - f) the result of any community consultation or negotiated agreement.
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:
 - a) bench height, burden spacing, spacing burden ratio
 - b) blast hole diameter, inclination and spacing
 - c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
 - a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
 - b) control of traffic (eg: limiting times of access or speed limitations)
 - c) resurfacing of the road using a quiet surface
 - d) use of (additional) noise barriers or bunds
 - e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
 - f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension
 - g) driver education

- h) appropriate truck routes
- i) limit usage of exhaust breaks
- j) use of premium muffles on trucks
- k) reducing speed limits for trucks
- l) ongoing community liaison and monitoring of complaints
- m) phasing in the increased road use.

a) Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DECCW 2004) or be approved and analyses undertaken by accredited laboratories).

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: www.environment.nsw.gov.au/ieo. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (<http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html>) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANZECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.

State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries (www.hrc.nsw.gov.au) or the NSW Salinity Strategy (DLWC, 2000) (www.dlwc.nsw.gov.au/care/salinity/#Strategy).

- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data

to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:

- b) lake or estuary flushing characteristics
- c) specific human uses (e.g. exact location of drinking water offtake)
- d) sensitive ecosystems or species conservation values
- e) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc
- f) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
- g) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act 1997* (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils and/or acid forming rock.
- Containment of spills and leaks shall be in accordance with Australian Standard 1940-2004 Storage and Handling of Flammable & Combustible Liquids. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:
 - a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and
 - b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and

decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004), *Guidelines for Fresh and Marine Water Quality* ANZECC 2000).

Describe management and mitigation measures

A Soil and Water Management Plan should be developed which outlines all management and mitigation measures relating to stormwater management and erosion control. The Soil and Water Management Plan should:

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- The sediment basins must meet the design and operational standards of *Managing Urban Stormwater Soils and Construction: Volume 1 and Volume 2 E. Mines and quarries*. This document requires that at a minimum 90 percentile five-day rainfall event (standard: greater than three years) be used to determine basin sizing for quarries.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (eg preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
 - a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
 - b) minimising runoff
 - c) minimising reductions or modifications to flow regimes
 - d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
 - a) site selection
 - b) retention of native vegetation and revegetation
 - c) artificial recharge

- d) providing surface storages with impervious linings
- e) monitoring program.
- Describe geomorphological impact mitigation measures including:
 - a) site selection
 - b) erosion and sediment controls
 - c) minimising instream works
 - d) treating existing accelerated erosion and deposition
 - e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DECCW 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
 - a) disturbing any existing contaminated soil
 - b) contamination of soil by operation of the activity
 - c) subsidence or instability
 - d) soil erosion
 - e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997); *Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report* (EPA, 1999).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
 - a) erosion and sediment control measures
 - b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
 - c) proposals for the management of these soils – see *Acid Sulfate Soil Manual*, ASSMAC, 1998.

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (EPA, 1999).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.

Outline measures to support any approved regional or industry waste plans.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (eg water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (eg travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with



statutory obligations under EPA licences or approvals (eg outline of an environmental management plan).

- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT B - GUIDANCE MATERIAL

Assessing Environmental Impacts

1. Water and Soils

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- NWQMS Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC 2000)
- Australian Standard 1940-2004 Storage and Handling of Flammable & Combustible Liquids
- Approve Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004)

Acid Sulphate Soils or Acid forming rock

- Acid Sulphate Soil Manual – ASSMAC, 1998

Sediment & Erosion Control

- Managing Urban Stormwater: Soils and Construction (DECC 2009)
 - Managing Urban Stormwater: Harvest and Re-use (DEC 2006)
- (Both publications available from: <http://www.environment.nsw.gov.au/stormwater/publications.htm>)

Groundwater

- The NSW State Groundwater Quality Protection Policy (DLWC 1998)
- NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
- National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ & ANZECC, 1995).

Contaminated sites

- Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites (EPA, 1997)
- Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report (EPA, 1999)
- Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)

2. Air

- Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2001);
- Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2001).

3. Noise and vibration

- NSW Industrial Noise Policy (EPA, 1999)
- NSW Road Noise Policy (DECCW, 2011)
- Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZECC, 1990)
- Chapter 171 Noise Control Guideline, Construction Site Noise, Environmental Noise Control Manual, 1994; NSW Interim Construction Noise Guideline (DECC, August 2008).

4. Waste

- Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes.

Swati Sharma

From: Wayne Jones <wayne.jones@dpi.nsw.gov.au>
Sent: Monday, 18 May 2015 3:17 PM
To: Swati Sharma
Cc: water.referrals@dpi.nsw.gov.au
Subject: Coraki Quarry [SSD15_7036] SEARs

Hi Swati

Please see following draft DPI comment on the above project. Formal response should follow shortly.

Regards
Wayne

Wayne Jones | Land Use Planning Coordinating Officer
Department of Primary Industries
Level 48, MLC Centre, 19 Martin Place Sydney NSW 2000
T:02 9338 6708 | E: wayne.jones@dpi.nsw.gov.au

OUT15/11867

Ms Swati Sharma
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Swati.Sharma@planning.nsw.gov.au

Dear Ms Sharma,

Coraki Quarry [SSD15_7036] Request for input into Secretary's Environmental Assessment Requirements

I refer to your email dated 1 May 2015 to the Department of Primary Industries in respect to the above matter.

Comment by Agriculture NSW

Agriculture NSW advise that the subject land is mapped under the Northern Rivers Farmland project as containing areas of regionally significant farmland. Such areas are considered highly important agricultural resources in the North Coast Region and due consideration of potential impacts on these resources and associated industries is required. NSW DPI guideline, *Agriculture issues for extractive industry development*, sets out the relevant agricultural issues to consider in the preparation of an EIS for an extractive industry development. Please refer to this guideline in the preparation of the EIS - <http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment/extractive-industries>.

For further information please contact Selina Stillman, Resource Management Officer, (Wollongbar Office) on 6628 1215 or at selina.stillman@dpi.nsw.gov.au.

Comment by Crown Lands

The proposed site, (Lot 401 DP633427) adjoins unformed Crown Roads. The development must not encroach on the adjoining Crown Roads. See attachment B.

For further information please contact Derek van Leest, Property Management, (Grafton Office) on 6642 9236 or at derek.van.leest@crownland.nsw.gov.au.

Comment by NSW Office of Water

The NSW Office of Water (Office of Water) has reviewed the supporting documentation accompanying the request for Secretary's Environmental Assessment Requirements (SEARs) and provides the comments below, and further detail in **Attachment A**.

