JRPP No:	2009STH007
DA No:	DA09/2077
PROPOSED DEVELOPMENT:	Non-putrescible Waste facility (Landfill)
APPLICANT:	Watkinson Apperley Pty Ltd
REPORT BY:	Stephen McDiarmid, Senior Development Planner, Shoalhaven City Council

Assessment Report and Recommendation

Land Owner: In-Ja- Ghoondji Lands Incorporated

Business Owner: Tomerong Waste Pty. Ltd.

Land Description: No.146 Parnell Road, TOMERONG - Lot 4 DP 775296.

Site Area: 306 hectares (Existing Quarry site area is 32.4 hectares)

Zoning: 1(d)(Rural "D" (General Rural) Zone) under Shoalhaven Local Environmental Plan 1985.

Existing Use: Hard Rock Quarry

Estimated value: $1.5 million

(1) RECOMMENDATION

That the application be refused for the reasons which have been outlined in Section 16 of this report.

1.1 EXECUTIVE SUMMARY

A development application has been received by Shoalhaven City Council which proposes to convert the void created between the current and future quarrying operations, at the subject site, into a solid waste, non-putrescible waste landfill facility. The proposed landfill is anticipated to initially receive approximately 50,000 tonnes of waste a year which will incrementally build to100,000 tonnes per year over an eight (8) year period. In this regard, there is an intention to receive and landfill residual waste after the recovery and processing of 'recyclable' material. In accordance with the NSW Environmental Protection Act (1996) entitled *Environmental Guidelines: Solid Waste* Landfills, the landfill facility will be classified as a 'Class 2' general solid waste (non-putrescible) landfill facility and is proposing to receive waste products which are classified as general solid waste (non-putrescible) in accordance with the NSW Waste Classification Guidelines 2009.

The application is classed as designated development and will be determined by the Southern Region Joint Planning Panel (SRJPP). There have been submissions received in relation to the development from both public authorities and the general public concerning a wide range of environmental, economic and social issues.

A summary of the 'key findings' are as follows:-

Compliance with relevant Environmental Planning Instruments

The proposed development is affected by a number of planning instruments and controls. In summary, Council staff's assessment of the application has indicated that the proposed development fails to comply with a number of provisions detailed in some of the applicable controls, including:-

- **State Environmental Planning Policy No.33 (SEPP 33) – Hazardous and Offensive Development (SEPP 33)**

The proposed development does not appear to comply with the requirements of SEPP 33 as there is insufficient information to determine whether the "hazardous" and "offensive" components of this development have the potential to pose a significant risk and adverse impact in this environmentally sensitive locality.

The proposed waste facility is identified as a "hazardous development" due to the potential risk (if no mitigation measures were to be employed) of hazardous or toxic waste material being disposed of on site. Further, Section 2.2 of the EIS identifies at least four (4) examples of hazardous materials that have the potential to contaminate Tomerong creek, which flows through the site; and the nearby "*Land of Ecological Sensitivity*" in the event that there is a failure or breach of the proposed leachate management system.

The EIS is not supported by any risk screening assessment or preliminary hazard analysis to enable a determination on the level of risk, provision of any dangerous goods storage or handling procedures assessment associated with the proposed waste facility.

For proposals identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the DECCW. If a development cannot obtain the necessary EPL, then it may be classified as 'offensive industry'.

Even though the DECCW is now prepared to issue an EPL for this facility, the qualifying condition specified in their GTA's which addresses the types of permissible 'wastes' to be disposed of on–site, states that:-

"*Waste*

The only wastes that may be received at the Premises for disposal are "residual waste after the recovery and processing of recyclables by specialist organisations" which have been classified as general sold wastes (non-putrescible) under DECCW's NSW Waste Classification Guidelines as in force from time to time, as identified in the EIS (p13)."

As appropriate screening procedures have not been outlined which satisfactorily address how all prohibited materials will be adequately recovered from these loads, there remains serious doubt whether the landfill operators have the capacity to strictly comply with the intention of the DECCW's GTA given the generic and fundamental nature associated with this requirement.

In this regard, it is considered appropriate to conclude that both the "hazardous" and "offensive" components of this development have the potential to pose a significant risk and adversely impact in this environmentally sensitive locality.

- **Jervis Bay Regional Environmental Plan (JBREP)**

The proposed development fails to comply with Clauses 9(a) to (d), 11(a) and (b); or 13(1) of the Jervis Bay Regional Environmental Plan (JBREP).

- **Shoalhaven Local Environmental Plan 1985 (SLEP 1985)**

(i) The proposed development does not comply with 'Objectives' 1(b), 1(c)(i), 1(c)(iv) and 1(c)(v) of the 1(d) (Rural "D" (General Rural) Zone as detailed in Clause 9 of Shoalhaven Local Environmental Plan 1985 (SLEP 1985).

(ii) The EIS fails to adequately address how the proponent expects to "*avoid or mitigate the threat from bushfire"* as a consequence of the proposed land activity in accordance with Clause 28 (*Danger of Bushfires)* of SLEP 1985.

(iii) In the event of any failure of the proposed leachate management system and/or soil and sedimentation controls, there is potential for the proposed landfill development to contaminate both St Georges Basin and the Jervis Bay Marine Park. In this regard, the EIS fails to adequately address the five (5) "Objectives" associated with protecting the water quality within these types of environmentally sensitive streams, in accordance with Clause 23 (*Protection of Streams)* of SLEP 1985.

- **Part 5 of the NSW Water Act 1912 (WA)**

The proposal is likely to intercept or use groundwater and the need for a water license under Part 5 of the WA 1912 has not been addressed by the applicant, in terms of further surface and groundwater modelling, more detailed investigation is required. Without this level of detail, there are concerns about the potential of leachate contaminating both the surface and groundwater tables which could cause a significant and adverse impact on the sensitive environs of St Georges Basin and the Jervis Bay Marine Park.

- **Section 5A of the NSW Environmental Planning & Assessment Act 1979**

After assessment by Council's Threatened Species Officer, the application was considered deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be accurately impacted in this locality as required under Section 5A of the NSW EP&A Act as a result of the proposed development and location of the proposed noise attenuation barrier being within an area identified in Clause 21 of SLEP 1985 as "*Land of ecological sensitivity*".

Noise

As Council does not have the power to collect Section 94 contributions for road maintenance (with the exception of "extractive industries") for the necessary road upgrading, there will be an unacceptable long term impact from the extensive intensification of additional truck movements on Gumden Lane and Council's road network. In addition, without the necessary road maintenance, there will be a detrimental impact on the existing and future amenity of those residents' living in close proximity to the subject site, in terms of additional offensive 'noise' and an unreasonable increase in truck movements on Gumden Lane.

Economic Impacts

The applicant has stated in the EIS that the main purpose of this proposal was to fill the void left by the current quarry operations. As the proposed facility also intends accepting non-putrescible waste from other local government areas (LGAs), within the Southern Councils Group, in order to make this facility commercially viable, the economic benefits from such a

proposal need to be recognised in a regional context. As the proposal will only generate the need for "*4 – 5 additional employees over the quarry staff* " (s2.2.10 "*Employment"* of the EIS) in order to operate it, the impacts for local employment are limited.

There is also the potential for the subject proposal to have an adverse effect on the local tourist industry in terms of negatively impacting the water quality and sensitive environments within Jervis Bay and St Georges Basin, increases in truck movements along the proposed waste facility's access route, including the Princes Highway, and their detrimental impact on local tourist operators as a result of this proposal.

Unsuitability of Subject Site

The subject site is considered to be an unsuitable use of this land for the reasons discussed in Section '10' of the S79C report under the heading:- "*S79C(1)(c) - Suitability of the Site".*

Public Interest

The proposed development is not considered to be in the "Public Interest" for the reasons discussed in Sections '7' and '9' of the S79C report.

After assessing the issues raised by over 850 objectors' and the 'Matters for Consideration', under Section 79C of the Environmental Planning and Assessment Act 1979, it is considered that Regional Application No RA09/1002 (DA09/2077) should be REFUSED for the reasons specified in the "Recommendations" specified in Section 16 of this report.

(2) Background

The subject site has a number of previous development consents issued by Council as detailed below:

- DA90/1912 – Mining/Extractive Industry
- DA92/1908 – Offices
- DS02-1087 – Section 96 Amendment to extend life of existing Quarry by seven (7) Years until 6 November 2010 which included the sealing of Gumden Lane.
- DS03-1325 – Section 96 Amendment to the Proposed Quarry and Processing of Shale
- DS06/1039 – Section 96 Amendment (To extend the operation of the Tomerong Quarry from 6th November 2010 until 6 November 2020).

In addition, the subject site has previously been issued with a Department of Environment & Climate Change (formerly EPA) license (3532) to undertake a "Scheduled Activity" (Extractive industries comprising crushing, grinding or separating works) under the Protection of the Environment Operations Act 1997 ('POEO Act').
The current application was lodged on 19 August 2009.

After DECCW initially advised that an Environmental Protection License (EPL) could not be issued for this proposal, on 9 April 2010, the applicant (Watkinson Apperley) submitted additional information in response to the initial DECCW letter which Council subsequently referred back to this Authority for further assessment on 13 April 2010. On 15 June 2010, DECCW provided a written response advising that:-

"*The DECCW has now assessed the exhibited EIS and additional information and determined that, should consent be granted, an Environmental Protection Licence* ***could be*** *issued."*

A copy of DECCW's latest response, which includes their 'General Terms of Approval' (GTA's) and mandatory conditions for the application for an EPL, can be viewed in **'Attachment A'** of this report.

An amendment to this application, in the form of 5 metre high noise attenuation barrier, was submitted for Council assessment on 19 May 2010.The purpose of this barrier was to reduce operational truck noise from emanating above the recommended DECCW noise thresholds, onto an existing Tourist Facility located at Lot 3 DP 775296 Bayly Road. This structure was proposed to be constructed on the common boundary of this property and the Gumden Road extension, leading into the existing quarry site.

(3) Site Context

The subject land known as Lot 4 DP 775296, Parnell Road, Tomerong is irregular in shape and has a total area of 306 hectares, with a street frontage of 1440m. The site is situated on the southern side of the Parnell Road; with the nearest main cross street being Pine Forest Road which is located approximately 1.5km to the northwest of the subject site. The site has access from Parnell Road in the northwest and Gumden Lane to the south. The subject land is made up of undulating low hills with the highest point located in the northwest (50m AHD) and the lowest being in the vicinity of Tomerong Creek (about 9 m AHD) which runs in a south-easterly direction, in the southern part of the lot. The northern side of Tomerong Creek has a south to south-easterly aspect and a bank slope of about 7% with the southern side of the creek having a slight north-easterly aspect, and a bank slope of approximately 4%.

The existing Quarry has a long term lease over 32.4 hectares of the subject land with the leased area of the site comprising of native forest vegetation, pastureland, internal access roads and an existing hard rock quarry. The quarry produces crushed shale and siltstone, which are used predominantly for road works in the local region. The quarrying operation infrastructure includes:

• An office/Administration building including male and female toilets and showers located in the north-western corner of the site;

• Two workshops;

• Amenities building including showers and toilets;

• A 7 metre long weighbridge;

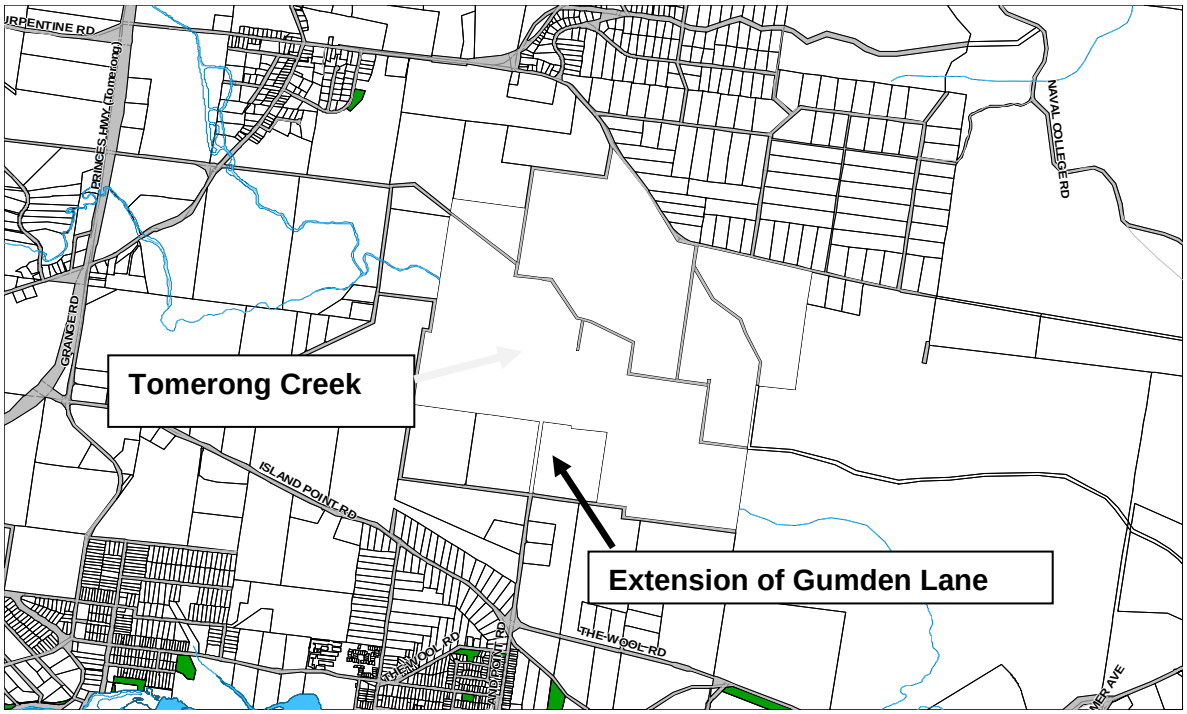
• Two water supply dams located to the north of the quarry. The water from these dams is also used for dust suppression;

• Sedimentation ponds located to the south-east and south of the quarry;

• A diesel storage tank (14000 L); and

• Internal access roads to access the quarry face.

The area of the property directly affected by the proposal has an area of approximately 20 hectares and is located toward the centre of the subject property, approximately 780m from Parnell Road, and comprises part of the 32.4 hectares of land under a long term lease arrangement between In-Ja- Ghoondji Lands Incorporated and Tomerong Quarry.



(4) Proposal

The proposal intends to convert the void created between the current and future quarrying operations into a solid waste, non-putrescible waste landfill facility as the existing quarry operation achieves its intended benching level. The proposed landfill has an anticipated void capacity of approximately 900,000m^3 with lateral extensions available in the future within the existing approved quarry excavation boundaries. Quarrying is proposed to continue in the west while the proposed land filling is intended to be undertaken on the eastern portion of the subject site. It is estimated that the volume still to be quarried approximates an area of 2.41 hectares and includes lowering the current surface by 8.2 metres from 23.5 m AHD to 15.3 m AHD. This elevation is described as the same height as the eastern end of the quarry and is the proposed final elevation of the landfill base. The EIS states that it is estimated that the landfill will take 20 years to reach its intended capacity.

The proposal also involves the installation a new weighbridge (twenty (20) metres long and three and half (3.5) metres wide) and a new 15m^2 ancillary gatehouse. The new weighbridge and gatehouse office will be located adjacent to the existing quarry office (**'Attachment A'**).