It is recommended that the EIS be required to include:

- Details of water proposed to be taken (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased. It is unclear from the information provided how water will be supplied to the quarry, how much water will be utilised for the quarry operations and the source of water. All water required for the development and sources of water should be accounted for and outlined in the EIS.

A search of the Office of Water database revealed no water licences on the Lot and DP.

The land is located within the *Water Sharing Plan for the Richmond River Unregulated, Regulated and Alluvial Water Sources 2010*.

- A detailed and consolidated site water balance.
- A detailed assessment against the NSW Aquifer Interference Policy (2012) using the NSW Office of Water's assessment framework.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- It is important any works which may intercept groundwater are outlined in detail in the EIS to allow the Office of Water to undertake a proper assessment of any potential impacts. The EIS must address this issue and if dewatering is required, appropriate licences are obtained to account for the take of this water. The EIS should also outline the current depth to groundwater in comparison with the quarry floor level.
- Full technical details and data of all surface water and groundwater modelling, and an independent peer review.
- Proposed surface and groundwater monitoring activities and methodologies.
- Proposed management and disposal of produced or incidental water.
- The EIS should include an assessment of Acid Sulfate Soils on the site, if applicable, and outline mitigation and management measures to limit impacts on surface water and groundwater in the area.

- Details surrounding the final landform of the site including remediation and rehabilitation measures.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Consideration of relevant policies and guidelines.
- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).

For further information please contact Christie Jackson, Water Regulation Officer, (Tamworth office) on (02) 6701 9652 or at christie.jackson@water.nsw.gov.au.

Attachment A

Coraki Quarry [SSD15_7036] Request for Input into Secretary's Environmental Assessment Requirements Additional Comment by the NSW Office of Water

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the NSW Office of Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (WMA 2000), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)

Key points:

- Volumetric licensing in areas covered by water sharing plans.
- Works within 40m of waterfront land.
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979 (EP&A Act)*.
- No exemptions for volumetric licensing apply as a result of the *EP&A Act*.
- Basic landholder rights, including harvestable rights dams.
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*.
- Maximum penalties of \$2.2 million plus \$264,000 for each day an offence continues apply under the *WMA 2000*.

Water Act 1912 (WA 1912)

Key points:

- Volumetric licensing in areas where no water sharing plan applies.
- Monitoring bores.
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000*.
- Flood management works.

- No exemptions apply to licences or permits under the *WA 1912* as a result of the *EP&A Act*.
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011

Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Harvestable Rights Orders

Water Sharing Plans

The proposal is located within the area covered by the *Water Sharing Plan for the Richmond River Unregulated, Regulated and Alluvial Water Sources 2010*. The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
 - o Sufficient market depth to acquire the necessary entitlements for each water source.
 - o Ability to carry out a “dealing” to transfer the water to relevant location under the rules of the WSP.
 - o Daily and long-term access rules.
 - o Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
- NSW Aquifer Interference Policy (NOW, 2012)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

Office of Water policies can be accessed at the following links:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx>
<http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx>

An assessment framework for the NSW Aquifer Interference Policy can be found online at: <http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference>.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages.
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10 % of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:

<http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff>

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.

- Identification of all surface water sources as described by the relevant water sharing plan.
- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
 - o flow of surface water, sediment movement, channel stability, and hydraulic regime,
 - o water quality,
 - o flood regime,
 - o dependent ecosystems,
 - o existing surface water users, and
 - o planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources including:

- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to the Office of Water by submitting a “Form A” template. The Office of Water will supply “GW” registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.

- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
 - o the effect of the proposal on the recharge to groundwater systems;
 - o the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
 - o the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
 - o wetlands/swamps, watercourses and top of bank;
 - o riparian corridor widths to be established along the creeks;
 - o existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
 - o the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
 - o proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.
- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.
- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Drill Pad, Well and Access Road Construction

- Any construction activity within 40m of a watercourse, should be designed by a suitably qualified person, consistent with the NSW *Guidelines for Controlled Activities on Waterfront Land* (July 2012).

- Construction of all wells must be undertaken in accordance with the *Minimum Construction Requirements for Water Bores in Australia* (3rd edition 2012) by a driller holding a bore drillers' licence valid in New South Wales.
- The length of time that a core hole is maintained as an open hole should be minimised.

Landform rehabilitation (including final void management)

The Environmental Impact Statement report should include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project;
- Detailed modelling of potential groundwater volume, flow and quality impacts of the presence of an inundated final void (where relevant) on identified receptors specifically considering those environmental systems that are likely to be groundwater dependent;
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation; and
- The measures that would be established for the long-term protection of local and regional aquifer systems and for the ongoing management of the site following the cessation of the project.

End Attachment A

Attachment B

Coraki Quarry [SSD15_7036] Request for Input into Secretary's Environmental Assessment Requirements Crown Land Status Information

Crown Land adjoining proposed site:

- Unformed Crown Roads northeast corner of Lot 401 DP633427, separating Lot 401 DP633427 from Lot 2 DP6339 and Lot 408 DP1166287.

Road Closing application W465722 lodged over Crown Road separating Lot 401 DP633427 from Lot 2 DP6339. Lodged by Richmond Valley Council on behalf of Varoli Pty Ltd.

No direct impact on Crown Land outside of adjoining unformed Crown Roads.

CRV

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.



6th May 2015

Swati Sharma
Planning Officer – Resource Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Emailed
Your Reference: SSD 15_7036
Our Reference: OUT15/10606

Dear Sir/Madam,

**Re: Request for Secretary's Environmental Assessment Requirements
Proposal – Coraki Quarry (SSD 15_7036)**

Thank you for the opportunity to provide advice on the subject proposal.

This is a response from NSW Trade & Investment – Division of Resources & Energy (DRE), incorporating advice from its Agriculture and Fisheries Branches. Specific Fisheries or Forests issues arising may be provided in separate correspondence.

The building and construction industries in NSW require ongoing replacement of supplies as sources are exhausted. The development of new quarries, subject to environmental assessment, helps to ensure a continued supply of material for a range of building and construction uses in NSW. The resource in the subject area represents a regionally important source of hard rock aggregate for the ongoing Pacific Highway upgrade.