The proposed landfill would initially receive approximately 50,000 tonnes a year of waste and will incrementally build to100,000 tonnes per year over an eight (8) year period. The proposal intends to receive and landfill residual waste after the "*recovery and processing of 'recyclable' material*". The landfill facility will be classified as a general solid waste (non-putrescible) landfill facility and is proposing to receive the following waste products which are classified as general solid waste (non-putrescible) in accordance with the NSW Waste Classification Guidelines 2009:-

- *Glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal;*
- *Paper or cardboard;*
- *Household waste from municipal clean-up that does not contain food waste;*
- *Waste collected by, or on behalf of, local councils from street sweeping;*

• *Grit, sediment, litter and gross pollutants collected in, and removed from, stormwater treatment devices and/or stormwater management systems that has been dewatered so that it does not contain free liquids;*

• *Grit and screenings from potable water and water reticulation plants that has been dewatered so that it does not contain free liquids;*

• *Garden waste;*

• *Wood waste;*

• *Waste contaminated with lead (including lead paint waste) from residential premises or educational or child care institutions;*

• *Containers, previously containing dangerous goods, from which residues have been removed by washing or vacuuming;*

• *Drained oil filters (mechanically crushed), rags and oil-absorbent materials that only contain non-volatile petroleum hydrocarbons and do not contain free liquids;*

• *Drained motor oil containers that do not contain free liquids;*

• *Non-putrescible vegetative waste from agriculture, silviculture or horticulture;*

• *Building cavity dust waste removed from residential premises or educational or child care institutions, being waste that is packaged securely to prevent dust emissions and direct contact;*

• *Synthetic fibre waste (from materials such as fibreglass, polyesters and other plastics) being waste that is packaged securely to prevent dust emissions, but excluding asbestos waste;*

• *Virgin excavated natural material;*

• *Building and demolition waste;*

• *Asphalt waste (including asphalt resulting from road construction and waterproofing works);*

• *Biosolids categorised as unrestricted use, or restricted use 1, 2 or 3, in accordance with the criteria set out in the Biosolids Guidelines (EPA 2000);*

• *Cured concrete waste from a batch plant;*

• *Fully cured and set thermosetting polymers and fibre-reinforcing resins;*

• *Fully cured and dried residues of resins, glues, paints, coatings and inks; and*

• *Any mixture of the wastes referred to above.*

A copy of the proposed 'Site Layout' has been included as **'Attachment B'.**

(5) Community Consultation

In accordance Section 79 (Pubic participation – Designated Development) of the EP & A Act 1979, and the associated requirements of the regulations, the submitted application was exhibited at Shoalhaven City Council's Administration Centre and the Department of Planning, Wollongong Offices for a period of thirty (30) days from **Wednesday 26 August 2009 until Friday 25 September 2009 (inclusive)** which was subsequently extended until **16 October 2009**. This public notification included the provision of notices on the subject land, notices in the local paper (South Coast Register – 26/08/09 & 9/09/09) and to relevant public authorities for comment. In response, a total of **772** submissions were received during the exhibition period which expressed 'objection' to this proposal. In addition, a Residents Briefing Meeting (RBM) was conducted on the 1st October 2009 at Vincentia High School which was well-attended by in excess of 400 people.

An amendment to this application, in the form of a 5 metre high noise attenuation barrier, was also placed on notification, in the same manner, between **14 July and 13 August 2010** which attracted an additional **83** submissions. These submissions generally reiterated the same type of issues expressed as a result of the original notification period. The purpose of this barrier was to reduce operational truck noise from emanating above the recommended DECCW noise thresholds, onto an existing Tourist Facility located at Lot 3 DP 775296 Bayly Road, and is proposed to be constructed on the common boundary of this property and the Gumden Road extension, leading into the existing quarry site.

Plans and details of the proposed noise attenuation barrier have been included as **'Attachment B'.**

(6) Statutory Considerations

The following State and Regional Environment Planning Policies (SEPPs & REPPs), Environmental Planning Instruments (LEPs), Development Control Plans (DCPs), Council Codes / Policies are relevant to this development application:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Environmental Planning and Assessment Regulation 2000 (EP & A Regs);
- State Environmental Planning Policy No.33 – Hazardous and Offensive Development (SEPP 33) ;
- Jervis Bay Regional Environmental Plan (JBREP);
- Environment Protection & Biodiversity Conservation Act 1999 (EPCA Act);
- Protection of the Environment Operations Act 1997 (POEO Act);
- Protection of the Environment Operations (Waste) Regulation;
- Water Act 1912 (WA);
- State Environmental Planning Policy (Infrastructure) 2007 (Clause 123);
- Threatened Species Conservation Act 1995 (TSA);
- Native Vegetation Act 2003 (NVA);
- Shoalhaven Local Environmental Plan 1985 (as amended) (SLEP);
- Draft Shoalhaven Local Environmental Plan 2009 (DSLEP);
- South Coast Regional Strategy (SCRS);
- Jervis Bay Settlement Strategy (JBSS);
- Development Control Plan No.18 (DCP 18) – Car Parking Code;
- Development Control Plan No. 93 (DCP 93) – Waste Minimisation & Management;;

Additional information on the proposals compliance with the above documents is detailed in Sections 7, 8 and 9 of this report.

(7) Statement of compliance / assessment

Following an assessment of the application having regard to the Matters for Consideration under Section 79C(1) of the EP&A Act 1979, the following matters are considered relevant to the assessment of this application.

S79C(1)(a) - Any planning instrument, draft instrument, DCP's and regulations that apply to the land

7.1 Designated Development

The EP & A Act 1979 and Regulations 2000 provide the statutory context for the assessment of the application. Schedule 3 of the EP & A regulations defines what types of development are classified as Designated Development. Sub clause 32 – "*Waste management facilities or*

works". As a consequence, the NSW Department of Planning issued the Director-General's Requirements (DGR's) for the preparation of an Environmental Impact Statement (EIS), in relation to the proposed development, on 20 August 2007.

7.2 Integrated Development

In accordance with Section 91(1) of the E P & A Act 1979, the proposed development is considered to be "Integrated Development" which requires the following "approvals" in accordance with sub-sections 43(a) and (b), 47, 48 and 55 of the *Protection of the Environment Operations Act 1997*:-

- *Environmental protection licence to authorise carrying out of scheduled development work at any premises;*
- *Environment protection licence to authorise carrying out of scheduled activities at any premises (excluding any activity described as a "waste activity" but including any activity described as a "waste facility")*

On 15 June 2010, DECCW issued their 'General Terms of Approval' (GTA's) and mandatory conditions for the application for an EPL, which can be viewed in **'Attachment A'** of this report.

7.3 Regional Development

As the development application proposes 'designated development', Part 3 of *State Environmental Planning Policy (Major Development) 2005* classifies the proposal as regional development for which consent authority functions (i.e. the determination of development applications) are exercised by the relevant Joint Regional Planning Panel (JRPP).

7.4 Commonwealth Legislation

The primary objective of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to "*provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance."*

The listed species known as Melaleuca Biconvex occurs on the subject site; however, the applicant's environmental consultant has determined that a referral to the Commonwealth Minister for the Environment, Water, Heritage and the Arts; under the EPBC Act, was not required.

'Attachment 13' of the EIS contains a letter from Dr Jan Klaver of the Commonwealth Department of the Environment, Water, Heritage and the Arts which states (in part) that:-

"Although formal referral of your proposed project may not be necessary, a robust EIS, addressing all relevant matters of national environmental significance, will assist the department in determining whether the action will require formal assessment. We, therefore, encourage you to notify us of the results of the EIS and provide the department with a copy of the report. The department would be happy to re-engage with you following the conclusion of your investigations."

There is no information in the EIS nor has there been any further information submitted by the applicant that details any further contact with the Commonwealth Department of the Environment, Water, Heritage and the Arts in respect to this request.

7.5 *Environmental Planning and Assessment Regulation 2000 (EPA Regs)*

The provisions of the EPA Regs apply to the proposed development. Specifically, Schedule 3 of the EPA Regs relating to designated development. A comparison of the proposed works against the applicable requirements of the EPA Regs, in relation to designated development, is provided below.

(a) Schedule 3 (Designated Development), Part 1, Section 32 (*Waste management facilities or works*): The requirements of this clause apply as the proposed development satisfies the criteria of a waste management facility. In this regard, the applicant has advised that the subject development is consistent with the following applicable provisions of Schedule 3 of the EPA Regs.:-

Cl.32 (1) - The proposed Waste Management facility will "*store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste" and*:

Cl.1(a)(iv) – Will receive *"more than 200 tonnes per year of other waste material* ("other" than "clean fill", sludge or effluent); **and**

Cl.1(b)(iii) - Will have an "*intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material";* **and**

Cl.1(c) The proposed Waste Management facility intends to *"purify, recover, reprocess or process more than 50,000 tonnes per year of solid or liquid organic materials".*

In summary, it is considered that the proposed development does not conflict with the applicable provisions of Schedule 3 of the EPA Regs.

7.6 State Environmental Planning Policy No.33 (SEPP 33) – Hazardous and Offensive Development

SEPP 33 presents a systematic approach to planning and assessing proposals for potentially hazardous and offensive development for the purpose of industry or storage.
The permissibility of a proposal to which the policy applies is linked to its safety and pollution control performance. While this Policy is considered to be an enabling instrument (that is, it allows for the development of industry) it also aims to ensure that the merits of proposals are properly assessed (in relation to off-site risk and offence) before being determined.

SEPP 33 applies to any proposals which fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. Certain activities may involve handling, storing or processing a range of substances which in the absence of locational, technical or operational controls may create an off-site risk or offence to people, property or the environment. Such activities would be defined as potentially hazardous or potentially offensive. These guidelines assist Councils' and proponents to establish whether a development would fit into such definitions and, therefore, fall under the provisions of this Policy by ensuring that only those proposals which are suitably located, and able to demonstrate that they can be built and operated with an adequate level of safety and pollution control, can proceed.

SEPP 33 defines '*Potentially Hazardous Industry' and 'Potentially Offensive Industry',* as being:-

'Potentially Hazardous Industry' – "…*a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:*

(a) to human health, life or property, or
(b) to the biophysical environment, and includes a hazardous industry and a hazardous storage establishment.

'Potentially Offensive Industry' – "…*a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment*.

The proposed waste facility is identified as a "hazardous development" due to the potential risk (if no mitigation measures were to be employed) of hazardous or toxic waste material being disposed of on site. Further, Section 2.2 of the EIS identifies the following four (4) examples of hazardous materials that have the potential to contaminate Tomerong creek, which flows through the site; and the nearby "*Land of Ecological Sensitivity*" in the event that there is a failure or breach of the proposed leachate management system.

- *Waste contaminated with lead (including lead paint waste) from residential premises or educational or child care institutions;*
- *Containers, previously containing dangerous goods, from which residues have been removed by washing or vacuuming;*
- *Drained oil filters (mechanically crushed), rags and oil-absorbent materials that only contain non-volatile petroleum hydrocarbons and do not contain free liquids;*
- *Drained motor oil containers that do not contain free liquids;*

Applicant's Comment

To ensure that only non-putrescible classified waste is disposed of at the proposed facility, the applicant has advised that:

"The NSW EPA (1996) Environmental Guidelines: Solid Waste Landfills states as its purpose "to launch a consistent and environmentally responsible approach to managing landfills across NSW" to "achieve the best environmental outcomes".

The Guidelines contain Benchmark Techniques that can be adopted in a ***Landfill Environmental Management Plan (LEMP)*** *for the effective environmental operation of a landfill.*

Benchmark Technique 21 (Screening of Waste Received), states, in part; "the landfill occupier should have in place waste acceptance and screening procedures to ensure that the site does not accept wastes prohibited from entry".

The EIS (Section 6.2) contemplates an LEMP structured for the operation of the proposed landfill including Control Monitoring and Recording of Incoming Wastes. Describing vetting and receipt of waste to ensure it is inspected, not prohibited, weighed and recorded. The elements can include;

- *Inspection of waste*
- *Prohibited waste*
- *Recording of waste*
- *Responsibility*

Waste designated as prohibited shall be refused entry. Prohibited waste that inadvertently enters the site (also discussed in section 2.2.2 of the EIS) shall be set-aside and transported to a facility appropriately licensed by the DECC for receipt of such wastes."

Comment

For development proposals classified as 'potentially hazardous industry' the policy establishes a comprehensive test by way of a preliminary hazard analysis (PHA) to determine the risk to people, property and the environment at the proposed location and in the presence of controls. Should such risk exceed the criteria of acceptability, the development is classified as 'hazardous industry'.

Section 3.11 of the EIS provides a list of hazardous substances currently stored on-site that are used in the existing quarrying operations, however, there is no mention of any risk screening assessment or preliminary hazard analysis to determine whether the level of risk associated with the proposed landfill development will be acceptable.

As no LEMP or PHA has yet been prepared for the proposed waste facility, it is difficult to determine how the proponent will undertake an effective screening process to ensure that every truck laden with waste for disposal is completely free of potentially contaminating material. As a result, the applicant has failed to adequately provide or outline a suitable recovery regime which ensures that every load carried to the proposed facility will be 100% free of all waste considered inappropriate in terms of having the potential to adversely impact the existing environment in this locality.

Proper classification of solid waste as either putrescible or non-putrescible is an important distinction to make prior to the disposal of solid waste at these types of facilities. It is often difficult to accurately classify mixed solid waste loads that contain quantities of both putrescible and non-putrescible waste due to the logistics of rummaging through every truck load to ensure that all prohibited material has been removed. Loads of non-putrescible waste may become contaminated by any number of ways, creating a problem for the facilities that accept these loads.

For proposals identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the DECCW. If a development cannot obtain the necessary EPL, then it may be classified as 'offensive industry'.

Even though the DECCW is prepared to issue an EPL for this facility, their qualifying condition specified in their GTA's which addresses the types of permissible 'wastes' to be disposed of on –site, states that:-

"Waste

The only wastes that may be received at the Premises for disposal are "residual waste after the recovery and processing of recyclables by specialist organisations" which have been classified as general sold wastes (non-putrescible) under DECCW's NSW Waste Classification Guidelines as in force from time to time, as identified in the EIS (p13)."

This condition puts a substantive onus on the landfill operators to ensure that every load disposed of at the proposed facility will be completely free of putrescible and potentially hazardous material. As previously discussed, until appropriate screening procedures have been determined which satisfactorily address how all prohibited materials will be adequately removed from these loads; there remains serious doubt whether the landfill operators have the capacity to strictly comply with the intention of the DECCW's GTA given the generic and fundamental nature of this requirement.

As DECCW's assessment of this development is mainly based on a "desk top" analysis of the proposal, there is still concern that even a minor discrepancy in retrieval of all prohibited material, has the potential to have an adverse impact on the existing watercourse (Tomerong Creek), flowing through the site, which eventually discharges into the sensitive environs of St. Georges Basin.

The EIS is not supported by any risk screening assessment or preliminary hazard analysis to enable a determination on the level of risk, provision of any dangerous goods storage or handling procedures assessment associated with the proposed waste facility.

In this regard, given the lack of detail provided, it is appropriate to determine that both the "hazardous" and "offensive" components of this development have the potential to pose a significant risk and adverse impact in this environmentally sensitive locality.

7.7 *Jervis Bay Regional Environmental Plan 1996 (JBREP)*

The 'Aims' of the JBREP are to protect the natural beauty and species diversity of Jervis Bay while allowing development to proceed that is compatible with this aim. The plan includes provisions to protect water quality, landscape attributes, cultural heritage, natural habitats, and identifies and provides for the acquisition of a future National Park. It also identifies opportunities for urban development and encourages appropriate tourism developments.
Clauses 9 (*How to use this plan*), 11 (*Catchment protection*) and 13(1) (*Cultural Heritage*) of the JBREP are considered to be relevant to this development proposal.

Clause 9 (*How to use this plan*) of the JBREP states that:-

"If you wish to carry out, or are the proponent of, a proposal, you must show why the proposal should proceed, using the following steps:

(a) describe the natural and cultural values of the site affected by the proposal,
(b) evaluate the significance of these values within the Jervis Bay context,
(c) assess the impact of the proposal on those values identified, both within the site and the Jervis Bay context,
(d) provide details on how the immediate and cumulative impacts of the proposal will be managed, to achieve the aims of this plan."

Clause 11 (*Catchment protection*) of the JBREP states that:-

"*A proposal must:*

(a) for the water quality in any waterbody it may affect, either:

- *sustain uses identified on map 2 and as defined by the Australian National Water Quality Guidelines for Fresh and Marine Water 1992, or*
- *demonstrate how the water quality will be maintained or improved, if the water quality in those waterbodies does not at that time sustain the uses identified on map 2, and*

(b) outline a water quality management strategy for surface water to demonstrate how paragraph (a) will be achieved, and

(c) rehabilitate and restore any degraded areas along a waterbody on the site, and

(d) provide sewerage for all new development (unless the development is within an existing unsewered area). If alternate systems of sewage disposal have been approved by health and environment protection authorities, they may be provided, and

(e) protect ecosystems and natural habitats, including waterbodies, from degradation."

Clause 13(1) (*Cultural Heritage*) of the JBREP states that:-

(1) *If a proposal is within a coastal sand dune area, on a rocky headland or on a flat, well-drained area along a major creekline, the consent authority must consider the effect of the proposal on the heritage significance of any Aboriginal object known or reasonably likely to be located at the site*.

Applicant's statement on the JBREP in Section 3.2 of the EIS

"There are a number of mitigation measures, which will be employed during the construction of the bridge and the operation of the landfill facility, discussed in section 6. However, in general:

• Erosion and sediment control measures will be implemented prior to any works commencing at the site and will be maintained for as long as necessary after the completion of works to prevent sediment and dirty water entering the watercourse. These control measures will be undertaken in accordance with the requirements outlined in the Landcom "Managing Urban Stormwater: Soils and Construction" Manual (2004) - the-Blue Book".

• All disturbed areas within 20 metres of Tomerong Creek will be planted or seeded with native vegetation species comprising a full structure of vegetation i.e. groundcovers, shrubs and trees with the creek environment restored in conjunction with the new works.