Mineral Resources Issues

Hard rock aggregate is not a prescribed mineral under the Mining Act, 1992. Therefore, DRE has no statutory role in authorising or regulating the extraction of this commodity, apart from its role under the *Work Health & Safety Act 2011* and associated regulations and the *Mine Health and Safety Act 2004* and associated regulations, for ensuring the safe operation of mines and quarries.

All environmental reports (EISs or similar) accompanying Development Applications for extractive industry lodged under the Environmental Planning & Assessment Act 1979 should include a resource assessment (as detailed in Attachment A) which:

- Documents the size and quality of the resource and demonstrates that both have been adequately assessed; and
- Documents the methods used to assess the resource and its suitability for the intended applications.

Applications to modify, expand, extend or intensify an existing consent that has already been adequately reported using the above protocol in publicly available documents, may

NSW Department of Trade and Investment, Regional Infrastructure and
Services

RESOURCES & ENERGY DIVISION
PO Box 344 Hunter Region Mail Centre NSW 2310
Tel: 02 4931 6666 Fax: 02 4931 6726
ABN 51 734 124 190
www.dtiris.nsw.gov.au

restrict detailed documentation to the additional resources to be used, if accompanied by a summary of past resource assessments and of past production.

DRE collects data on the quantity and value of construction materials produced annually throughout the State. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data thus collected is of great value to Government and industry in planning and resource management, particularly as a basis for analysing trends in production and for estimating future demand for particular commodities or in particular regions. In order to assist in the collection of construction material production data, the proponent should be required to provide annual production data for the subject site to DRE as a condition of any new or amended development consent.

Queries regarding the above information, and future requests for advice in relation to this matter, should be directed to the DRE – Geological Survey of New South Wales Land Use team at landuse.minerals@trade.nsw.gov.au

Agricultural Issues for Extractive Industries (Quarries)

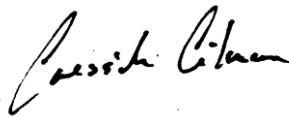
The relevant agricultural issues to consider when preparing and also when assessing extractive industry proposals are set out in the Departments' Guideline: *Agricultural issues for Extractive Industries* available on our website; <http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment>. The guideline also documents recommended project design and mitigatory responses.

The guideline is part of a series designed to help consent authorities identify potential agricultural impacts, and assess whether such proposals can avoid conflict with existing agricultural developments; and protect valuable food and fibre production resources. The guidelines can similarly help consultants and proponents and are available from the Department of Primary Industries land use planning web portal: <http://www.dpi.nsw.gov.au/agriculture/resources/lup/development-assessment>.

Fisheries Issues

General issues are summarised in Attachment B.

Yours sincerely



Cressida Gilmore
Team Leader Land Use

Encl. Attachments "A to B"

ATTACHMENT A

**NSW TRADE & INVESTMENT
RESOURCES & ENERGY DIVISION**

**ENVIRONMENTAL and WORK HEALTH & SAFETY
ASSESSMENT REQUIREMENTS FOR
CONSTRUCTION MATERIAL QUARRY PROPOSALS**

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal.

The following issues need to be addressed when preparing an environmental assessment (EA) or environmental impact statement (EIS) for a proposed construction materials (extractive materials) quarry:

Resource Assessment

1. A summary of the regional and local geology including information on the stratigraphic unit or units within which the resource is located.
2. The amount of material to be extracted and the method or methods used to determine the size of the resource (e.g. drilling, trenching, geophysical methods). Plans and cross-sections summarising this data, at a standard scale, showing location of drillholes and/or trenches, and the area proposed for extraction, should be included in the EA or EIS. Relevant supporting documentation such as drill logs should be included or appended. Major resource proposals should be subject to extensive drilling programs to identify the nature and extent of the resource.
3. Characteristics of the material or materials to be produced:
 - a) For structural clay/shale extraction proposals, ceramic properties such as plasticity, drying characteristics (e.g. dry green strength, linear drying shrinkage), and firing characteristics (e.g. shrinkage, water absorption, fired colour) should be described.
 - b) For sand extraction proposals, properties such as composition, grain size, grading, clay content and contaminants should be indicated. The inclusion of indicative grading curves for all anticipated products as well as the overall deposit is recommended.
 - c) For hard rock aggregate proposals, information should be provided on properties such as grain size and mineralogy, nature and extent of weathering or alteration, and amount and type of deleterious minerals, if any.

- d) For other proposals, properties relevant to the range of intended uses for the particular material should be indicated.

Details of tests carried out to determine the characteristics of the material should be included or appended. Such tests should be undertaken by NATA registered testing laboratories.

4. An assessment of the quality of the material and its suitability for the anticipated range of applications should be given.
5. The amount of material anticipated to be produced annually should be indicated. If the proposal includes a staged extraction sequence, details of the staging sequence needs to be provided. The intended life of the operation should be indicated.
6. If the proposal is an extension to an existing operation, details of history and past production should be provided.
7. An assessment of alternative sources to the proposal and the availability of these sources. The impact of not proceeding with the proposal should be addressed.
8. Justification for the proposal in terms of the local and, if appropriate, the regional context.
9. Information on the location and size of markets to be supplied from the site.
10. Route(s) used to transport quarry products to market.
11. Disposal of waste products and the location and size of stockpiles.
12. Assessment of noise, vibration, dust and visual impacts, and proposed measures to minimise these impacts.
13. Proposed rehabilitation procedures during, and after completion of, extraction operations, and proposed final use of site.
14. Assessment of the ecological sustainability of the proposal.

Health and Safety Issues

In relation to the health & safety of mining and quarrying operations, the following issues should be addressed:

1. All operations are to comply with the following Acts & Regulations
 - a. *Work Health & Safety Act 2011*
 - b. *Work Health & Safety Regulations 2011*
 - c. *Mine Health & Safety Act 2004*
 - d. *Mine Health & Safety Regulations 2007*

2. The mine holder must nominate the mine operator in writing on the prescribed form to the Chief Inspector as required by the *Mine Health & Safety Act 2004* Section 22 prior to the commencement of extraction.
3. The operator of the mine must appoint a production manager as required by the *Mine Health & Safety Regulation 2007* Clause 16 and the operator must notify the Chief Inspector of the appointment in writing as required by the *Mine Health & Safety Regulation 2007* Clause 18 prior to the commencement of extraction.
4. Any blasting operations carried out by the mine operator must comply with the *Explosives Act 2003* and the *Explosives Regulations 2005*.

Mineral Ownership

The *Mining Act 1992* applies to those commodities prescribed by the regulations of the Act (Schedule 2, Mining Regulation 2003). Most construction materials are not prescribed minerals under the *Mining Act 1992*. In general terms, this means these materials are owned by the Crown where they occur on Crown land and by the landowner in the case of freehold land. A Mining Title is not required for their extraction although a Crown Lands licence is required where they occur on Crown land.

Construction materials such as *sand (other than marine aggregate), loam, river gravel, and coarse aggregate materials such as basalt, sandstone, and granite* are not prescribed minerals under the *Mining Act 1992*. Therefore, Trade & Investment NSW has no statutory responsibility for authorising or regulating the extraction of these commodities, apart from its role under the *Mine Health and Safety Act 2004* with respect to the safe operation of mines and quarries. However, the Department is the principal government authority responsible for assessing the State's resources of construction materials and for advising State and local government on their planning and management.

Some commodities, notably *structural clay (ie clay for brick, tile and pipe manufacture), dimension stone (except for sandstone), quartzite, kaolin, limestone and marine aggregate* are prescribed minerals under the *Mining Act 1992*. Minerals which are prescribed as minerals under the terms of the Mining Act may, in some cases belong either to the Crown or to the landowner, depending on a number of factors including the date on which the mineral was proclaimed and the date of alienation of the land. The proponent needs to determine whether the material is privately owned or Crown mineral (publicly owned). If it is privately owned, then either a notification under Section 8 of the Mining Act 1992 or, alternatively, a mining lease or mineral claim would be required. If it is a Crown mineral, an application for a mining lease or mineral claim will have to be lodged.

If you are unsure whether a mining title is required for your proposal you should contact NSW Trade & Investment, Resources & Energy Division.

ATTACHMENT B

Primary Industries Division - Aquatic Habitat Protection Requirements

Matters to be Addressed

Definitions

The definitions given below are relevant to these requirements:

Fish means any part of marine, estuarine or freshwater fish or other aquatic animal life at any stage of their life history (whether alive or dead). This includes aquatic molluscs, crustaceans, echinoderms, worms, aquatic insect larvae and other macroinvertebrates .

Marine vegetation means any species of plant that at any time in its life must inhabit water (other than fresh water).

Waters refers to all waters including tidal waters as well as flowing streams, irregularly flowing streams, gullies, rivers, lakes, coastal lagoons, wetlands and other forms of natural or man made water bodies on both private and public land.

1. General Requirements

- Area which may be affected either directly or indirectly by the development or activity should be identified and shown on an appropriately scaled map (1:25000) and aerial photographs.
- All waterbodies and waterways within the proposed area of development are to be identified.
- Description and maps of aquatic vegetation, snags, gravel beds and any other protected, threatened or dominant habitats should be presented. Description should include area, density and species composition.
- A survey of fish species should be carried out and results included. Existing data should be used only if collected less than 5 years previously.
- Identification of recognised recreational and commercial fishing grounds, aquaculture farms and/or other waterways users.
- Details of the location of all component parts of the proposal, including any auxiliary infrastructure, timetable for construction of the proposal with details of various phases of construction
- Aspects of the management of the proposal, both during construction and after completion, which relate to impact minimisation and site rehabilitation eg Environment Management Plans, Rehabilitation Plans, Compensatory offsets
- For each freshwater body identified on the plan, the plan should include, either by annotation or by an accompanying table, hydrological and stream morphology information such as: flow characteristics, including any seasonal variations, bed substrate, and bed width
- For each marine or estuarine area identified on the plan, the plan should include, either by annotation or by an accompanying table, hydrological and stream morphology information such as: tidal characteristics, bed substrate, and depth contours

DREDGING AND RECLAMATION ACTIVITIES

- Purpose of works
- Type(s) and distribution of marine vegetation in the vicinity of the proposed works
- Method of dredging to be used

- Timing and Duration of works
- Dimension of area of works including levels and volume of material to be extracted or placed as fill
- Nature of sediment to be dredged, including Acid Sulphate Soil, contaminated soils etc
- Method of marking area subject to works
- Environmental safeguards to be used during and after works
- Measures for minimising harm to fish habitat under the proposal
- Spoil type and source location for reclamation activities
- Method of disposal of dredge material
- Location and duration of spoil stockpiling, if planned

ACTIVITIES THAT DAMAGE MARINE VEGETATION

- Type of marine vegetation to be harmed
- Map and density distribution of marine vegetation
- Reasons for harming marine vegetation
- Methods of harming marine vegetation
- Construction details
- Duration of works/activities
- Measures for minimising harm to marine vegetation under the proposal and details of compensatory habitat development to replace lost vegetation.
- Method and location of transplanting activities or disposal of marine vegetation

ACTIVITIES THAT BLOCK FISH PASSAGE

- Type of activity eg works in a stream that change flow or morphological characteristics of the stream, including culvert and causeway construction, sediment and erosion control measures, stormwater diversion structures.
- Length of time fish passage is to be restricted, whether permanent or temporary
- Timing of proposed restriction. Should be timed to avoid interfering with migratory movements of fish.
- Remediation or compensatory works to offset any impacts

THREATENED SPECIES

- Threatened aquatic species assessment (Section 5c, EP&A Act 1979). This must be addressed even if there are no Threatened Species present on the site.
- Seven Part Test

FISHING AND AQUACULTURE

- Outline and document commercial, recreational and indigenous fishing activities that may be affected by the activity, including regular commercial fishing grounds, popular recreational fishing sites, recognised indigenous harvesting sites.
- Will the activity interfere with or cause an impact on the continuing operation and viability of nearby aquaculture or mariculture ventures.

2. Initial Assessment

A list of threatened species, endangered populations and endangered ecological communities must be provided. In determining these species, consideration must be given to the habitat types present within the study area, recent records of threatened species in the locality and the known distributions of these species.

In describing the locality in the vicinity of the proposal, discussion must be provided in regard to the previous land and water uses and the effect of these on the proposed site. Relevant historical events may include land clearing, agricultural activities, water

abstraction/diversion, dredging, de-snagging, reclamation, siltation, commercial and recreational activities.

A description of habitat including such components as stream morphology, in-stream and riparian vegetation, water quality and flow characteristics, bed morphology, vegetation (both aquatic and adjacent terrestrial), water quality and tide/flow characteristics must be given. The condition of the habitat within the area must be described and discussed, including the presence and prevalence of introduced species. A description of the habitat requirements of threatened species likely to occur in the study area must be provided.