• The proposed landfill cells and leachate collection pond will be sealed with either clay or a geotextile material to prevent leachate seeping into the groundwater.
• A Leachate management system will be established to collect and treat leachate generated by the landfill. Clean stormwater will be diverted around the landfill cell or collected and piped to the existing sedimentation ponds.

• Monitoring of leachate composition will be undertaken at quarterly intervals during the operational life of the landfill. Samples will be taken from the leachate dam or a tap installed in the pumping system. In addition, sampling will incorporate groundwater and surface water locations outside of the landfill site to determine if any off-site environmental impacts have been created by leachate migration from the landfill.

•Tomerong Creek to the south of the site will be incorporated into this monitoring.
The landfill cap will be contoured to create a mounded surface approximating an elevation of 50 m AHD, which will slope to the south. The hill feature will re-establish the natural ridge line (drainage divide) and will allow surface water from the northern section of the site to flow in an easterly direction and the remainder of the site to continue to flow in a south-westerly direction.

• Elevation and concentration monitoring will continue following the closure of the landfill, however the schedule may be reduced subject to monitoring results.

Tomerong Creek currently contains a well established riparian zone. The proposed landfill will not result in the removal of any of the vegetation adjacent to the water course. The proposed bridge will result in a small amount of vegetation removal. The proposal has the potential to restore natural flooding regimes to this part of the creek and provide positive impacts on the environment. Furthermore all disturbed areas within 20 metres of Tomerong Creek will be planted or seeded with native vegetation species comprising a full structure of vegetation i.e. groundcovers, shrubs and trees with the creek environment restored in conjunction with the new works. The proposal will not disturb or destroy any Aboriginal archaeological sites."

Comment

Although the applicant has provided general details on the mitigation measures that will be employed in accordance with Clauses 9(c) and (d), there is no other information which demonstrates or supports how this proposal will comply with Clauses 9(a) to (d), 11(a) and (b); or 13(1) of the JBREP. Even though it was confirmed in a letter from Darren McCloud (In-Ja-Ghoondi Lands Incorporated) that *"the proposed development does not impact on any aboriginal cultural heritage values across the project area"*, there has been no formal study undertaken that addresses Aboriginal cultural heritage on the subject site, which was specified in the Director General's Requirements (DGR's) as an essential provision within any EIS prepared for the subject proposal.

Without this level of detail, it is considered that the application is deficient in terms of demonstrating overall compliance with the specified requirements of the JBREP.

7.8 *Protection of the Environment & Operations Act 1997 (Environmental Protection Licence (EPL) from DECCW)*

In accordance with Section 47 of the Protection of the Environment & Operations Act 1997 (POEO Act), a "*Waste Disposal (application to land)"* proposal, as defined in Schedule 1 of this Act, requires the provision of an Environmental Protection Licence (EPL) from the NSW DECCW prior to any approval of the proposed activity.

On 28 August 2009, a formal referral was forwarded to DECCW to determine whether the Environmental Protection Authority (EPA), who are now a part of DECCW, would be able to issue an EPL after reviewing the development application and accompanying Environmental Impact Statement (EIS).

Initially, on 24 February 2010, DECCW provided a written response advising that an EPL was unable to be issued, as currently presented, on the basis that the noise impacts would not meet the required EPA criteria.

A copy of DECCW's letter can be viewed in '**Attachment A'**.

As previously expressed in 'Section 1' of this report, on 9 April 2010 the applicant submitted additional information in response to the initial DECCW letter which Council subsequently referred back to this authority for further assessment on 13 April 2010. On 15 June 2010, DECCW provided a written response to this latest submission by advising that:-

"*The DECCW has now assessed the exhibited EIS and additional information and determined that, should consent be granted, **an Environmental Protection Licence could be issued**."*

A copy of DECCW's latest response, which includes their 'General Terms of Approval' and mandatory conditions for the application for an EPL, can be viewed in '**Attachment A'** of this report while their initial response, dated 19 February 2010, is included as '**Attachment C'**.

7.9 *Water Act 1912 (WA)*

The NSW Office of Water (NOW) is responsible for the regulation of access to surface and groundwater resources through either the Water Act 1912 (WA), or the Water Management Act 2000 (WMA).

The NOW's key issues relevant to the assessment of the Waste Facility EIS include the potential impacts of the development on groundwater and groundwater dependent ecosystems.

The following NSW Government legislation and policies implemented by the NOW are applicable to the subject development site.

- Water Act 1912 (Water Licensing) - Part 5 of the Act makes provision for the authorisation of extraction / interference with groundwater resources.

The NOW implements this legislation and advises on any development affecting groundwater resources through the guidance of following NSW State Policies:

- NSW Groundwater Policy Framework Document – General;
- NSW Groundwater Quantity Management Policy;
- NSW Groundwater Quality Protection Policy; and
- NSW Groundwater Dependent Ecosystem Policy

The NOW is also responsible for the implementation of the Water Management Act 2000, however, the regulation of access to groundwater resources in the Shoalhaven is still subject the Water Act 1912. The Water Management Act 2000 is only effective for works such as "Controlled Activities" on waterfront land and, therefore, not applicable to the subject development proposal.

As the proposal is likely to intercept or use groundwater, the need for a water license under Part 5 of the WA 1912 must be addressed prior to determining the full impact of the subject application. All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in these types of proposals and an approval obtained from the NOW prior to their installation.

7.10 *Protection of the Environment Operations (Waste) Regulation 2005*

The following relevant 'Parts' of the POEO (Waste) Regulation 2005, are mostly requirements that must be met during the operation of any Waste facilities so, in this regard, there are no obvious areas where the subject proposal must demonstrate compliance with these provisions during the assessment of this application.

The subject proposal has not contravened any of these regulatory requirements, however, they would be relevant if the application is approved.

7.11 *Native Vegetation Act 2003 (NVA)*

Clause 25(f) (*Legislative exclusions*) of the NVA states that:-

*"This Act does **not apply** to the following* type(*s*) *of clearing of native vegetation:*
*(f) any clearing that is, or that is part of, **designated development** within the meaning of the EPA Act and for which development consent has been granted under that Act,"*

On 23 March 2010, the Southern Rivers Catchment Authority provided written advice confirming that any clearing required to be undertaken for "designated development" is **excluded** from the provisions specified in the NVA.

7.12 *Shoalhaven Local Environmental Plan 1985 (SLEP):*

The subject site is zoned 1(d) (Rural "D" (General Rural) Zone) and the proposed landfill facility is considered to be permissible as it satisfies the definition of a "*hazardous and offensive industry"* in accordance with Clause 3 of State Environmental Planning Policy No 33 - Hazardous and Offensive Development (SEPP 33) and Clause 3 of the Environmental Planning and Assessment Model Provisions (1980).

Clause 9 of the LEP outlines the objectives of this zone, as follows:

(a) to provide opportunities for a range of rural land uses and other development, including those which by virtue of their character require siting away from urban areas.

The proposed landfill is defined as "hazardous and offensive industry" and, by virtue of its character, requires siting away from urban areas. The subject site is surrounded by Rural 1(d) zoned land with the nearest residentially zoned 2(a1) property located approximately 780m from the site's southern boundary and approximately 1.6kms from the existing quarry operation. In addition, a 600m "Extractive Industry Buffer" also exists around the current operation which restricts opportunities for any future development from encroaching within this area.

(b) to recognise the potential for high intensity bush fire over wide areas of the zone and to ensure that development does not lead to significant risks to life or property from bush fire or to the implementation of bush fire mitigation measures which will have a significant environmental impact.

Council's records indicate that the subject site is constrained as bushfire prone land. Although the proposed landfill development is not considered to be a "Special Fire Protection Purpose", in accordance with Section 100B of the Rural Fires Act and S91 of the EP & A Act, the applicant has failed to supply any information in their EIS detailing the bushfire mitigation measures which will be employed to ensure that the proposed development *"will not lead to significant risks to life or property from bushfire*". As a consequence, no details were submitted indicating whether the implementation of any necessary mitigation measures (i.e. vegetation removal) will have a "*significant environmental impact*" in this locality.

(c) to ensure that wherever possible the location, design and management of development is consistent with:

(i) the protection of important natural and cultural environments.

As discussed further in Section 9 of this report, the application is deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be accurately impacted on in this locality as required under s5A of the EP&A Act. The absence of an adequate assessment is considered to be a serious omission in the applicant's supporting information for both the proposed development and noise attenuation barrier in comprehensively determining how "*important natural and cultural environments*" will be protected from any adverse impact as a result of the proposed development. Further, the NSW Office of Water (NOW) has also raised concerns with the adequacy of the applicant's ground and surface water assessments which are "*considered*

(to be) *preliminary and does* (do) *not establish conservative parameters for the modelling of impacts and protection of the environment"*. Without the necessary modelling, the NOW were also concerned that, in the long term, there may be an issue with the *"on-going generation and management of leachate generation from the site".*

(ii) the conservation of renewable natural resources such as forests and prime crop and pasture land.

The proposed landfill facility intends to fill the void left by the current quarry operations and will not result in the removal of any renewable natural resources such as "*forests and prime crop and pasture land*"; and will not affect the ability of the remainder of the 296.2 hectare site being used for agricultural purposes.

(iii) the maintenance of opportunities for economic development of important extractive resources.

The landfilling operations are proposed to be undertaken in conjunction with the continued quarrying activities on site. Quarrying is proposed to continue to the west while landfilling will be undertaken in the void to the east. The proposed landfill will not affect the site's ability to continue to be quarried in accordance with its current development consent conditions or Environmental Protection Licence requirements.

(iv) minimising conflict between land uses.

Due to the increase in truck traffic proposed as a result of the subject landfill facility, it is envisaged that there will be an intensification of noise, vibration and general loss of amenity to those residents living on Gumden Lane and along the remaining haulage route to/from the Princes Highway.

Further conflict arises from the noise level received at the tourist development which adjoins the privately owned extension of Gumden Lane, leading into the quarry site. In order to attenuate 'operational' noise below the DECCW recommended threshold of 40dB(A), a 5 metre high concrete barrier, which included a raised grassed bearm, was proposed on the common boundary between both land uses. As this barrier was to be located within an area identified in Clause 21 of SLEP 1985 as being "Land of ecological sensitivity", an adequate assessment under s5A of the NSW EP&A Act was required. As the applicant has failed to submit such an assessment, the full impact of this structure could not be properly considered. Without this barrier, operational noise from the proposed landfill operations will exceed the noise thresholds specified in DECCW's EPL requirements and result in an additional "conflict" between existing residential land uses located in close proximity to the subject site.

(v) any plans for public infrastructure provision or management.

Comment

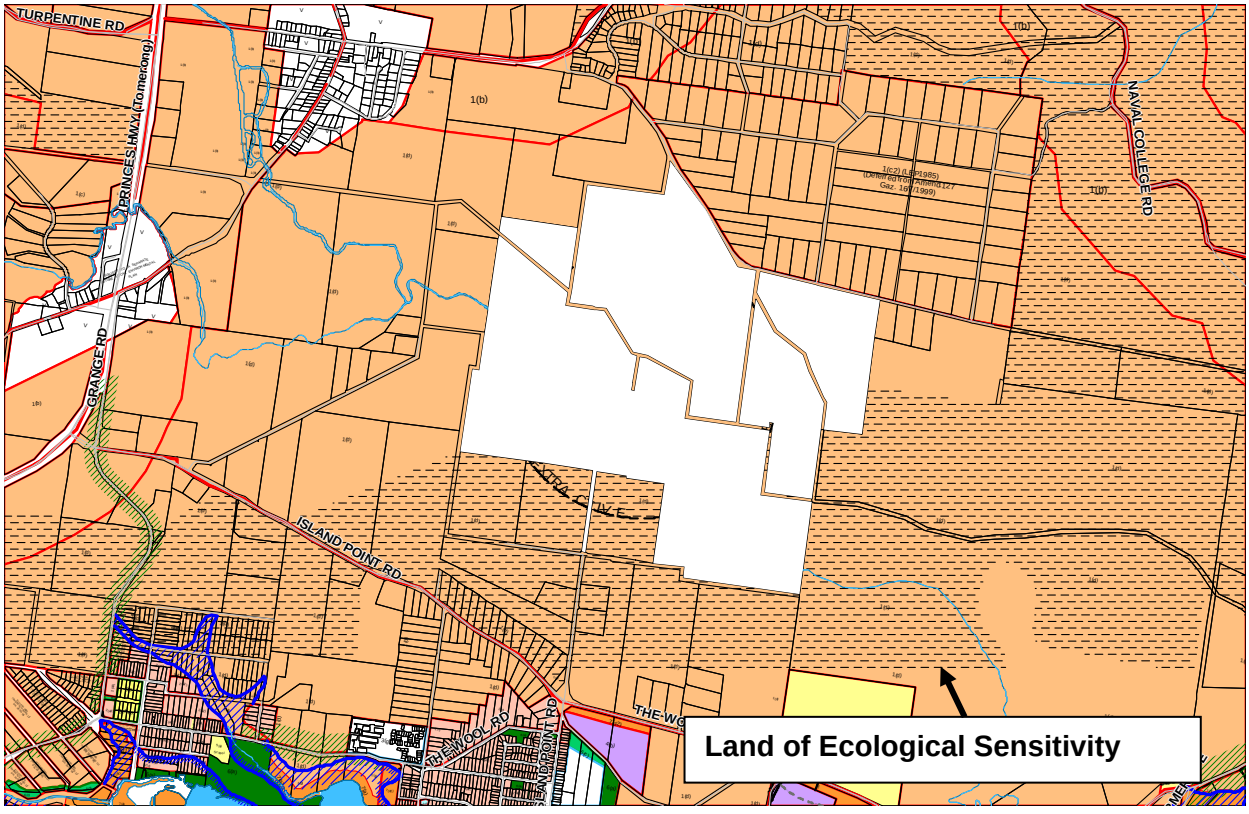
Section 3.5 of the EIS states that the proposed landfill facility is intended as a opportunity for other Councils within the Southern Council Group Regions (Wingecarribee, Shellharbour, Wollongong, Kiama, Eurobodalla and Bega) to divert general solid waste (non-putrescible) from their existing putrescible landfills thereby increasing the life expectancy of their own finite facilities. As existing landfill facilities within the Shoalhaven LGA only receive approximately 4,000 tonnes of non-putrescible waste per annum for recovery, it is clear that the current proposal will be attracting the majority of waste from outside the LGA.

Given the above, it is considered that that the proposed land fill development is an inappropriate use of the subject site as it fails to satisfactorily meet and/or is inconsistent with 'Objectives' 1(b), 1(c)(i), 1(c)(iv) and 1(c)(v), associated with requirements of the 1(d) (Rural "D" (General Rural) Zone.

7.13 Clause *21 (Land of Ecological Sensitivity)*

The objective of this clause is to minimise adverse impacts of development on natural features, including flora, fauna, landforms and other physical features; and ecological processes.

The area identified as "*Land of ecological sensitivity*" is located in the south-eastern corner of the subject land and south of the area directly affected by the existing quarry and proposed landfill facility. A 5m high noise attenuation barrier was proposed to be constructed within this area, extending north from the southern boundary of the privately owned extension to Gumden Lane, for a length of 400m, on the eastern side. The application is deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be accurately impacted in this locality as required under s5A of the NSW EP&A Act. As previously expressed, the absence of such an assessment is considered to be a serious omission in the applicant's supporting information for both the proposed development and noise attenuation barrier.



7.14 Clause 23 *(Protection of Streams)*

Subclause (3) the objectives of this clause are:-

(a) to protect water quality,
(b) to protect aquatic habitats and riparian communities,

(c) to protect and enhance the function of perennial water courses and their associated vegetation as habitat corridors,
(d) to protect the scenic and recreational values of perennial water courses and their associated vegetation communities, and
(e) to protect perennial water courses from erosion and sedimentation.

In addition to Clause 23 of SLEP 1985, Tomerong Creek is nominated as a "three use" perennial water course on 'Map 2' of the JBREP 1996. Clause 11 of JBREP states that these types of water bodies are required to sustain the following uses in accordance with the *Australian National Water Quality Guidelines for Fresh and Marine Water 1992*:-

(i) Protection of aquatic ecosystems;
(ii) Drinking water for livestock; and
(iii) Primary contact recreation.

Alternatively, the Moona Moona Creek catchment is classed as a "two use" stream which requires the following to be sustained in the same manner:

(i) Protection of aquatic ecosystems; and
(ii) Primary contact recreation.

As previously discussed, the NSW Office of Water (NOW) has raised concerns with the adequacy of the applicant's ground and surface water assessments which were:-

"…*considered preliminary and does* (did) *not establish conservative parameters for the modelling of impacts and protection of the environment"*.

Without adequate modelling of both the ground and surface waters in this locality, the NOW is concerned that, in the longer term, there may a potential issue with the *"on-going generation and management of leachate generation from the site".*

In the event of any failure of the proposed leachate management system and/or soil and sedimentation controls, there is potential for the proposed landfill development to contaminate both of these significant waterbodies and, therefore, compromise the five "objectives" associated with adequately protecting the water quality within these types of environmentally sensitive streams.