In defining the proposal area, discussion must be provided in regard to possible indirect effects of the proposal on species/habitats in the area surrounding the subject site: for example, through altered hydrological regimes, soil erosion or pollution. The study area must extend downstream and/or upstream as far as is necessary to take all potential impacts into account.

Please Note: Persons undertaking aquatic surveys may be required to hold or obtain appropriate permits or licences under relevant legislation. For example:

Fisheries Management Act 1994

- Permit to take fish or marine vegetation for research or other authorised purposes (Section 37)
- Licence to harm threatened (aquatic) species, and/or damage the habitat of a threatened species (Section 220ZW).

Animal Research Act 1985:

- Animal Research Authority to undertake fauna surveys.

It is recommended that, prior to any field survey activities taking place, those persons proposing to undertake those activities give consideration to their obligation to obtain appropriate permits or licences which may be required in the specific context of the proposed survey activities.

3. Assessment of Likely Impacts

The EIS must:

- describe and discuss significant habitat areas within the study area;
- outline the habitat requirements of threatened species likely to occur in the study area;
- indicate the location, nature and extent of habitat removal or modification which may result from the proposed action;
- discuss the potential impact of the modification or removal of habitat;
- identify and discuss any potential for the proposal to introduce barriers to the movement of fish species; and
- describe and discuss any other potential impacts of the proposal on fish species or their habitat.

For all species likely to have their lifecycle patterns disrupted by the proposal to the extent that individuals will cease to occupy any location within the subject site, the EIS must describe and discuss other locally occurring populations of such species. The relative significance of this location for these species in the general locality must be discussed in terms of the extent, security and viability of remaining habitat in the locality.

4. Ameliorative Measures

The EIS must consider how the proposal has been or may be modified and managed to conserve fisheries habitat on the subject site and in the study area.

In discussing alternatives to the proposal, and the measures proposed to mitigate any effects of the proposal, consideration must be given to developing long term management strategies to protect areas within the study area which are of particular importance for fish species. This may include proposals to restore or improve habitat.

Any proposed pre-construction monitoring plans or on-going monitoring of the effectiveness of the mitigation measures must be outlined in detail, including the objectives of the monitoring program, method of monitoring, reporting framework, duration and frequency.

In the event of a request for concurrence or consultation of the Director of Industry & Investment NSW, one (1) copy of the EIS should be provided to Industry & Investment NSW in order for the request to be processed.

It should be noted that Industry & Investment NSW has no regulatory or statutory role to review draft EISs unless they are accompanied by or are requested as part of a licence application under Part 7A of the FM Act. However, Industry & Investment NSW is available to provide advice to consent and determining authorities regarding Fisheries' opinion as to whether the requirements have been met if requested, pending the availability of resources and other statutory priorities.

Useful Information

To help you in the preparation of an EIS, the publication "*Guidelines for the Assessment of Aquatic Ecology in EIA*" (Draft 1998) produced by the Department for Urban Affairs and Planning may prove useful in outlining appropriate procedures and methodologies for conducting aquatic surveys.

Should you require any further information on these requirements please contact the Aquatic Habitat Protection Office at Port Stephens on 4916 3931.



Office of
Environment
& Heritage

Your reference: SSD 15_7036
Our reference: DOC15/143806
Contact: Krister Waern (02) 6640 2503

Swati Sharma
Resource Assessments
Department of Planning & Environment
GPO Box 39
Sydney NSW 2001

Dear Ms Sharma

**Re: Request for OEH Environmental Assessment Requirements – Proposed Coraki Quarry,
Richmond Valley local government area**

Thank you for your email of 1 May 2015 inviting input from the Office of Environment and Heritage (OEH) for the preparation of Secretary's Environmental Assessment Requirements (SEARs) for the above proposal. I appreciate the opportunity to provide input.

OEH notes that the project will be assessed in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) SEARs provided by OEH are limited to Aboriginal cultural heritage, biodiversity, OEH estate, historic heritage, acid sulphate soils, flooding, stormwater and coastal erosion.

The proponent should ensure that the EIS will be sufficiently comprehensive to enable unambiguous determination of the extent of the direct and indirect impact(s) of the proposal. The EIS should include an appropriate assessment of the potential impacts on biodiversity, including threatened species, populations, ecological communities, or their habitats likely to occur on or near the subject site, as well as Aboriginal cultural heritage values and flooding. OEH considers that this information is necessary to assess an EIS for the proposal.

The full lists of OEH's standard and project specific requirements that may need to be addressed in the EIS are provided in **Attachment A** and **Attachment B** respectively. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment C**. If you require any further information or clarification regarding this matter please contact Mr Krister Waern, Senior Operations Officer, on (02) 6640 2503.

Yours sincerely

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Attachment A – OEH Environmental Assessment Requirements (SSD15_7036)

Biodiversity 1. Biodiversity impacts related to the proposed project are to be assessed and documented in accordance with the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i>.
Aboriginal cultural heritage 2. The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the project and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011) and consultation with OEH regional officers. 3. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS. 4. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
Historic heritage 5. The EIS must provide a heritage assessment including but not limited to an assessment of impacts to <i>State and local heritage</i> including conservation areas, natural heritage areas, places of Aboriginal heritage value, buildings, works, relics, gardens, landscapes, views, trees should be assessed. Where impacts to State or locally significant heritage items are identified, the assessment shall: a. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the NSW Heritage Manual (1996), b. be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria), c. include a statement of heritage impact for all heritage items (including significance assessment), d. consider impacts including, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), and e. where potential archaeological impacts have been identified develop an appropriate archaeological assessment methodology, including research design, to guide physical

archaeological test excavations (terrestrial and maritime as relevant) and include the results of these test excavations.
Water and soils
6. The EIS must map the following features relevant to water and soils including: a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map). b. Rivers, streams, wetlands, estuaries (as described in Appendix 2 of the Framework for Biodiversity Assessment). c. Groundwater. d. Groundwater dependent ecosystems. e. Proposed intake and discharge locations.
7. The EIS must describe background conditions for any water resource likely to be affected by the project, including: a. Existing surface and groundwater. b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations. c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters. d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government.
8. The EIS must assess the impacts of the project on water quality, including: a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the project protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction. b. Identification of proposed monitoring of water quality.
9. The EIS must assess the impact of the project on hydrology, including: a. Water balance including quantity, quality and source. b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas. c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems. d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches). e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water. f. Mitigating effects of proposed stormwater and wastewater management during and after

construction on hydrological attributes such as volumes, flow rates, management methods and re-use options. g. Identification of proposed monitoring of hydrological attributes.
Flooding and coastal erosion
10. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including: a. Flood prone land b. Flood planning area, the area below the flood planning level. c. Hydraulic categorisation (floodways and flood storage areas).
11. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event.
12. The EIS must model the effect of the proposed project (including fill) on the flood behaviour under the following scenarios: a. Current flood behaviour for a range of design events as identified in 8) above. The 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.
13. Modelling in the EIS must consider and document: a. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood. b. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories. c. Relevant provisions of the NSW Floodplain Development Manual 2005.
14. The EIS must assess the impacts on the proposed project on flood behaviour, including: a. Whether there will be detrimental increases in the potential flood affection of other properties, assets and infrastructure. b. Consistency with Council floodplain risk management plans. c. Compatibility with the flood hazard of the land. d. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land. e. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site. f. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses. g. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council. h. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council. i. Emergency management, evacuation and access, and contingency measures for the

development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.

- j. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

Attachment B – OEH Development Specific Environmental Assessment Requirements (SSD15_7036)

Aboriginal cultural heritage

- The development/project occurs in a location known to be in close proximity to an area of high Aboriginal cultural heritage sensitivity.
- The assessment of cultural heritage values must include consultation with the Bandjalang Aboriginal Corporation Prescribed Body Corporate regarding any potential for the development/project to compromise the values of the sensitive area or the Bandjalang's aspirations for the management of the area. The results of the consultation process are to be documented in the EIS.
- The EIS must outline procedures to be followed if Aboriginal objects are found at any stage of the life of the development to formulate appropriate measures to manage unforeseen impacts.
- The EIS must outline procedures to be followed in the event Aboriginal burials or skeletal material is uncovered during construction to formulate appropriate measures to manage the impacts to this material.

Flooding and coastal erosion

The EIS must consider the effects of sea level rise on all flood risks on the site under the following scenarios:

- Current sea level.
- Projected sea levels which have been peer-reviewed and widely accepted by scientific opinion.

Acid sulfate soils

The EIS must include an acid sulfate soils assessment to cover the matters set out below:

- The site boundary includes areas that have been mapped as having a risk of acid sulfate soils on the Wardell 1:25,000 ASS Risk Map, however, this map is incorrect in this vicinity as it has not identified the hard rock hillock that is the subject of this application. This error should be addressed in the EIS as necessary.
- Interpretation of aerial images clearly shows that the westernmost part of the Site is modern floodplain, and therefore would be expected to have a risk of ASS as a subsoil material. However, the site layout indicates that this westernmost floodplain area is to be used as stockpile and processing areas. The Environmental Assessment does not indicate that any excavations will occur into this section of the site. It is therefore expected that no adverse impacts on any ASS present would occur and this should be addressed in the EIS.
- The EIS should indicate the depth or level (AHD) to which the hard rock resource is to be quarried. Quarrying to level below ~0 AHD and associated dewatering has the potential to impact on adjacent areas containing ASS. The lowest most level of quarrying and any dewatering should not be lower than 0 AHD to ensure no

adverse impacts on any adjacent ASS. The EIS should address the relevant management of acid sulfate soils if quarrying occurs below 0 AHD.

Attachment C – Guidance material (SSD15_7036)

Title	Web address
<u>Relevant Legislation</u>	
<i>Coastal Protection Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>Fisheries Management Act 1994</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
<i>Marine Parks Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
<i>National Parks and Wildlife Act 1974</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
<i>Protection of the Environment Operations Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
<i>Threatened Species Conservation Act 1995</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
<i>Water Management Act 2000</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
<i>Wilderness Act 1987</i>	http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
<u>Biodiversity</u>	
NSW Biodiversity Offsets Policy for Major Projects (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf
Framework for Biodiversity Assessment (OEH, 2013)	http://www.environment.nsw.gov.au/resources/biodiversity/140675fba.pdf
Fisheries NSW policies and guidelines	http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Revocation, recategorisation and road adjustment policy (OEH, 2012)	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/parks/policyRevocations.pdf
<u>Heritage</u>	
The Burra Charter (The Australia ICOMOS charter for places of cultural significance)	http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf
Statements of Heritage Impact 2002 (HO & DUAP)	http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf

Title	Web address
NSW Heritage Manual (DUAP) (scroll through alphabetical list to 'N')	http://www.environment.nsw.gov.au/Heritage/publications/index.htm#M-O
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/consultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via 'The NSW Natural Resource Atlas'	www.nratlas.nsw.gov.au/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.advancedenvironmentalmanagement.com/Reports/Savannah/Appendix%2015.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding and Coastal Erosion	
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Guidelines for Preparing Coastal Zone Management Plans	Guidelines for Preparing Coastal Zone Management Plans http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
NSW Climate Impact Profile	NSW Climate Impact Profile
Climate Change Impacts and Risk	Climate Change Impacts and Risk Management: A Guide for

Title	Web address
Management	Business and Government, AGIC Guidelines for Climate Change Adaptation
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf



NSW RURAL FIRE SERVICE



The General Manager
Department of Planning & Environment
PO Box 39
SYDNEY NSW 2001

Your reference: SSD 15_7036
Our reference: D15/1241

12th May, 2015

Attention: Swati Sharma

Dear Sir/Madam,

Request for State Significant Development Environmental Assessment Requirements: Coraki Quarry, Lot 401 in DP 633427, Seelems Road, Coraki (SSD 15_7036)

I refer to correspondence dated 1st May, 2015 seeking comment from the NSW Rural Fire Service on matters to be included in the Secretary's Environmental Assessment Requirements for the above proposal.

The subject land is not mapped bush fire prone land by Richmond Valley Council, however, due to the possible impact of adjoining grassland vegetation the NSW Rural Fire Service (NSW RFS) considers that the environmental assessment for the development of the hard rock quarry should address the following:

- *the aim and objectives of 'Planning for Bush Fire Protection 2006';*
- *identification of potential ignition sources during construction and operation of the development;*
- *storage of fuels and other hazardous materials (e.g., explosives for blasting);*
- *proposed bush fire protection measures for the development, including vegetation management and fire suppression capabilities;*
- *operational access for fire fighting appliances to the site; and*
- *emergency and evacuation planning.*

For any enquiries regarding this correspondence, please contact Danette Cook on 6691 0400.