7.15 *Clause 28 (Danger of Bush Fire)* subclause (2)

The Council must not grant consent to the carrying out of development on bush fire prone land unless it is satisfied that adequate measures are proposed to avoid or mitigate the threat from bush fire, having regard to:-

(a) the siting of the development, and
(b) the design of, and the materials used in, any structures involved in the development, and
(c) the clearing of vegetation, and
(d) the provision of asset protection zones, landscaping and fire control aids (such as roads and water supplies).

Comment

The applicant has failed to submit any information detailing how these bushfire clauses will be adequately addressed and mitigation measures implemented in order to demonstrate that the proposed development will satisfactorily meet all four of the provisions associated with Clause 28. In this regard, there are no details indicating how the proponent expects to "*avoid or mitigate the threat from bushfire"* as a consequence of the proposed land activity.

7.16 *Draft Shoalhaven Local Environmental Plan 2009 (DSLEP)*

Under DSLEP the current 1(d) Rural zone is proposed to be zoned "RU2 Rural Landscape". As the DSLEP is yet to be placed on exhibition, there is no formal requirement for the determining authority to take this document into consideration during the assessment of the subject development application.

7.17 *South Coast Regional Strategy (SCRS)*

The SCRS effectively aims to '"*deliver on the NSW Governments commitment to develop a long-term plan to secure the Region's future for the next generation*". This strategy outlines the key concepts and values that must be considered in the development assessment process. It has an emphasis on 'sustainable growth' which aims to protect higher order sensitive environments, cater for housing demands and priorities in addition to managing the release of future urban lands.

The Strategy identifies a regionally significant wildlife corridor that runs across the subject site for the proposed waste facility. This corridor has been verified and will feature in the new LEP (LEP 2009). The SCRS states that "*the intent of these corridors is to maximize the retention of native vegetation and rehabilitate disturbed areas*".

The SCRS also gives guidance on rural landscapes and communities. Page 29 of the Strategy states that "*the scale of development within and adjacent to existing villages and rural towns will support the role of the town in serving surrounding communities and preserve its character, scale, cultural heritage and social values".*
'

Given there has been over **850** objections lodged in response to the proposed development, it is clear that the community does not perceive that this proposal will add positively to the existing character of their local area.

Conversely, the SCRS also makes specific mention of actions for water, energy and waste resources. It expects that "*council's will identify suitably located and appropriately zoned land for new water supply, wastewater treatment and recycling, energy and waste avoidance, and resources recovery infrastructure to support the growth in major regional centres and major towns".*

The existing quarry is identified in the SCRS as an "extractive resource" requiring protection via appropriate zonings and buffers from other land uses. However, the Strategy does not anticipate changes in the use of the quarry such as the establishment of a waste facility that has the potential to impact on the surrounding environment.

In summary, the proposal does **not** appear to be totally consistent with this Strategy in the following respects:

- Council has proactively identified and secured land for future waste requirements; which are predominantly located west of Nowra's main centre;
- Tomerong or St Georges Basin have not been identified as an appropriate place for a waste facility by Council in any strategic planning document; and
- There is considerable doubt whether the scale of this development will support the local area in terms of serving the surrounding community in addition to preserving the character and social values of the area.
- The proposal also potentially conflicts with the identified "Wildlife Corridor" (i.e. Cl. 21 of SLEP 1985 - *Land of Ecological Sensitivity*) which exists on-site. In this regard, the comments related to assessment of the impacts on flora and fauna are especially relevant.

7.18 *Jervis Bay Regional Strategy (JBRS)*

The JBRS is aligned with the JBREP and provides a local strategic framework to manage residential and rural residential growth in the Jervis Bay Region for the next 15 – 20 years. The Strategy identifies broad areas for potential development in the future and outlines issues which need to be addressed when assessing applications for proposals within this area. Further, the Strategy specifies a number of important issues which need to be taken into account during assessment, namely environmental opportunities and constraints, social and economic factors, and how the JBRS is to be applied and implemented.

The following "Sections" contained in the JBRS are considered to be relevant to this development proposal.

Section 9.1 – *Water quality and flow*

"*Action* ii" of this Section states that:-

"New development will be located and designed so as to avoid detrimental impacts on waterbodies and watercourse, including ***groundwater****. Where there are manageable impacts, erosion and sedimentation controls measures and means to mitigate nutrient and other pollutants should be provided on the development site and be excluded from areas set aside for the protection of natural or cultural attributes (e.g. Riparian areas, habitat corridors, aboriginal places/sites and so on."*

As previously mentioned and further documented in Section 9 of this report, the NSW Office of Water (NOW) have raised issues with the adequacy of the applicant's ground and surface water assessments which were "*considered preliminary and does* (did) *not establish conservative parameters for the modelling of impacts and protection of the environment"*. Without the necessary water modelling, the NOW were also concerned that, in the long term, there may be an issue with the *"on-going generation and management of leachate generation from the site".*

Further, as the applicant has failed to provide or outline a suitable recovery regime which ensures that every truck hauled to the proposed facility will be screened 100% free of all putrescible and/or toxic waste, there is a significant, potential risk of contaminated groundwater having an adverse impact on the water quality of Tomerong, Duck and Moona Moona creeks which respectively discharge into the sensitive environs of St Georges Basin and the Jervis Bay Marine Park.

Section 9.2 – Freshwater, Marine and Estuary Biodiversity

This section identifies the following risk involved in conserving marine biodiversity and maintaining ecological processes within the JBRS precinct.

"*deterioration in water quality due to land clearing in the catchment* ***and*** *pollution from urban, agricultural and* ***industrial runoff and waste***"

Again, without the necessary ground and surface water modeling and details of suitable waste screening procedures, there is serious concern that any escaping leachate may eventually contaminate the water quality in both St Georges Basin and Jervis Bay Marine Park. It is envisaged that any compromise on water quality from this type of "industrial runoff" may have a catastrophic effect on conserving marine biodiversity and maintaining ecological processes within these catchments. These concerns are also relevant in respect to Section 9.10 of the Strategy which stipulates the following "Objective" to ensure the protection of

existing “Riperian Areas” located along the banks of Tomerong, Duck and Moona Moona creeks.

“…. that riparian areas are conserved and sustainably managed, in order to provide for natural ecological and hydrological processes and to avoid detrimental impacts on habitat values and water bodies immediately adjoining and downstream”

7.19 Threatened Species Conservation Act 1995 (TSA)

The *Threatened Species Conservation Act 1995* (TSC Act) provides for the conservation of threatened species, populations and ecological communities of animals and plants that are listed under the Act. Preliminary ecological investigations undertaken on the terrestrial ecology of the site have indicated the presence of several threatened species and endangered ecological communities (EEC).

Council’s Threatened Species Officer assessed the direct and indirect impacts of the proposed works on all identified threatened species and EECs prior to determining that the application was deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats would be accurately impacted in this locality, as required under s5A of the NSW EP&A Act, for both the proposed development and noise attenuation barrier.

This issue is further discussed in Section 9.3 of this report under the heading “Flora & Fauna”.

7.20 State Environmental Planning Policy (Infrastructure) 2010
Clause 123 - “***Determination of development applications*”**

(1) In determining a development application for development for the purpose of the construction, operation or maintenance of a landfill for the disposal of waste, including putrescible waste, the consent authority must take the following matters into consideration:-

(a) whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill, and

As the applicant has failed to identify suitable waste recovery procedures, so that the amount of waste is minimised before it is placed in the proposed landfill, it is difficult to determine how the proponent will undertake an effective screening process to ensure that every truck laden with waste for disposal is completely free of potentially contaminating material. In this regard, there is no suitable recovery regime which ensures that every load carried to the proposed facility will be 100% free of all waste considered inappropriate in terms of having the potential to adversely impact the existing environment in this locality.

(b) whether the development:

(i) adopts best practice landfill design and operation, and

Due to recent submissions from the NOW and the additional comments from E2W, there are concerns that the proposed landfill application fails to adopt “best practise” in design and operation as the interaction between groundwater and surface water needs to be further investigated to determine the potential for impact on Tomerong, Duck and Moona Moona Creeks. The background water quality of ground and surface waters is essential so that future monitoring results, as required by the DGRs, can be compared to the background water quality and enable any impact to be detected early, allowing for appropriate management actions to be implemented mitigating potential environmental harm.

Considering that the existing quarry operations have excavated below the aquifer, and groundwater now appears to be draining into the quarry, there is further apparent on-site evidence necessitating the need for more detailed investigations to be undertaken in respect of this matter.

(ii) reduces the long term impacts of the disposal of waste, such as greenhouse gas emissions or the offsite impact of odours, by maximising landfill gas capture and energy recovery, and

As the proposed landfill will only receive general solid waste (non-putrescible) the total greenhouse gas emissions will be relatively low compared to a putrescibles landfill. A greenhouse assessment has been provided in Section 5.11 of the submitted Environmental Impact Statement dated August 2009.

The assessment concluded that the Greenhouse emissions (all six greenhouse gasses) are 0.256 tonnes $C0_2e$ per tonne of waste for the stated composition while, by comparison, putrescible waste approximates 1.1 tonnes $C0_2e$ per tonne of waste. As a result, the proposal appears to be consistent with the low greenhouse gas generation calculations.

An Odour Assessment Report was prepared by Benbow Environmental and was provided to Council on 9th April 2010. The assessment found that no odour emissions are expected due to the inert nature of the materials stored on site. It has therefore been determined that the impacts from the proposed landfilling development would be acceptable and in accordance with the DECCW NSW limits. Due to the non-perishable nature of the waste proposed to be disposed of on this site, there is minimal potential for odour to be generated at levels of intensity or at rates of emission that would cause nuisance at the perimeter of the landfill.

(c) if the development relates to a new or expanded landfill:
(i) whether the land on which the development is located is degraded land such as a disused mine site, and

The subject non-putrescible waste facility is proposed to fill the void left as a result the current quarrying operations

(ii) whether the development is located so as to avoid land use conflicts, including whether it is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time, and

Due to the increase in truck traffic proposed as a result of the subject landfill facility, it is envisaged that there will be an intensification of noise, vibration and general loss of amenity to those residents living on Gumden Lane and along the remaining haulage route to/from the Princes Highway.

Further conflict arises from the noise level received at the tourist development which adjoins the privately owned extension of Gumden Lane, leading into the quarry site. In order to attenuate 'operational' noise below the DECCW recommended threshold of 40dB(A), a 5 metre high concrete barrier, which included a raised grassed bearm, was proposed on the common boundary between both land uses. As this barrier was to be located within an area identified in Clause 21 of SLEP 1985 as being "Land of ecological sensitivity", an adequate assessment under s5A of the NSW EP&A Act was required. As the applicant has failed to submit such an assessment, the full impact of this structure could not be properly considered. Without this barrier, operational noise from the proposed landfill operations will exceed the noise thresholds specified in DECCW's EPL requirements and result in an additional "conflict" between existing residential land uses located in close proximity to the subject site.

(d) whether transport links to the landfill are optimised to reduce the environmental and social impacts associated with transporting waste to the landfill.

Refer to (c) above.

(8) *S79C(1)(a)(iii) – the provisions of any Development Control Plan (DCP)*

8.1 Development Control Plan No.18 – Carparking Code (DCP 18)

The proposed development does not require the formal provision of car parking within the site. Sufficient space currently exists within the site to allow employees vehicles to enter the site, manoeuvre and exit the site in a forward direction. The existing areas adjacent to the existing quarry office are considered satisfactory for the intended usage.

8.2 Development Control Plan 93 - Controls for Waste Minimisation and Management (DCP 93)

The provisions of DCP 93 apply to this development. A waste minimisation and management plan (WMMP) for the construction and the on-going use of the proposed development has not been submitted with the development application. In accordance with the requirements of DCP 93, a WMMP is not required to be lodged at the development application stage and can be lodged prior to the release of the Construction Certificate.

(9) *S79C(b) - Likely impact of that development on the natural and built environment and social and economic impacts in the locality*

9.1 *Traffic*

Section 4.3 of the NSW Roads & Traffic Authority's (RTA) guidelines for assessing "*traffic generating developments*" includes traffic volume thresholds which ensure environmental conditions of the local road system are considered and that traffic volume increases, as a consequence of development, do not result in any adverse environmental conditions which may impact on the existing amenity of residents' living along the designated truck routes associated with this proposal and the existing quarry operation.

Whilst a number of factors need to be taken into consideration, Table 4.6 of the RTA guidelines specifies maximum peak hour traffic volumes on local and collector roads wherein these values are specified as a "*desirable maximum - environmental goal*" and an "*absolute maximum*".
On local roads, the RTA guidelines state that a desirable maximum (environmental goal) of less than 2000 vehicles per day (vpd) is required and an absolute maximum limit of no more than 3,000 vpd.

On collector roads, the RTA guidelines state a desirable maximum (environmental goal) of less than 3000 vpd is required and an absolute maximum limit of 5,000 vpd.

On 19 October 2009, after initially assessing the applicant's EIS, a letter was sent to the applicant, on behalf of Council's Strategic Planning & Infrastructure Group (SPIG), requesting the following information

1. *An explanation of the difference between the submitted traffic impact report and noise assessment, including confirmation of the expected number of truck movements to/ from the site.*
2. *Details of any proposed roadworks, including justification/ reasoning, for any proposed internal and external works. Should no details of roadworks be provided, Council will consider relevant conditions as per the Australian Standards.*
3. *Where relevant, any outcomes of discussions with the other "operators" on the site (if available) in relation to cumulative traffic/ transport issues, especially routes of truck movements to/ from the site.*

On 20 January 2010, the applicant provided the following responses to these issues which were subsequently referred to Council's SPIG (Traffic Section) for review.

Applicant's Response:

1. ***An explanation of the difference between the submitted traffic impact report and noise assessment, including confirmation of the expected number of truck movements to/ from the site****.*

The difference in vehicle numbers between the traffic impact report and the noise assessment was due to an error in the consolidation of the vehicle movements within the noise assessment. The noise report only considered car and truck movements and did not include the bus and motor cycle movements count during the traffic survey. An updated Noise Report is attached which includes bus and motor cycle movements. It should be noted that the bus and motor cycle movements have been consolidated into the truck column of Table 5.4 (provide below) and has been modelled as additional truck movements. Based on the existing and proposed traffic volume data for these roads, the following predicted increases in road traffic noise levels have been determined for the worst case scenario.

Table 5-4: Traffic Flow Volumes

Existing Traffic Flow Volume (includes existing quarry traffic)				
Location	**Period**		**Indexed Vehicle Movements (2009) per 8hr day**	**Vehicles per hour**
Island Point Road	7.00am-3.00pm		2249	281
Gumden Lane	7.00am-3.00pm		168	20
Expected Volume due to the proposed operation of the landfill				
Island Point Road	7am-3pm	50,000tpa	21	3
		100,000tpa	42	5
Gumden Lane	7am-3pm	50,000tpa	21	3
		100,000tpa	42	5
Total Traffic flow from proposed operations	Island Point Road	50,000tpa	2270	284
		100,000tpa	2291	286
	Gumden Lane	50,000tpa	189	23
		100,000tpa	210	25

The projected traffic volumes for the traffic impact report have been determined by using existing traffic movement data from the quarry operators and observations at a similar inert waste facility on the Central Coast of NSW. MacDonald International confirmed that the truck movements for the quarry operation detailed in their traffic impact statement, as recorded on the day of the survey (23rd March 2007), has been identified by the quarry operator as being consistent with their records and typical for that time period. According to the quarry operators, approximately 92.5% of the traffic movements are trucks with a capacity between 26 and 31 tonne while 7.5% is from trucks of 13 tonne capacity or less. From these criteria it has been determined that the total traffic movements for extraction of siltstone are 20,465 per year or 409 per week.

Truck movements for the proposed landfill facility are based on incoming material having a 3:1 ratio of 20 tonne trucks to 10 tonne trucks. The estimated truck movements to and from the proposed inert waste facility are calculated to be approximately 11,428 movements per year when the waste facility is operating at its maximum capacity (100,000 tonnes per annum).

2. Details of any proposed roadworks, including justification/ reasoning, for any proposed internal and external works. Should no details of roadworks be provided, Council will consider relevant conditions as per the Australian Standards.**Applicant's Response:***It is estimated the proposed development, combined with the daily traffic movements for the Quarry's operation (based on the maximum daily extraction rate of a 1000 tonnes/day) and local vehicular movements, will produce a volume of less than 500 average annual daily traffic (AADT). This classifies Gumden Lane as a minor road by Shoalhaven City Council's Engineering Design specification (DCP100).Shoalhaven City Council's Engineering Design specification (DCP1 00) states that thefollowing shall apply for rural areas:*

RURAL DESIGN CRITERIA D1.29

CARRIAGEWAYS

1. Carriageway widths for rural roads should generally be as follows: Minor Road up to 1,000 AADT, 5 metre seal with 2 x 0.5 metre shouldersMacDonald International argues that the current width of the bitumen seal in Gumden Lane is 6.4 metres with approximately 1.8m shoulders. Therefore, the existing sealed pavement and shoulder width satisfy this requirement.Council's internal referral refers to the requirements of the Austroads Guide to Road Design Part 3: Geometric Design 2009. According to Table 4.5 of the Austroads Guide to Road Design Part 3: Geometric Design 2009, roads with a design AADT between 150-500, the carriageway is to contain 2 x 3.1 m sealed travel lanes with 1.5m shoulders. Austroads (Table 4.5) also recommends that a minimum seal width of 7.Om is to be provided on designated heavy vehicle routes or where the AADT contains more than 15% heavy vehicles. Based on this information, Gumden Lane would require an additional seal width of 0.6m.However, we are of the opinion that DCP 100 should be used to assess this application as the DCP has been specifically created for the local area, with reference to the relevant Austroads Guidlines.The internal road of Gumden Lane currently contains a causeway over Tomerong Creek, as the proposed landfill will result in an increase in traffic movements over the existing

causeway it is proposed to upgrade the causeway to a bridge as part of this development. A small section of internal access road will also be modified to re-route vehicles to the proposed new weighbridge and weighbridge office. Minor improvements are proposed to roadways exiting the weighbridge (from entry) to improve turning ability into the quarry.

3. Where relevant, any outcomes of discussions with the other "operators" on the site (if available) in relation to cumulative traffic/ transport issues, especially routes of truck movements to from the site. **Applicant's Response:**

Clarification with Council officers on this question revealed that Council officers had concerns that the traffic counts underestimated the truck movements for the quarry operation. Council officer's verbally requested confirmation that the traffic counts were taken on an appropriate day for the type of operation (e.g. busy day vs quiet day).

On the day of the survey (23rd March 2007), quarry records indicate 81 trucks entered and exited the quarry. This was consistent with the traffic survey and in line with other days in March 2007. Furthermore, the quarry operator indicates extraction levels during this period were the highest recorded in 15 years of operation due to the construction of Main Road 92. Total extraction volumes leaving the quarry for the 3 previous financial years are as follows:

- *July 2006 - June 2007 - 270,000 tonnes;*
- *July 2007 -June 2008 - 130,000 tonnes and*
- *July 2008 -June 2009 - 75,000 tonnes.*

According to the quarry operators, approximately 92.5% of the traffic movements are trucks with a capacity between 26 and 31 tonne while 7.5% is from trucks of 13 tonne capacity or less. From these criteria it has been determined that the total traffic movements for extraction of siltstone are 20,465 per year or 409 per week.

The projected traffic volumes for the proposed landfill facility were estimated from observations at a similar inert waste facility located on the Central Coast of NSW. Truck movements are based on incoming material having a 3:1 ratio of 20 tonne trucks to 10 tonne trucks. The estimated truck movements to and from the proposed inert waste facility are calculated to be approximately 11,428 movements per year when the waste facility is operating at its maximum capacity (100,000 tonnes per annum).

With regards to the routes of truck movements to and from the site during the survey period approximately 22% of vehicles movements generated by the quarry operation utilised Parnell Road and 82% utilised Gumden Lane. The quarry operators have indicated their intention is to only use the Parnell Road entrance for service vehicles and quarry deliveries to Tomerong Township. However, as the quarry operation is not part of this proposal and they have a development consent that allows legal access to the site from Parnell Road, we cannot guarantee what percentage of vehicles will utilise each of the two access point in the future, this may depend on the location of the project utilising the quarry material. In relation to this proposal (landfill facility) all truck movements will be via Gumden Lane. Furthermore, it should be noted that all of the modelling (e.g. air, noise) and assessment undertaken as part of the Environmental Impact Statement, was undertaken with the assumption that all traffic (quarry and landfill) would be utilising Gumden Lane, to ensure that the worst case scenario was assessed.

Response from Council's Traffic Unit

After reviewing the applicant's latest submission, Council's Traffic Unit resolved that this matter had now been satisfactorily addressed and provided the following comment, reflecting this position on 19 May 2010:-

"In addition to previous detailed comments provided by Council's Traffic & Transport Manager, please be advised as follows:
Should the application be approved the following (further traffic related) condition of consent is suggested: "the applicant is required to undertake ongoing monitoring of traffic volumes and submit monthly reports to Council of traffic use on Gumden Lane and Parnell Road (vehicle speed and vehicle classification report including complete hourly and daily traffic volumes by vehicle type) to demonstrate they are not breaching the recommended cap of 300 vehicles per day combined traffic generation volume limit (combined quarry + waste facility). The type and location of monitoring devices is to be agreed with Council."

Comment

After this review of the associated traffic issues by Council's Traffic & Transport Manager, it was estimated that the combined impact of the proposal, in addition to the quarry traffic, was not likely to generate traffic volumes on Gumden Lane that would exceed the nominated environmental capacity criteria specified in the RTA guidelines.

Further, the likely combined traffic volumes have been assessed as being low enough, such that, capacity is not considered to be an issue at any of the intersections en route between the Highway and the development site.

In addition to the existing Quarry traffic and, based on the increased volume of trucks expected as a consequence of this proposal, pavement design is considered to be a critical issue in ensuring that the roads can withstand the combined and resultant impacts of the expected truck volumes. Advice from Council's Traffic Unit anticipates that it is highly likely that the road pavement will need to be upgraded to accommodate the higher proportion of truck traffic expected and this work will be required along the full length of Gumden Lane and at the intersection Gumden Lane / Island Point Road.

In regards to safety, AUSTROADS specify road cross section parameters, based on traffic volumes, and states that when truck volumes increase beyond 80vpd, additional lane widths are necessary.

In this regard, the applicant has submitted information in their EIS that would indicate truck volumes have already exceeded this limit. Accordingly the combined impacts of both the quarry and landfill traffic are considered to be excessive without the necessary road widening (wider lane and shoulder widths) in accordance with AUSTROADS standards. This matter was also addressed in Council's Traffic Unit referral response which included the recommended road cross-section requirements which should be specified in the development consent.

It is also noted that a cap of 300 truck movements a day (trucks are expected to be the primary component of traffic from the combined quarry / waste facility operation), in addition to combined light vehicle traffic generation from both facilities; would still equate to combined traffic levels that would still be considerably lower than RTA's environmental traffic volume goals, which would be a desirable outcome **if** this proposal was determined by approval.

Based on the Council Traffic Unit's review of the application, traffic volume is not considered to be a fatal issue with this application, as reasonable consent conditions could be imposed in order to offset any adverse traffic impacts and to ensure that these volumes fall within the acceptable guidelines. It is also important to note that Council's Traffic Unit were not prepared to support the proposal without consent conditions being imposed requiring extensive road and maintenance works, in order to mitigate the adverse impacts of this proposal on Council's road network and those residents' living along Gumden Lane.

In order to accommodate the increased truck usage along Gumden Lane; wider traffic lanes, wider road shoulders, stronger road pavement and A/C pavement surfaces would be required. Similarly, at the intersection of Island Point Road and Gumden Lane, stronger road pavement and A/C pavement surfaces would need to be implemented and for 40 metres extending along each leg of both the approach and departure lanes.

It should also be noted that the proposed development is unlikely to generate traffic volumes that would exceed current traffic volumes experienced at the West Nowra Waste Facility on Flatrock Road.

This Waste facility currently receives refuse from all over the city (direct or by transfer) and, based on recent surveys undertaken by Council's Traffic Unit, has an average daily traffic volume in the order of some 1,200 vehicles per day, an average daily truck volume in the order of some 122 truck movements per day and the maximum daily volume of trucks, recorded in a month of survey, was 152 movements.

There are residential properties along Flatrock Road which have a similar setback to those which exist along Gumden Lane.

It is important to make this correlation as, based on the traffic data submitted with the application, Council's own survey of traffic levels on Gumden Lane and Flat Rock Road, indicates that:-

- The combined quarry and waste facility traffic will not exceed the RTA's environmental goal of 200 vehicles per hour or 2000 vehicles per day traffic volume limitations based on the recommended cap of 300 truck movements per day for the combined quarry plus waste facility operations.
- Subject to all of the recommended external road works being constructed to ensure that the road would be made safe to accommodate the increased truck usage; it is considered a cap of 300 truck movements a day is still high enough to not place unreasonable operational restrictions on the operators; and
- Accordingly, the Traffic Unit's recommended cap of 300 truck movements per day for the combined quarry plus waste facility operations appears to be a reasonable maximum daily truck movement limit upon which to base external road works consent conditions

In addition, the following additional consent condition would need to be implemented, in order to offset the potential adverse impacts associated with increased truck movements, should the subject proposal be approved:-

- *Installation and maintenance of a 'traffic logger' (traffic counting and classifying equipment) at an agreed location on Gumden Lane for the life of the development and submit monthly reports to Council of hourly / daily traffic recordings (traffic volumes and speeds, separate truck volumes and speeds) in order to demonstrate that vehicles, associated with the landfill operation, are travelling within safe limits for the prevailing road conditions and to demonstrate compliance with the 300 vpd truck movement cap. This will ensure regular factual information is reported to Council from the applicant confirming whether, or not, compliance with any conditions of consent are being maintained (if the proposal is approved to proceed), in order to protect the amenity of those residents living along Gumden Lane.*

As there are no road maintenance projects for Gumden Lane currently listed in Council's Contribution Plan, the potentially vital flaw in respect to requiring the developer to maintain Gumden Lane for the life of the waste facility, is that, Section 94 of the E P & A Act 1979 does not give Council the power to collect contributions for road maintenance with the exception of "extractive industries".

Absent of any offered, alternative agreement for road maintenance, which is essential in order to limit any detriment associated with the anticipated increase in truck movements along Gumden Lane, there is likely to be unacceptable impacts longer term from this intensification on Council's road network and the future amenity of those residents' living on Gumden Lane.

9.2 Noise

Excessive operational noise has also been raised as a concern, particularly with the proposed increase in truck volumes along Gumden Lane and the potential detrimental impact that this road traffic noise will have on the existing amenity of those living in close proximity to the site or residing along the remaining designated truck route.

The NSW Environment & Protection Authority (EPA) criteria for road traffic noise are sensitive to increased traffic volumes particularly increased truck volumes.

The noise model recommended by the NSW Department of Environment, Climate Change & Water (DECCW) is entitled "*Environmental Criteria for Road Traffic Noise".*

Council's Traffic Unit determined from running this noise model that once total truck movements exceeded 300 truck movements per day, the DECCW noise criteria was exceeded along Gumden Lane (this also assumed that a smooth hot mix road surface is laid along the full length of Gumden Lane in order to keep noise levels to an absolute minimum).

Based on the existing (coarse) two coat pavement surface, Council's Traffic Unit determined, that a significantly lower number of truck movements would result in the DECCW criteria being exceeded, to the extent that the current proposal could not be accommodated without a significant upgrade to the pavement surface, due to the substantive increase in truck numbers.

The Council's Traffic Unit also recommended that, in order to cap the development at 300 vpd (truck movements), a consent condition would need to be included that required the applicant to provide a hotmix (A/C) pavement surface for the full length of Gumden Lane to ensure noise levels emanating from trucks are kept to the minimum standard specified in these guidelines. As outlined in the previous section, even though it is envisaged that the upgrading of Gumden Lane would partly mitigate this issue, it's deterioration over time would eventually limit its on-going effectiveness in reducing truck noise below acceptable limitations.

Applicant's response

On 2 November 2009, the applicant provided the following response (extract) to Council's request for additional information:-

A Traffic Noise Impact statement that includes a comprehensive noise monitoring program of the Gumden Lane & Island Point Road accessways in accordance with the NSW Department of Environment & Climate Change's - Environmental Criteria for Road Traffic Noise.

"The reasoning behind the noise logger locations was to determine whether the appropriate criteria are currently being met as per Environmental Criteria for Road Traffic Noise (ECRTN). Accordingly, it was decided to measure the noise on Gumden Lane and to measure the noise at the noisiest point on Island Point Road. This was likely to be at the intersection of Island Point Road, Gumden Lane and The Wool Road. The ambient noise for the logger locations monitoring traffic noise, locations C (35 Gumden Lane, 420 m SSW of site entrance, 40 m from Gumden Lane) and D SW Corner of Island Point Road and The Wool Road, 780 m S of the site entrance), have been reanalysed in line with the ECRTN. The results are presented below:

TABLE 1 NOISE LEVELS AT LOCATION C				
Date	Day		Night	
	$L_{Aeq15hr}$	L_{Aeq1hr}	L_{Aeq9hr}	L_{Aeq1hr}
Tue 26/5/2009	44	45	34	34
Wed 27/5/2009	47	47	36	41
Thu 28/5/2009	48	49	33	37
Fri 29/5/2009	-	-	35	38
Sat 30/5/2009	-	-	41	42
Sun 31/5/2009	-	-	-	-
Mon 1/6/2009	-	-	-	-
Tue 2/6/2009	-	-	-	-
Wed 3/6/2009	-	-	-	-
Thu 4/6/2009	44	45	34	37
Fri 5/6/2009	47	48	34	37
Sat 6/6/2009	-	-	-	-
Sun 7/6/2009	-	-	37	39
Mon 8/6/2009	-	-	-	-
Tue 9/6/2009	-	-	-	-

TABLE 2 NOISE LEVELS AT LOCATION D				
Date	Day		Night	
	$L_{Aeq15hr}$	L_{Aeq1hr}	L_{Aeq9hr}	L_{Aeq1hr}
Tue 26/5/2009	57	58	50	50
Wed 27/5/2009	58	59	49	53
Thu 28/5/2009	58	59	48	52
Fri 29/5/2009	-	-	49	53
Sat 30/5/2009	-	-	50	51
Sun 31/5/2009	-	-	-	-
Mon 1/6/2009	-	-	-	-
Tue 2/6/2009	-	-	-	-
Wed 3/6/2009	-	-	-	-
Thu 4/6/2009	59	60	50	53
Fri 5/6/2009	63	65	49	53
Sat 6/6/2009	-	-	-	-
Sun 7/6/2009	-	-	54	57
Mon 8/6/2009	-	-	-	-
Tue 9/6/2009	-	-	-	-
Wed 10/6/2009	-	-	-	-
Thu 11/6/2009	-	-	-	-

The results for Location C in Gumden Lane indicate that the criteria of 55 dB(A) for day time and 50 dB(A) for night time are not currently exceeded. The results for Location D, adjacent to the Island Point Road/Gumden Lane/The Wool Road intersection indicate that the criteria for a collector road of 60 dB(A) for day time and 55 dB(A) for night time are generally complied with. The noise levels on Friday the 5th of June were higher than the criteria.
The new analysis of ambient noise levels does not change any criterion, nor does it change the conclusion or recommendation within the original noise impact assessment.

Comment on operational truck noise by Council's Environmental Health Manager

"As previously stated in my original comments about the Noise Impact Assessment Report, the NSW Department of Environment & Climate Change's (DECC) day time criteria for collector roads, as contained in their Environmental Criteria for Road Traffic Noise (ECRTN), is 60dBA and 55dBA for local roads. The Report prepared by Benbow Environmental dated August 2009 states that the log average daytime noise measurements were 60dBA at Island Point Road and 46dBA at Gumden Lane. From this information Island Point Road (collector road) is already at the acceptable noise criteria of 60dBA and Gumden Lane (local road) is 8dBA away from its maximum of 55dBA.

I also noted in my comments that there were errors in Table 5.7 in the Report which showed the results of calculating whether there will be an increase of more than 2dBA for predicted noise levels. DECC's ECRTN state that in all cases road traffic noise arising from the development should not lead to an increase in existing noise levels of more than 2dBA. The 'predicted' noise levels, levels that were modelled and did not use the ambient noise data collected at Island Point Road and Gumden Lane, are less than the existing ambient noise levels at the same receptors (same locations – R14 location C and R16 location D). With quarry and the landfill operation at a level of 50,000 tonnes/pa the predicted noise levels range from 48.9 to 50.6dBA at R14 Gumden Lane and 56.5 to 58.4dBA at R16 Island Point Road. With the quarry and the landfill operation at maximum capacity level of 100,000tonnes/pa the predicted noise levels range from 49.2 to 50.8dBA at R14 Gumden Lane and 56.8 to 58.6dBA R16 Island Point Road. This seems a very conservative estimate for Island Point Road when the landfill operations are doubled yet traffic noise by only 0.2dBA particularly since the predicted noise levels are less than the existing noise level of 60dBA at Island Point Road. Based on these modelled predicted noise levels the traffic arising from the development would lead to an increase in existing noise levels of 46dBA at Gumden Lane (receptor R14) of more than 2dBA and therefore exceed DECC's ECRTN (increase of 2.9 to 4.6dBA at 50,000t/pa and 3.2 to 4.8dBA at 100,000t/pa compared to existing noise level of 46dBA).