Yours sincerely

Paul Creenaune
Acting Team Leader - Development Assessment & Planning

Postal address

NSW Rural Fire Service
Records Management
Locked Bag 17
GRANVILLE NSW 2142

Street address

NSW Rural Fire Service
Coffs Harbour Customer Service
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Council's Reference:
ECM1064531 PR/SMc

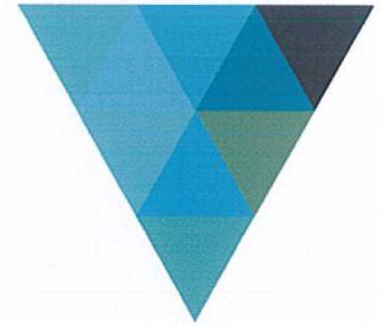
Telephone Enquiries to:
Paul Radnidge

15 May 2015

Swati Sharma
Planning Officer Resource Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Swati.sharma@planning.nsw.gov.au

Richmond
Valley
Council



Dear Sir/Madam

Proposal - Coraki Quarry (SSD15_7036) - Lot 401 DP 633427, Coraki

Thank you for your correspondence to Council dated 1 May 2015 seeking input into the Secretary's Requirements (SRs) for the proposed hard rock Quarry located at Lot 401 DP 633427. Council provides the following items for your consideration:

- The property is identified as Class 5 Acid Sulphate Soil with low lying areas having a Class 3 Acid Sulphate Soil.
- Council mapping has identified the site as containing biodiversity vegetation, fauna corridors and wet lands. A Jabiru roosts within the vicinity of the proposed quarry.
- The site and access roads (which trucks will be travelling along) are in the vicinity of secondary koala habitat.
- The site and access roads have sensitive residential receivers in all travel directions; therefore consideration should be given to the proposal impacts on these properties.
- Access to the site along local roads by the anticipated number of vehicles may impact on the occupiers of the residential dwellings with a frontage to these roads. Any Development Application assessment must consider the impact of truck movements all the way to the Pacific Highway, Woodburn, and should consider the school zone/bus routes at both Coraki and Woodburn. At 30t per truck & dog combination, 1,000,000 tonnes equates to approximately 33,300 truckloads (66,600 movements) per/year. 71 hours per week equates to 18 movements per/hour, or one truck movement every 3.3 minutes.
- The additional vehicle movements will have a detrimental impact on the existing road system from the site to the Pacific Highway and through Woodburn. Is it intended to utilise other local roads towards Casino and east of the Richmond River via local bridges?
- The area already contains a hard rock quarry (Council owned Petersons Quarry). The cumulative impacts of both existing and proposed quarries must be considered when assessing impacts.

- Is it proposed to transport Virgin Excavated Natural Material (VENM) back to the site for rehabilitation, if so what quantities?
- Noise and Vibration impacts from all plant, operations and equipment on the site (such as excavators, crushers, screening and blending, vehicle reversing alarms, pumps, generators, blasting and other) and from haulage trucks inclusive of road traffic noise.
- Dust from extraction operations and from vehicles/haulage.
- Onsite wastewater treatment and disposal from amenities such as staff toilets and showers.
- Water supply - Ensure adequate water supply is provided for amenities and workers.
- Storm water - A soil and water management plan should be prepared providing an overview of soil types, surface water and ground water on the site and assess potential pollution sources, particularly sedimentation caused by erosion of work areas, stockpiles, haul roads and other disturbed areas. Details should be provided with respect to the receiving environment and the method of managing and treating runoff to an acceptable standard prior to it leaving the site. This should include ongoing monitoring.
- Flooding of the quarry site is not considered an issue, however closure of local access roads during a major flood event, and keeping the trucks off the roads till the underlying pavement dries out is recommended.
- Access/Traffic - The following roads are to be considered as part of the proposed quarry:
 - Impacts of heavy vehicle traffic on Lagoon Road (local Council road)
 - Intersection of access road with Casino -Coraki Road– upgrade
 - Traffic/damage to Casino Coraki Road and Woodburn Coraki Road
 - Sealing/width upgrade of access road
 - Shakedown section within quarry so materials are not carried out onto public roads (this will need to be located where change from gravel to bitumen).
 - Heavy Haulage S94 contributions under the EP&A Act for material from the site including VENM returned to the quarry.

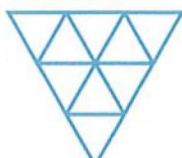
Once again, thank you for allowing Council the opportunity to comment on SSD15_7036 for Coraki Quarry. Should you have any further enquiries, please do not hesitate to contact Council's Coordinator Development Assessment, Stephen McCarthy by telephoning 6660 0211 or alternatively by way of email stephen.mccarthy@richmondvalley.nsw.gov.au

Yours faithfully



Angela Jones
Director Infrastructure and Environment

Richmond
Valley
Council



File No: NTH15/00037

Ms Swati Sharma
Resource Assessments
Department of Planning & Environment
swati.sharma@planning.nsw.gov.au

Dear Sir

Secretary's Requirements Proposed Coraki Quarry (SSD 15_7036) Richmond Valley Local Government Area

I refer to your email of 1 May 2015 regarding the above proposal referred to Roads and Maritime Services for consideration.

Roles & Responsibilities

The key interests for Roads and Maritime Services are the safety and efficiency of the road network, traffic management, the integrity of infrastructure assets and the integration of land use and transport.

Peterson Quarry Road, Lagoon Road, Queen Elizabeth Drive and Coraki Woodburn Road are unclassified (local) roads. Richmond Valley Council is the 'Roads Authority' for these roads and all other public roads in this area. Council is responsible for setting standards and determining priorities. Council's approval is required prior to undertaking works on these roads in accordance with Section 138 of the *Roads Act 1993*.

In accordance with *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* Clause 16(3), Roads and Maritime is given the opportunity to review and provide comment on any subsequent development application.

Roads and Maritime Response

Roads and Maritime has reviewed the referred information and requests a Traffic Impact Assessment (TIA) be prepared to address the likely impacts of the proposal on the road network. The assessment should include, but not be limited to, the following:

- The total impact of the existing and proposed development on the road network with consideration for a 10 year horizon;
- The volume and distribution of traffic generated;
- Consideration of cumulative impacts from adjacent development;

Roads & Maritime Services

- Intersection sight distances at key intersections along the primary haul route;
- Details of proposed improvements to road intersections with consideration for the current Austroads Guidelines, Australian Standards and Roads and Maritime Supplements;
- Traffic Management for construction and operational phases of the proposed development;
- Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as walking and cycling;
- Impacts of road traffic noise and dust generated along the primary haulage route; and
- Consideration for Clause 16 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* regarding impacts on school zones and residential areas and the need to provide a Truck Management Plan and a Code of Conduct to address this impact.