From a review of the aerial photography on Council's GIS and from my site inspection most of the dwellings in Gumden Lane are about 40m from the road, which does not offer sufficient distance to provide sufficient noise attenuation from traffic noise.

Watkinson Apperley Pty Ltd submitted further information dated 20 January 2010 to Council to respond to this matter. The response states that the results of monitors have been reanalysed in line with the ECRTN. The response goes on to state that "the results show that the log average daytime noise measurements were 46.2dBA at Gumden Lane and 59.7dBA at Island Point Road. It should be noted that in the original report the noise measurement was rounded to the nearest whole number, where as in the updated report the measurement have been rounded to the nearest decimal point. The noise levels on Friday, 5 June were higher than the criteria at location D." Note that location D is R16 Island Point Road. The levels in Table 2 of the response for Friday 5 June 2009 reached 65L_{Aeq1hr} and average 61dBA during the day. On the same day Gumden Lane reached 48.5L_{Aeq1hr} and average 47.1dBA.

The response by Watkinson Apperley Pty Ltd states that "during the re-assessment of the data the traffic noise model was calibrated using the monitoring results at Locations C (R14) and D (R16) to adjust the model by 1.5dBA so that the modelling results agreed with the monitoring results". The adjusted results show that Island Point Road at location D (R16) will exceed the DECCW ECRTN by up to 1dBA during combined quarry and landfill operation at 100,000t/pa. This still appears to be a conservative estimate for the reasons described above, since the existing road traffic noise at this location are already 60dBA or 59.7dBA. The revised modelled results also confirm that the road traffic noise in Gumden Lane will increase by up to 6.8dBA which exceeds the DECC ECRTN maximum increase of 2dBA. The response also provides an updated table 5.7 based on comparison of the modelled predicted traffic noise, which reveals that in Gumden Lane R5 and R6 residences will be "subject to noise level increases of up to 4dBA".
Noise mitigation measures recommended in the response are "driver education regarding noise generation and contractual requirement could be used to maintain noise at reasonable levels". This measure is not considered acceptable as a means of mitigating noise impacts on residents as it will not be able to be regulated or enforced by Council and would not form a 'reasonable and practical' condition of development consent as it would be up to individual drivers to apply the measure and would not be able to be enforced by the landfill operators or

Council. There would be an inherent difficulty in measuring the success and regulating such a condition. We know that existing driving from the Quarry that mitigation measures including driver training are not successful based on observations and public submissions complaining about noise, tail gating and the like. Any proposal to construct a noise barrier, to reduce the noise impact on residences, along Gumden Lane or Island Point Road is unacceptable because of the visual and amenity as well as potential threatened species impacts as described in the noise barrier comments above.

In conclusion, the traffic arising from the proposed landfill development will lead to an increase in road traffic noise on Gumden and Island Point Roads which will have a noise impact on residents."

Comment

Noise Attenuation Barrier

In order to reduce operational truck noise from emanating above the recommended DECCW noise thresholds, onto an existing Tourist Facility located at Lot 3 DP 775296 Bayly Road, the applicant submitted details of a 5 metre high noise attenuation barrier which was proposed to be constructed on the common boundary of this property and the Gumden Road extension, leading into the existing quarry site. The following comments from Council's Environmental Health Manager detail the concerns regarding the overall effectiveness of this barrier and the outstanding environmental considerations, which are still to be addressed, in respect to implementing this structure in its proposed location.

"I inspected the site on 28/6/10 after reviewing the 'Barrier Types for Noise Mitigation – Tomerong' report prepared by Environmental Resources Management (ERM) Australia Pty Ltd dated 17 May 2010. Figure 1 of the Report shows the proposed location of the noise barrier along the eastern side of the existing access road to a point just past the gate to the existing quarry in-line with Bayly Road to a height of 5m. I viewed the proposed location of the noise barrier from the access road, Gumden Lane, Bayly Road looking to the east and west, and from the adjoining property Lot 3 DP 775296 Bayly Road. I took the photographs below during my inspection.

The only property directly affected by the proposal shown in Figure 1 is Lot 3 DP 775296 Bayly Road. Since the proposed barrier ends at Bayly Road I consider that it will have minimal visual and amenity impact on the existing streetscape. To address the visual impact on the adjoining property which includes tourist cabins, any barrier design must incorporate vegetation including tall trees and understorey. It is not acceptable in this location to install a single impervious barrier without landscaping as it would result in unacceptable visual and amenity impacts to the subject property. As shown in the photographs the existing vegetation growing along the boundary in the location of the proposed noise barrier provides a natural screen and visual buffer to the Quarry access road which would and is part of the existing rural landscape which contains large areas of remnant vegetation. This vegetation along the boundary also provides privacy from the Quarry Road and maintains the existing character of the landscape which is important for this tourist development. A 5m high concrete wall or wall of similar construction near the entrance of a tourist development will impact upon the rural character of the land and may make it less attractive to visitors. There is also "Land of ecological sensitivity" hatching (Clause 21 of SLEP 1985) *over the land which also extends down Gumden Lane. To maintain the objectives of this hatching in accordance with the SLEP any barrier must incorporate endemic vegetation to minimise potential visual and biodiversity values of the land. A threatened species assessment must be carried out before approval is granted to install the barrier. Further details of this requirement are provided in the Threatened Species Officers referral comments*

There is also a question as whether or not noise barrier could be constructed within the proposed location – is there sufficient area for the barrier to be construction wholly within the Quarry Land? Until detailed design drawings are provided it is uncertain as to whether or not a noise barrier could be legally constructed in the proposed location.

Any extension of the proposed noise barrier along Gumden Lane and Island Point Road to mitigate road traffic noise is considered unacceptable because of the likely biodiversity, visual and amenity impacts. I acknowledge there is no current proposal to extend the noise barrier along Gumden Lane or Island Point Road, however due to my conclusions in relation to the road traffic noise impact I inspected the roadside vegetation along Gumden Lane and took photographs of the streetscape.

The impact of constructing a noise barrier along these roads would be severe due to the impact on the bush and rural landscape, vegetated streetscape, visual and amenity impacts on residences as illustrated in photographs 3 to 6. Many of the trees along Gumden Lane are hollow bearing trees and some of the vegetation provides habitat for threatened species, therefore a threatened species assessment of significance would need to be conducted. A noise barrier would not be able to be legally constructed without the authority of the land owners involved and this would appear very unlikely from the public submissions to Council.

Photographs pertaining to the above mentioned comments from Council's Environmental Health Manager can be viewed in **'Attachment D'**.

The subject land is identified in the 'South Coast Regional Strategy' as an Indicative Habitat Corridor, which has now been verified and will be included in Council's new LEP under the 'ecologically sensitive land' overlay. Development proposals in areas covered by this overlay are required to maximise the retention of native vegetation and rehabilitate disturbed areas.

Given that a S5A "*Significant effect on threatened species, populations or ecological communities, or their habitats"* assessment was not submitted to address the environmental considerations associated with locating of this barrier within an area indentified in Clause 21 of SLEP 1985, as being "*Land of Ecological Sensitivity"*, there is clearly inadequate assessment provided by the applicant to demonstrate the potential detrimental impact this barrier may have on the existing flora and fauna in this location. Further, in the absence of this barrier, the resultant truck noise emanating onto the adjoining tourist facility would most likely exceed the relevant DECCW criteria by failing to limit vehicular 'noise' below the maximum noise threshold relevant for this type of development.

An adequate level of noise assessment has not been undertaken in order to demonstrate that the resultant truck noise levels will not exceed the recommended DECCW criteria, particularly in the absence of the subject noise attenuation barrier. While it is acknowledged that any upgrading of Gumden Lane may reduce the nuisance of truck noise in the short term, the inability to maintain the integrity of these works will ultimately result in a significant and detrimental noise impact on those residing along the intended truck route associated with the operation of the proposed waste facility.

9.3 Flora and Fauna

After assessing the "Flora & Fauna assessment" in the applicant's EIS, Council's Threatened Species Officer's did not concur with the Environmental Consultant's (ELA's) conclusions of non-significance, pursuant to s5A of the NSW EP&A Act, and, as a result, the following details were requested in a letter to the applicant dated 29 September 2009.;

1. Limited surveys for fauna were conducted during the time of year when fauna species were unlikely to be active (i.e. July 2009). As result, the applicant was required to submit

an amended NSW EP&A Act s5A assessment based on the results of targeted fauna surveys conducted over an appropriate time span and suitable season;
2. The provision of alternative access details across Tomerong Creek whilst this crossing is upgraded, the causeway removed and the site remediated;
3. In this regard, details were also required of alternate access measures to the Quarry from Gumden Lane whilst the causeway is upgraded. Details of road drainage and remediation of Tomerong Creek were also to be provided with the alternate access and remediation details which were to be included in the amended impact assessment pursuant to s5A of the NSW EP&A Act;
4. Areas around the quarry pit to be impacted by the proposed waste facility were also required to be verified for the non-presence of *Melaleuca biconvex*
5. **Applicant's Response**

On 10 November 2009, the applicant provided the following responses to these issues which were subsequently referred to Council's Threatened Species Officer for review.

1. The limited fauna survey effort is considered to be sufficient to understand the potential impacts to threatened fauna in the area for a number of reasons:

(a) The area of proposed impact and survey was identified as being within the ring road around the current quarry pit (identified within flora and fauna report). Within this ring road very little vegetation or habitat for fauna exists, suggesting that extensive survey was not necessary to understand the implications for potential threatened fauna on the site.

(b) The study area was later expanded to include the leachate pond (as shown in flora and fauna report). This additional area again had very little vegetation or habitat for fauna and subsequent surveys confirmed this.

(c) Consent to clear this vegetation has already been granted under the quarry operations and the previous consents involved with the quarry. Since the submission of the report it is understood that much of this habitat has now been cleared.

(d) Time constraints imposed by the client meant that surveys in more appropriate seasons for fauna were not possible.

1. & 3. There has been no provision for an alternative creek crossing during the upgrade of the existing cause way as the proposed landfill facility will not commence operating until the bridge upgrade has been completed. During the upgrade of the causeway vehicles associated with the quarry will utilise Parnell Road in accordance with the approved development consent. It needs to be recognised that under the Quarry's development consent they have legal access to the site via Parnell Road.

Therefore the work associated with the proposed causeway upgrade will be restricted to the area assessed by the Flora and Fauna Assessment with no additional impacts or modifications necessary for alternative access during construction.

4. It is unclear as to what information Council is basing their comment on. The extent of Melaleuca biconvexa was determined by a review of previous survey of the property in 2005 in combination with three days of targeted searches for the species across all areas within the proposed impact area and the surrounding suitable habitat. The map within the flora and fauna report provides GPSed locations of all individuals and habitat recorded in proximity to the quarry. A copy of the figure is provided below. Any further survey is considered not to be necessary as the same results will be obtained as are presented within the flora and fauna report.

Response comments from Council's TSO

The above mentioned response from Watkinson & Apperley was referred to Council's TSO on 12 December 2009, who offered the following comments after reviewing this information:-

"This review relates to information submitted by the applicant (Watkinson Apperley Pty Ltd) with a covering letter dated 2 November 2009 and includes correspondence from the applicant's environmental consultant Eco Logical Australia (ELA) (Dr. David Bain)*.*

Council's previous comment re the timing of fauna surveys specifically related to hollow-bearing trees identified by ELA within their study area. ELA has not mentioned the hollow-bearing trees in the latest correspondence but stated their understanding is "that much of this habitat has now been cleared" under existing quarry operations consents.

The applicant should confirm if the hollow-bearing trees identified by ELA have been cleared and which consents have been used to clear this habitat. If the hollow-bearing trees have not been cleared then targeted surveys in appropriate seasons are required before Council can assess the impact of the proposal on threatened species, populations, ecological communities or their habitats as required under s5A of the NSW EP&A Act.

ELA also state that "time constraints imposed by the client meant that surveys in more appropriate seasons for fauna were not possible".

The client's time constraints mean that Council cannot assess the impact of the proposal on threatened species, populations, ecological communities or their habitats as required under s5A of the NSW EP&A Act.
(1. and 3.) *In relation to the query about access to the quarry during the construction of an alternate access over Tomerong Creek the applicant has stated that quarry traffic will utilise the Parnell Road access in accordance with the approved development consent.*

Should the current proposal be approved it should be a condition of consent that there be no vehicle access to the quarry via Gumden Lane until the Tomerong Creek access is up-graded.

(2.and 4.) *The applicant states they are "unclear as to what information Council is basing their comment on" in relation to the Council's prior knowledge of the site and the extent of Melaleuca biconvexa on the site.*

The applicant should be advised to talk to the quarry operators and ask about the extent of M.biconvexa habitat identified during the assessment of DA04/2121 (which was later withdrawn) and subsequently cleared without consent (the subject of a successful prosecution by DECC). Areas identified then appear to be beyond the area of M.biconvexa habitat shown on the figure within the ELA Flora & Fauna Assessment report.

Without accurate information in relation to the impact on threatened species and known threatened species locations throughout the site it is not possible for the Council to concur with the applicant's environmental consultant's conclusions pursuant to s5A of the NSW EP&A Act."

Comment

It is clear that the application is deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be accurately impacted in this locality as required under s5A of the NSW EP&A Act. The absence of such an assessment is a serious omission in the applicant's supporting information for both the proposed development and noise attenuation barrier.

9.4 Potential contamination of ground and surface waters

After initial assessment of the EIS by Council's Environmental Health Manager, a number of concerns were raised in respect to whether the proposed leachate management design will adequately protect the local ground and surface water systems from any adverse contamination. On 29th September 2009, a letter was sent to the applicant requesting the following information in respect to this matter

1. Further assessment of the vertical permeability of the existing geology (including the landfill area, below the landfill and the location of the leachate storage dam) was required to inform the groundwater impact assessment and the leachate management design in order to demonstrate that leachate can be managed on-site;
2. An assessment of predicted leachate chemistry to inform the groundwater risk assessment and leachate management design, that leachate can be managed on-site.
3. A groundwater risk assessment to assess impacts of groundwater migrating off site to characterise whether or not groundwater could be protected by a landfill liner and to characterise the type of liner that is required. The groundwater impact assessment was also requested to include an assessment of the details of how the applicant calculated leachate volumes.
4. As the leachate storage dam was stated in the EIS to be designed to a capacity of 4,300m3, further details were required in respect to what storm event and rate of groundwater infiltration into the landfill had this been designed to? (Note: Calculations were required in response to this requirement)
5. Design specifications of the leachate collection sump (including - the hydraulic pressure that the sump will be designed to withstand, size, capacity, what storm events as well as extended periods of wet weather that the sump will withstand). In addition, details of how the sump operation was to be managed in an emergency event such as power failure or a bushfire.
6. Assessment and design criteria which demonstrated that a landfill liner could be designed and installed to withstand quarry operations in order to prevent it cracking, fracture or rupture of the liner from landfill activities.

Applicant's response

1. ***Further assessment of the vertical permeability of the existing geology (including the landfill area, below the landfill and the location of the leachate storage dam) is required to inform the groundwater impact assessment and the leachate management design in order to demonstrate that leachate can be managed on the site.***

The application proposes to line the base of the landfill and any areas where seepage (including the leachate storage dam) is anticipated, in accordance with the benchmark techniques outlined within the NSW solid waste landfill guidance 1. As such, any potential seepage out of the landfill and the leachate storage dam will be controlled by the permeability of the liners. As such, it is not considered necessary to further characterise the vertical permeability of the existing geology.

2. ***An assessment of predicted leachate chemistry to inform the groundwater risk assessment and to inform the leachate management design to demonstrate that leachate can be managed on the site.***

At present the proposed leachate collection and treatment system is designed to be closed. As such, there will be no discharge from the landfill to surrounding surface water features. As such, it is not anticipated that a detailed understanding of the leachate chemistry is required.

To safeguard against any potential leakage through the benchmark technique designed liner, a groundwater monitoring network, groundwater water monitoring program and groundwater assessment program will be implemented in accordance with the landfill guidance benchmark techniques.

This will allow early detection of any potential contamination present in groundwater. Subject to this an appropriate contamination remediation plan will be developed which will initially include the completion of a quantitative groundwater risk assessment. If the impact assessment identifies a potential risk a remediation methodology will be developed accordingly. This proposed methodology is considered to be in accordance with methodology outlined within the landfill guidance.

3. ***A groundwater risk assessment to assess impacts of groundwater migrating off site to characterise whether or not groundwater could be protected by a landfill liner and to characterise the liner that is required. The groundwater impact assessment should include an assessment of the details of how the applicant calculated leachate volumes.***

A landfill liner of suitable design has been proposed to minimise the migration of leachate into the underlying groundwater system. This is considered to be suitable to protect the surrounding groundwater resource from a conceptual design perspective. As discussed in the previous question, to safeguard against any potential leakage through the benchmark technique designed liner, a groundwater monitoring network, groundwater water monitoring program and groundwater assessment program will be implemented in accordance with the landfill guidance benchmark techniques. This will allow early detection of any potential contamination present in groundwater. Subject to this an appropriate contamination remediation plan will be developed which will initially include the completion of a quantitative groundwater risk assessment. If the impact assessment identifies a potential risk a remediation methodology will be developed accordingly. This proposed methodology is considered to be in accordance with methodology outlined within the landfill guidance.

The leachate volumes have been estimated using the proposed methodology outlined within Section I (Specific Matters to Address for the Landfill Facility), Item 11 of the director generals comments. This is detailed in the conceptual landfill design report.

4. ***The leachate storage dam will be designed to a capacity of 4,300m3. What storm event and rate of groundwater infiltration into the landfill has this been designed to? Please provide calculations in response to this requirement.***

The leachate storage dam capacity has been developed in accordance with the methodology outlined within Section I (Specific Matters to Address for the Landfill Facility), Item 11 of the director generals comments. This methodology does not include the requirement to design the leachate dam to a given storm event. In addition, the leachate dam proposed will be covered and separated from any run-off associated with any given storm event on site.

The methodology presented in Section I stipulates that the following equation must be used:

Leachate storage = Leachate generated from rainfall infiltrating into the waste + groundwater inflow – the absorptive capacity of the waste – evaporation from the leachate storage dams – any other leachate disposal means (eg sewer).

A spreadsheet based model was developed based on this equation and is available for viewing at ERMs offices in Sydney on request.

Groundwater inflow was incorporated into the spreadsheet model at a conservatively high rate of 23m^3/day. This was calculated using the Darcy's Law which states that:

> *Discharge (Q) into the pit = hydraulic conductivity (K) x hydraulic gradient (i) x Area (A).*

The slug test data collected by J&K[1] was re-analysed to establish hydraulic conductivities for each well. The distance and groundwater elevation change between each well and the base of the pit was conservatively used to estimate hydraulic gradient (i). The area (A) was taken as the elevation of groundwater in each well above the base of the quarry multiplied by the length of the quarry where groundwater elevations are above the base of the quarry (estimated at 840 m). The worst case discharge into the landfill using this method was estimated at 23M^3/ day. This value was adopted in the spreadsheet model calculations.
(*[1]J&K, 2009; Hydrogeological and Geological Assessment for the Proposed Inert Landfill Facility at Tomerong Quarry, Off Parnell Rd, Tomerong, NSW*)

5. ***Design specifications of the leachate collection sump (including -the hydraulic pressure that the sump will be designed to withstand, size, capacity, what storm events as well as extended periods of wet weather that the sump will withstand). In addition, details of how the sump operation will be managed in an emergency event such as power failure or a bushfire.***

The aim of the current investigation was to provide details of the volumes of leachate generated and the best means of capturing and managing the leachate given the environmental setting at the site. This data will be used to develop a detailed design of the leachate sump and will be provided as part the detailed design stage of the development process. The design elements will include the provision for anticipated hydraulic pressures, sump capacities, and sump materials to prevent war and tear of the system. The leachate volumes determined from the current investigation will be used as a basis for designing the sump.

In terms of emergency events, the provision of two pumps is proposed in case one pump fails or requires maintenance. An access point will also be developed to service and replace pumps if required. Further to this, if both pumps are not operational, the rate of increase in leachate levels above the base of the landfill is likely to approximate a maximum 4 cm/per day[2]. This rate of saturation is likely to allow for some stoppage of pumps without the generation of unacceptable levels of leachate.

([2] This assumes that the leachate has a uniform depth across the base of the landfill liner)

6. ***Assessment and design criteria that demonstrates that a landfill liner can be designed and installed to withstand quarry operations in order to prevent it cracking, fracture or rupture of the liner from landfill activities***

The landfilling and quarrying activities will be completed in different areas of the pit, with blasting not being undertaken in the near vicinity of landfilling activities. This will serve to reduce any impacts of quarry blasting on the landfill liner integrity.

The main impacts of blasting are anticipated to include vibration impacts. Subsidence or fracturing beneath the landfill are not considered to be likely given that there will be no blasting in the immediate vicinity of the landfill and that there will be no lowering of the quarrying area below the base of the current landfill.

It is considered that the formation of cracks and rupturing of the liner due to vibration from blasting is unlikely, due to the general pliability of the clay liner and given the amount of vibration that will occur. However, further geotechnical investigation of the potential impacts will be undertaken as part of the detailed design phase of works and liner modifications incorporated if required.

Comment

In order to obtain a specialist and independent assessment on this issue, Council engaged a Hydrologeologist from Earth2Water Pty Ltd (E2W), to undertake a peer review of the EPL conditions and responses provided by the DECCW, the applicant and Council regarding the proposed inert waste landfill facility. A summary of the comments they provided are as follows:-
"E2W understands that the proponent (Tomerong Waste Pty Ltd) submitted the environmental impact statement and development application (DA09/2077) in 2009 and received responses (& licence conditions) from the DECCW in 2010.
This report by E2W follows from our previous technical review work in November 2009 to assist Council with assessing the adequacy of the proposed landfill design to protect local ground and surface waters at the site.

Scope of Work

E2W has completed the following scope of work to provide our professional opinion regarding groundwater conditions and landfill design concepts:

E2W conducted a review of the following information and reports:

- *Technical Review Report- Proposed Inert Waste Landfill Facility at Tomerong Quarry, Parnell Road, Tomerong, NSW. Earth2Water Pty Ltd, November 2009.*
- *DECCW Letter to Proponents DA- General Terms of Approval (Refusal)- Development Application DA09/2077 Proposed Tomerong Landfill-146 Parnell Road, Tomerong. DECCW 14 February 2010 (DOC10/3414).*

- *Proponents Response to DECCW Letter dated 14 February 2010- "Re:146 Parnell Rd Tomerong – Lot 4 DP 775296 – Inert Waste Landfill Facility Regional Planning Application- 70461. Watkins Apperley Pty Ltd, 9 April 2010.*
- *DECCW General Terms of Approval Issued- Development Application DA09/2077 Proposed Tomerong Landfill- 146 Parnell Road, Tomerong. DECCW 7 June 2010 (DOC10/23131).*
- *Hydrogeological and Geological Assessment for Proposed Inert Landfill Facility at Tomerong Quarry, off Parnell Road, Tomerong, NSW. Jeffery and Katauskas Pty Ltd, June 2009.*
- *Concept Landfill Design, Tomerong Waste Management Facility. ERM, August 2009.*

Conclusions and Recommendations

DECCW proposed environmental protection licence (EPL) conditions (i.e. floor and wall liner requirements on waste disposal cells and the sediment/leachate dams) provide sound protection and mitigation measures against potential pollution of the local water quality at the Tomerong site. The proposed landfill cell design and EPL conditions are now considered adequate to protect the local ground and surface water systems.

Based on the implementation of DECCW EPL conditions (landfill cell design and water monitoring) outlined in the June 2010 General Terms of Approval, E2W consider that the proposal would support the precautionary principle outlined in Ecological Sustainable Development (ESD) and the POEO Act (1997)."

Assessment comments from the NSW Office of Water (NOW)

After assessing the EIS and Groundwater Assessments by Environmental consultants Jeffery Katauskas and E2W, the NOW provided the following comments on 17 September 2010 requiring further groundwater modelling to determine whether the subject proposal was likely to "*intercept or use groundwater"* before the Authority were prepared to issue the necessary water license under Part 5 of the Water Act 1912.

"In reference to the proposed development of the Tomerong Quarry Waste Facility at Lot 4 DP 775296, the following comments are submitted with regard to the groundwater assessment and potential groundwater impacts.

The proposal is the redevelopment of the Parnell road quarry as a Non-Putrescible Waste Facility. An important consideration in such development and of relevance to the NSW Office of Water (NOW) is the potential impact on groundwater resources.

Groundwater Assessment for the project has included:

- *Jeffery & Katauskas Pty Ltd; Report to Tomerong Waste Pty Ltd, Hydro geological & Geological Assessment for Proposed Inert Landfill Facility at Tomerong Quarry off Parnell Rd, Tomerong NSW dated 19th June 2009*

- *Earth2Water Pty Ltd Technical Review – Proposed Inert Waste Landfill facility at Tomerong Quarry, Parnell Road, Tomerong, NSW., dated 23rd Nov 2009*

- *Earth2Water Pty Ltd Technical Review – Proposed Inert Waste Landfill facility at Tomerong Quarry, Parnell Road, Tomerong, NSW., letter dated 2nd July 2010 Ref: E2W-140 L001*

The potential impact on the local groundwater resources is not clearly described and poses a number of questions. The initial hydrogeologic report by Jeffery & Katauskas was limited in its' understanding of the groundwater interactions with the proposed quarry landfill. The drilling/investigation technique provided a general characterisation of the geology/hydrogeology, the report was "unaware of the quantity of water that flows into or out of the quarry excavation" (Ref 22725ZKRrpt page 32) and advised that "groundwater modelling will be required to determine potential seepage rates….. in and out of the quarry" (Ref 22725ZKRrpt page 46). The report continues on to recommend further work to investigate potential flows into and out of the quarry as well suggesting additional wells to investigate the quarry floor and further sampling to address anomolies in the results. The subsequent Earth2 Water technical review commented that the information provided is considered preliminary and does not establish conservative parameteres for the modelling of impacts and protection of the environment. NOW would concur with this comment.

No information has been provided to demonstrate/support an improved understanding of the groundwater interactions associated with the development.

It is noted that the development now proposes the use of cell liner system to limit the mixing of groundwater and landfill leachate and reduce the leachate generated at the site.

Details of the implications and justification of the liner are not included. The Jeffery Katauskas report mentions the possible need of lined cells, but refers the matter to a need for more investigation into the pit/groundwater interaction. This poses a number of questions, such as to limit mixing and reduce leachate from what level to what range of possible new levels? The monitoring system and hydrogeologic investigation has not considered the potential for vertical groundwater gradients (hence the recommended investigation bore in the floor of the pit) and has expressed a loose understanding of groundwater interactions with the pit. A sound model of the system has not been presented and consequently the impacts on the local groundwater resources still seem uncertain.

Further to this it is proposed in the recent E2W correspondence that the current groundwater monitoring network is regarded as an appropriate precautionary measure. It is commented that mixing below the pit will not be monitored and if groundwater leachate contamination is detected in the perimeter bores, what options/actions are available and would be undertaken to protect the environment.

Other questions with regard to the proposed development include:

- *What is the expected impact of the placement of an impermeable liner on the normal groundwater flow regime. A barrier to groundwater flow?*

- *What is the expected long term impact of the development, particularly with regard to the ongoing generation and management of potential leachate generation from the site. As well as consideration of the longer term collection of rainfall/infiltration within the cell liners.*

To address many of the issues discussed above it is recommended that the understanding of the interaction between the pit and the local groundwater be further developed and used to provide a model of the range of impacts which would be expected from the proposed development.

- *The groundwater modelling should include the following:*

- *Inclusion of relevant aquifer parameters to characterise the storage and recharge and throughflow of the local groundwater system.*

- *Potential interactions/movement between the pit and the natural groundwater system.*

- *Consideration of impacts during wet, median and dry years.*

- *Consideration of the impacts over time, including during development, at completion and beyond site management.*

- *The aquifer parameters need to be related to an overall picture of the groundwater hydrology commenting on the expected long term recharge, groundwater flow and discharge.*

- *Consideration of the potential long term impact on groundwater paths and groundwater levels and quality due to the placement of waste in the pit.*

- *Sensitivity analysis*

Overall, the assessment of the local groundwater system leaves a number of unresolved issues with regard to the potential impacts of the proposed development. The understanding of the interactions between the pit and local groundwater resources is either limited or inadequately discussed and the assessment of the likely environmental impact of the placement of Non Putrescible waste into the pit is difficult to determine.

Water Licensing

The NSW Office of Water is responsible for the regulation of access to surface and groundwater resources through either the Water Act 1912 (WA), or the Water Management Act 2000 (WMA).

If the proposal is likely to or proposes to intercept or use groundwater, the need for a water license under Part 5 of the Water Act 1912 must be addressed. All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in the proposal and an license obtained from the NOW prior to their installation."

Subsequent comments from Council's consulting Hydrogeologist

After subsequently reviewing NOW's assessment, E2W provided the following additional comments on 23 September 2010:-

"Further to our review letter dated 2 July 2010 and recent discussions with Bob Britten (NOW, ref: ERM2010/0829) and Council, we consider that further groundwater investigations are warranted to address the data uncertainty and sensitivity of the proposed landfill site. We note the requirement to prevent groundwater contamination (POEO Act), and the liner installation may not be a guaranteed engineering solution (although a reasonable solution for the site).

Additional monitoring data (seasonal groundwater level measurements, surface water monitoring) and modelling would reduce the uncertainty regarding water levels, groundwater-surface water interaction and better understanding of the physical barriers (landfill liner), and storage/leachate leakage issues at the site."

Comments from Council's Environmental Health Manager

After reviewing both the NOW's and E2W's determinations, Council's Environmental Health Manager, made the following comments in respect to this issue:-

"*In regard to groundwater analysis my initial referral comments are still relevant as the applicant has not carried out any investigations into groundwater and its quality and the quality of the receiving surface waters of Tomerong Creek. I believe this information should be obtained prior to determination of the DA to determine whether or not the potential risks to ground and surface waters are acceptable and if the site is suitable for a landfill.*

The interaction between groundwater and surface water needs to be investigated to determine the potential for impact on Tomerong Creek. The background water quality of ground and surface waters is essential so that future monitoring results, as required by the DGRs, can be compared to the background water quality and enable changes in water quality to be detected early and allow for appropriate management actions to be implemented to mitigate environmental harm. Considering that the existing Quarry operations have excavated below the aquifer and groundwaters are draining into the quarry, the interaction between groundwater and leachate also needs to be investigated for potential impact on Tomerong Creek. The DECCW Landfill Guidelines allow for some discharge of waters from the site therefore it is critical that potential impacts are investigated due to the sensitive location of the site being within the catchments of St Georges Basin and Jervis Bay.

Although advice from Earth2Water confirms that the applicant has selected a liner that is technically suitable to meet DECCW requirements for the landfill, I consider that groundwater and surface water investigations should have been provided to Council as previously requested. I consider this information critical in determining whether or not the site is suitable for a landfill due by informing the 79C assessment process.

I note that comments from Earth2Water state that groundwater investigations should be undertaken prior to commencement of works on-site. It is my opinion that Council needs this information prior to determination of the DA to ensure that a fully informed 79C assessment is carried out and to determine if the site is suitable."

Comment

Tomerong Creek flows through the subject site and eventually discharges into St Georges Basin which is a large, relatively deep wave dominated barrier estuary, with a mean depth of 6m and a maximum depth of 11m. It is connected to the ocean by a narrow and shallow channel, which allows minimal tidal exchange. The estuarine system drains a catchment area of approximately 348km^2 of which 80% is forested, with the surface area being approximately 37km^2.

In 2005 water quality modelling of sediment and nutrient inputs was undertaken with the assistance of Geoscience Australia. The outcomes of this study were published in the American Society Journal of Limnology and Oceanography in 2007.

In this regard, The Basin was classified as a shallow waterbody with a long 'flushing' time due to the narrow channel which connects it to the ocean. This results in it being much more susceptible to the adverse impacts of land based activity (e.g. excess nutrients and pollutants) due to the irregular 'flushing' frequency that occurs within this catchment compared to other waterbodies.

The St Georges Basin Water Quality model further identified the pressures that are increasingly being placed upon the natural estuarine system and the complex nutrient cycling processes within the estuary. Whilst nutrients are an integral part of the biochemical process within an estuarine system, and influence the diversity and abundance of organisms such as bacteria, plants and fish species, sustainable nutrient levels are vital.

The water quality model approach has allowed the estimation of annual nutrient and sediment loads entering St Georges Basin from the surrounding catchment, creeks, urban, rural and forested lands. Any increase in biomass available via sediment attachment to the estuarine system and increased catchment runoff will significantly increase the estuaries vulnerability to eutrophication.

There are a number of implications that surround increased biomass levels within an estuary, including, loss of habitat, such as sea grass meadows, which in turn decreases an estuaries biodiversity through altering food webs and decreasing the abundance of natural resources available to aquatic species. Eutrophication can eventually lead to mass mortality induced by anoxic water and the temporary presence of toxins released by phytoplankton.