The TIA should take into account the key issues relevant to the scale of this proposal as set out in Table 2.1 of the Roads and Traffic Authority's current 'Guide to Traffic Generating Developments' (copy attached). It is recommended that current traffic data be used and that a road safety assessment of the key haulage routes be carried out to inform the Truck Management Plan and Code of Conduct.

If you require further information please contact Liz Smith, Manager Land Use Assessment, on 6640 1362 or email Development.Northern@rms.nsw.gov.au.

Yours faithfully



15 May 2015

for Monica Sirol
Network & Safety Manager, Northern Region

Encl:

2.3 Issues to be addressed.

A traffic impact study should follow the standard format and structure that is listed in Table 2.1. This format covers the key issues to be addressed in determining the impact on traffic of a development. Use of this format and the checklist will ensure those involved in the preparation and / or assessment of Development Applications that the most significant matters are considered.

Table 2.1
Key issues in preparing traffic impact studies

Procedures & Key Parameters	Source	Check✓
<i>Brief description of the development</i>		
<i>Application and study process</i>		
Introduction		
<i>Background</i>		
<i>Scope of report</i>		
<i>The key issues and objectives of a traffic impact study</i>		
General Data Collection / Existing Conditions		
<i>Description of the Site and Proposed Activity</i>		
<i>Site location</i>		
Current land use characteristics (zoning) of the proposed site and land use in the vicinity	Development Consent Authority	
<i>Site access</i>		
<i>The Existing Traffic Conditions</i>		
Road hierarchy; including the identification of the classified road network (major and minor roads) which may be affected by the development proposal	Council / RTA	
Inventory of road widths, road conditions, traffic management and parking control	Council / RTA and Survey	
Current and proposed roadworks, traffic management works and bikeways	Council / RTA	
<i>Traffic Flows</i>		

Procedures & Key Parameters	Source	Check✓
Selection of key streets - possibly divided into the major and the minor road network; selection of key assessment periods, chosen to cover the times at which the development would be expected to have its major impacts	Section 3	
AADT on key streets	Council / RTA and Survey	
Daily traffic flow hourly distribution, particularly in or near residential areas	Survey	
Estimate of the speed of traffic on the road to which vehicular access is proposed	Survey	
Current traffic generation of site	Survey	
Daily and peak period heavy vehicle flows and percentages	Survey	
The adaptation of appropriate computer models or techniques for assessing levels of traffic congestion and queuing conditions		
<i>Traffic Safety</i>		
Accident history of road network in the area	Council / RTA	
<i>Parking Supply and Demand</i>		
On-street parking provision	Council	
Off-street parking provision	Council / Survey	
Current parking demand, including utilisation by time of day and turnover rates	Survey	
Short term pick up and set down areas	Council / Survey	
<i>Modal Split</i>		
<i>Public Transport</i>		
Rail station locations	State Rail / Cityrail	
Bus routes and bus stop locations; Pedestrian access to bus stops; Constraints and conflicts	STA / Private Operators / Council / Survey	
Rail and bus service frequencies, ideally separated into Monday to Friday, Saturday and Sunday, for both peak and off-peak times	State Rail / Cityrail / Survey	

Procedures & Key Parameters	Source	Check✓
Commuter parking provision	State Rail / Cityrail / Survey	
<i>Pedestrian Network</i>		
Identify major pedestrian routes	Survey	
Pedestrian flows and potential conflicts with vehicles, particularly where such conflicts cause capacity constraint on either vehicular or pedestrian movement	Survey	
Pedestrian infrastructure	Survey	
<i>Proposed developments in the vicinity</i>		
Proposed Development		
<i>The Development</i>		
Plan reference, if plans not contained in study report		
Nature of development		
Gross floor areas of each component of development		
Projected number of employees/users/residents		
Hours and days of operations		
Staging and timing of development		
Selection of appropriate design vehicles for determining access and circulation requirements	Section 6	
<i>Access</i>		
Driveway location, including review of alternative locations	Sections 5, 6	
Sight distance of driveways and comparisons with stopping and desirable minimum sight distances	Section 6	
Service vehicle access	Section 6	
Analysis of projected queuing at entrances	Section 6	
Current access to site and comparison with proposed access		
Provision for access to, and by, public transport	Section 6	

Procedures & Key Parameters	Source	Check✓
<i>Circulation</i>		
Proposed pattern of circulation	Section 6	
Internal road widths	Section 6	
Provision for bus movements	Section 6	
Service area layout		
<i>Parking</i>		
Proposed supply		
Parking provision recommended by State Government policy	RTA / DUAP	
Council code and local parking policies and plans	Council	
Parking layout		
Projected peak demand, based where appropriate on similar research reports and on surveys of similar developments;	Section 5	
Parking for Service / courier vehicles and bicycles	Section 5	
Impact of Proposed Development		
<i>Traffic generation during design periods</i>		
Daily and seasonal factors		
Pedestrian generation and movements		
<i>Traffic Distribution and Assignments</i>		
Hourly distribution of trips		
Assignments of these trips to the road system based where possible on development feasibility studies or on origin/ destination surveys undertaken at similar developments in the areas		
<i>Impact on Traffic Safety</i>		
Assessment of Road Safety Impact		
<i>Impact of Generated Traffic</i>		
Daily traffic flows and composition on key streets and their expected effect on the environment particularly in residential areas		

Procedures & Key Parameters	Source	Check✓
Peak period volumes at key intersections and effect of generated traffic on congestion levels	Survey	
Impact of construction traffic during construction stages		
Other proposed developments in the vicinity their timing and likely impact, if known		
Assessment of traffic noise		
<i>Public Transport</i>		
Options for extensions and changes to bus routes and bus stops following discussions with the STA and or private bus operators	STA / Private Operators	
Provision for pedestrian access to bus stops		
<i>Recommended Works</i>		
Improvements to site access and circulation		
Improvements to roads, signals, roundabouts and other traffic management measures		
Improvements to pedestrian facilities		
Effect of recommended works on the operation of adjacent developments		
Effect of recommended works on public transport services including access to bus routes and bus stops		
Provision of LATM measures		
Funding of proposed improvement projects		
Noise attenuation measures		