Any overflow of the leachate dams, located above the quarry wall, has the potential to contaminate the water table flowing into Duck and Moona Moona creeks before discharging into the Jervis Bay Marine Park. It is due to the above environmental consequences that it is critical to adopt best practice catchment management procedures and stringently monitor land based activities within these catchments.

Jervis Bay Marine Park Authority (JBMPA)

In considering the potential effects of developments within and adjacent to Jervis Bay Marine Park, advice from the Marine Parks Authority (MPA) was sought. They were principally concerned in ensuring that proposed activity would not adversely affect the marine biodiversity and ecological values of the marine park. These values are expressed and regulated through the *Marine Parks Act 1997*, the *Marine Parks Regulation 2009*, the *Marine Parks (Zoning Plans) Regulation 1999* and the respective marine park Operational Plan.
The catchment on the northern portion of the property, immediately north of the landfill area, flows eastward into Duck and Moona Moona Creek before discharging into Jervis Bay. Both waterbodies are located within Jervis Bay Marine Park. The main issue for the Authority was the potential for any detrimental impact on the receiving waters of Jervis Bay due to contamination of surface water and/or ground water from the site.

Comment

In summary, the interaction between groundwater and surface water needs to be investigated to a greater extent to determine the potential for impact on Tomerong, Duck and Moona Moona Creeks. The background water quality of ground and surface waters is essential so that future monitoring results, as required by the DGRs, can be compared to the background water quality and enable any impact to be detected early, allowing for appropriate management actions to be implemented mitigating potential environmental harm. Considering that the existing quarry operations have excavated below the aquifer, and groundwater now appears to be draining into the quarry, there is further apparent on-site evidence necessitating the need for more detailed investigations to be undertaken in respect of this matter.

Comprehensive groundwater and surface water investigations should have been provided to Council, as previously requested, prior to determination of the DA in order to inform the 79C assessment process and sufficiently demonstrate that the proposed activity is suitable for the site. This conclusion is supported by the recent submission to Council from the NOW and the additional comments from E2W. Without this information it is difficult to determine if the site falls within an *'environmentally sensitive area'* as defined by Table 1 of the 'NSW Solid Waste Guidelines' which describes areas which are considered inappropriate for landfilling. Areas considered inappropriate for landfilling include "*an area overlying an aquifer which contains groundwater which has a high or very high vulnerability to pollution*".

Until a better understanding of the interaction between the pit and the local groundwater is developed and used to provide a model of the previously discussed range of impacts, anticipated from the proposed development, this is a further reason to recommend refusal of the subject waste facility.

9.5 Dust

As the entire length of Gumden Lane is bitumen sealed, extending approximately 560 metres into the subject site, there is no immediate concern of 'dust' causing a nuisance from trucks travelling along an unformed, gravel surface for those residents who live on this public road and along the remaining route to/from the Princes Highway. Further, DECCW has recommended the following GTA's in their requirements for an application of an EPL.

"*O3.1 All operations and activities occurring at the premises must be carried out in a manner that will minimise emissions of dust from the premises"*; and

"O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during and unloading"

If approved, the above mentioned road sealing and DECCW GTA's should adequately address this matter in terms of containing any adverse impacts from 'dust' dispersing on residents living in close proximity to the subject site.

9.6 Economic Impacts

The applicant has stated in the EIS that the main purpose of this proposal was to fill the void left by the current quarry operations. However, the proposed non-putrescible waste proposal is also likely to be a commercial venture for the proponents of this facility due to the following comments made in the EIS's concluding statement of the 'Executive Summary', which indicate:-

"A new Class 2 landfill at Tomerong would provide the opportunity for Councils within the SCG region (Southern Council Group Regions - Wingecarribee, Shellharbour, Wollongong, Kiama, Eurobodalla and Bega) *to divert their general solid waste (non-putrescible) from their existing putrescible landfills thereby increasing the life expectancy of those finite resources. Increasing the life expectancy of those putrescible landfills will reduce the urgency to locate, design and commission new putrescible waste landfills within the region."*

As the proposed facility is intended to accept non-putrescible waste from other local government areas (LGAs), within the Southern Councils Group, in order to make this facility commercially viable, the economic benefits from such a proposal need to be recognised in a regional context. As the proposal will only generate the need for "*4 – 5 additional employees over the quarry staff* " (s2.2.10 "*Employment"* of the EIS) in order to operate it, the impacts for local employment are limited.

There is also the potential for the subject proposal to have an adverse effect on the local tourist industry in terms of negatively impacting the water quality and sensitive environments within Jervis Bay and St Georges Basin, increases in truck movements along the proposed waste facility's access route, including the Princes Highway, and their detrimental impact on local tourist operators as a result of this proposal.

9.7 *Social impacts*

No social impact statement was included in the EIS. Consequently, the impact of this development proposal on "social cohesion", "sense of place" and the quality of social networks is somewhat uncertain. While the nature of the facility may be regarded as having limited direct social impacts, the potential for increased noise, loss of residential amenity, reduced property values and adverse economic impacts could lead to social consequences that have not been examined.

(10) *S79C(1)(c) - Suitability of the Site*

The subject site is zoned Rural 1(d) and the proposed use is defined as a "Hazardous and Offensive Industry" in accordance with SEPP 33. Clause 9 of SLEP 1985 identifies the proposal as a permissible use within this zone; however, Tomerong has not been identified as an appropriate place for a regional waste facility by Council in any strategic planning document.

There is potential for this development to conflict with an identified "Wildlife Corridor" on site in addition to contaminating the ground and surface waters which flow into Tomerong, Duck and Moona Moona Creeks in the event that there is a failure or breach of the on-site leachate management system. In this regard, a more detailed investigation of the groundwater is required to determine if the aquifer within the subject site has a high vulnerability to pollution. Without this information it is difficult to determine if the site falls within an *'environmentally sensitive area'* as defined by Table 1 of the 'NSW Solid Waste Guidelines' which describes areas which are considered inappropriate for landfilling. Areas considered inappropriate for landfilling include "*an area overlying an aquifer which contains groundwater which has a high or very high vulnerability to pollution*".

Council has proactively identified and secured land for future waste requirements, to the west of Nowra's main urban area; this action demonstrates that alternative sites are available within the Shoalhaven LGA which could be better suited for this type of proposal.

There has also been inadequate investigation of the potential flora and fauna impacts to conclude that the environmental impact of the required clearing is unacceptable.

As a result, it is now concluded that, based on the submitted detail, the subject site is unsuitable for the intended non-putrescible waste facility.

(11) *S79C(1)(d) – Any submissions made in accordance with the Act or the regulations*

The following is a summary of the **855** objections received in response to the public notification of this application as previously outlined in the "Community Consultation" section of this report. A number of these issues have been further elaborated on and previously discussed under the heading: - "*S79C(b) - Likely impact of that development on the natural and built environment and social and economic impacts in the locality".* (Note: The number in brackets refers to the number of objections that were received in response to each of these individual issues)

11.1 - Excessive increase in traffic from trucks associated with the existing Quarry and the proposed Waste Facility (532); and detrimental impact this intensification will have on the existing local road (160).

Based on the Council Traffic Unit's review of the application, traffic volume was not considered to be a fatal issue with this application, as reasonable consent conditions could be imposed in order to offset any adverse traffic impacts and to ensure that these volumes fall within the acceptable (RTA) guidelines. It is also important to note that Council's Traffic

Unit were not prepared to support the proposal without consent conditions being imposed requiring extensive road and maintenance works, in order to mitigate the potential adverse impacts of this proposal on Council's road network and those residents' living along Gumden Lane.

As there are no road maintenance projects for Gumden Lane currently listed in Council's Contribution Plan, the fundamental flaw in respect to requiring the developer to maintain Gumden Lane for the life of the waste facility, is that, Section 94 of the Environmental Planning & Assessment Act 1979 does not give Council the power to collect contributions for road maintenance with the exception of "extractive industries".

Absent of any offered alternative agreement for road maintenance, there is likely to be an unreasonable impact from this intensification on Council's road network and the future amenity of those residents' living on Gumden Lane.

11.2 - Potential of detrimental impact to Flora and Fauna (124)

After assessing the "Flora & Fauna assessment" in the applicant's EIS, Council's Threatened Species Officer's (TSO) did not concur with the environmental consultant's (EcoLogical Australia) conclusions of non-significance, pursuant to s5A of the NSW EP&A Act. As limited surveys for fauna were conducted during the time of year when fauna species were unlikely to be active (i.e. July 2009), the applicant was required to submit an amended NSW EP&A Act s5A assessment based on the results of targeted fauna surveys conducted over an appropriate time span and suitable season.

In response, the applicant's environmental consultant advised that:-

"time constraints imposed by the client meant that surveys in more appropriate seasons for fauna were not possible".

These time constraints meant that Council was unable to accurately assess the impact of the proposal on threatened species, populations, ecological communities or their habitats as required under s5A of the NSW EP&A Act.

It is clear that the application is deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be accurately impacted in this locality as required under s5A of the NSW EP&A Act. The absence of such an assessment is considered to be a significant omission in the applicant's supporting information for both the proposed development and noise attenuation barrier.

11.3 - Increased levels of noise which will impact on the existing health and amenity of those living in close proximity to the subject site (323)

Excessive operational noise was raised as a major concern, particularly with the proposed increase in truck volumes along Gumden Lane and the potential detrimental impact that this road traffic noise will have on the existing amenity of those living in close proximity to the site or residing along the remaining designated truck route.

Council's Traffic Unit determined from running the noise model that once total truck movements exceeded 300 truck movements per day, the DECCW noise criteria was exceeded along Gumden Lane. This consideration also assumed that a smooth hot mix road surface is laid along the full length of Gumden Lane in order to keep noise levels to an absolute minimum.

Based on the existing (coarse) two coat pavement surface, Council's Traffic Unit determined that, from running this noise model, a significantly lower number of truck movements would result in the DECCW criteria being exceeded, to the extent that the current proposal could not be accommodated without a significant upgrade to the pavement surface, due to the significant increase in truck numbers.

Given that a S5A "*Significant effect on threatened species, populations or ecological communities, or their habitats"* assessment was not submitted to address the environmental considerations associated with locating the proposed noise attenuation barrier, within an area indentified in Clause 21 of SLEP 1985 as being "*Land of Ecological Sensitivity"*, there is clearly inadequate assessment provided by the applicant to demonstrate the potential detrimental impact this barrier may have on the existing flora and fauna in this location. Further, in the absence of this barrier, the resultant truck noise emanating onto the adjoining tourist facility would no doubt exceed the relevant DECCW criteria by failing to limit vehicular 'noise' below the maximum noise threshold relevant for this type of development.

An adequate level of noise assessment has not been undertaken in order to demonstrate that the resultant truck noise levels will not exceed the recommended DECCW criteria, particularly in the absence of the subject noise attenuation barrier. While it is acknowledged that any upgrading of Gumden Lane may reduce the nuisance of truck noise in the short term, the inability for Council to require that the proponent maintain the integrity of these works, through S94 of the EP&A Act, and the absence of an offered alternative approach, will eventually result in a significant and detrimental noise impact on those residing along the intended truck route associated with the operation of the proposed waste facility.

11.4 - Potential for disposed toxic materials to leach and contaminate nearby waterways which flow into the Jervis Bay Marine Park and St. Georges Basin (547)

A significant number of concerns were raised in respect to whether the proposed leachate management design would adequately protect the local ground and surface water systems from any adverse contamination.

In summary, the interaction between groundwater and surface water needs to be investigated to a greater extent to adequately address the potential for impact on Tomerong, Duck and Moona Moona Creeks. The background water quality of ground and surface waters is essential so that future monitoring results, as required by the DGRs, can be compared to the background water quality and enable changes to be detected early in addition to implementing appropriate management actions which will facilitate mitigating any environmental harm.

Until a better understanding of the interaction between the pit and the local groundwater is developed and used to provide a model of the previously discussed range of impacts, anticipated from the proposed development, this is a further reason to recommend refusal of the subject waste facility.

11.5 - Devaluation of properties in close proximity to the subject site (152)

A number of concerns have been raised on the basis that the subject waste facility has the potential to negatively impact on the market values of properties located in close proximity to this site.

Property value is not, in itself, a planning consideration. Where property values are alleged to be affected negatively, some may argue they can be considered as a prospective economic effect of the development proposal. Generally it is the adverse amenity impacts that are given greater weight, not the unspecified ramifications in terms of property values.

There is no evidence to suggest that the proposed development will affect the market values of other properties in the area, particularly as the quarry is already in existence. However, if approved, the proper management, operation and maintenance of such a facility is considered to be an important factor in maintaining local amenity.

11.6 - The EIS did not demonstrate provision of all the Director General's Requirements (DGR's) (12)

After reviewing the submitted EIS, a number of deficiencies have been identified, these may be summarised as follows:-

Hazards and risk

The DGR's stipulate that the EIS must address "hazards" and "risk" including an assessment of dangerous goods storage and handling.

Section 3.11 of the EIS discusses the implications of SEPP 33 – Offensive and Hazardous Industries but only provides a list of hazardous substances currently stored and used at the existing quarry.

The EIS is not supported by any risk screening assessment or preliminary hazard analysis to enable an assessment or judgment to be made on the level of risk involved with the landfill proposal. It also fails to provide any assessment of dangerous good storage and handling associated with the subject proposal. In this regard, the submitted EIS did not adequately address this particular requirement of the DGR's for the subject proposal.

Ground conditions and contamination

The DGRs state another key issue that the EIS must address is ground conditions and contamination.

Although the EIS is supported by a Hydrogeological and Geological Assessment prepared by Environmental Investigation Services, it only provides an assessment of groundwater contamination and does not address the potential for surface, ground or soil to contaminate the existing watercourse (Tomerong Creek) within the development site.

The EIS therefore does not contain this particular requirement of the DGRs for the project.

Aboriginal cultural heritage

Another key issue raised by the DGRs is the need for the EIS to address Aboriginal heritage.

The EIS relies upon advice from the land owner and attempts to nullify the need for this requirement by justifying that, as the proposal only involves the filling of the existing quarry void, there is no need for further assessment in terms of Aboriginal cultural heritage impacts associated with the proposal.

As previously mentioned, Clause 13 of the JBREP states that:

*"If a proposal is within a coastal sand dune area, on a rocky headland or on a flat, **well-drained area along a major creekline**, the consent authority must consider the effect of the proposal on the heritage significance **of any Aboriginal object** known or reasonably likely to be located at the site."*

As the proposed bridge structure will involve crossing a major creekline (i.e. Tomerong Creek), the EIS should have included an Aboriginal cultural heritage assessment in respect to these works.

It is also noted that the DECCW specifically required that "*Guidelines for Aboriginal Heritage Cultural Assessment"* be included in any EIS prepared for this proposal. No such assessment has been provided within the EIS.

The EIS therefore does not adequately have regard to this requirement of the DGR's.

Public Consultation

The DGRs also required that during the course of the preparation of the EIS, consultation should be undertaken with local community groups, surrounding land owners and occupiers.

Section 4.2 of the EIS details the extent of consultation that was undertaken in relation to the preparation with this requirement; however, no mention is made of any consultation with "community groups, local land owners and occupiers".

Given the scale of the proposal and its potential impacts on the local community; it is imperative that the views of local landholders and other local stakeholders should have been considered in terms of the preparation of the EIS.

Analysis of alternative sites

Point 4 of the list of mandatory issues that were required to be addressed in the EIS stipulates the need to provide an analysis of other alternatives for this type of development.

In this regard, the EIS does not provide an analysis of other feasible alternative locations for the non-putrescible landfill as required by the DGRs for this project. No assessment has been provided that would justify whether this site was the most appropriate location for a landfill within this region.

11.7 - Detrimental impact on tourism (276)

Due to the numerous submissions received objecting to the detrimental impact that the subject waste facility would have on tourism in the local area, a presentation was given to the Shoalhaven Tourism Board on 23 August 2010 outlining the entirety of this proposal for their consideration. On 10 September 2010, Council were notified of the following reasons why the Board was strongly opposed to the subject waste facility:-

(i) The negative impacts on the Jervis Bay and St Georges Basin local environments;

(ii) Its impact on increases in truck movements along the Princes Highway and the access routes;

(iii) The impact on local tourist operators as a result of inappropriate developments;

(iv) The advent of the activity, with its minimal economic benefit, would have a significant and negative impact on the Shoalhaven being the leading regional tourism destination in NSW.

11.8 - Screening of non-putrescible material prior to on-site disposal (54)

It is difficult to determine how the proponent will undertake an effective screening process to ensure that every truck laden with waste is completely free of putrescibles and potentially contaminating material from being disposed of at this facility. In this

regard, the applicant has failed to provide or outline a suitable recovery regime which ensures that each load carried to the proposed facility will be 100% free of all waste considered inappropriate. Until appropriate screening procedures have been provided which satisfactorily address how all prohibited materials will be adequately removed from these loads; there remains serious doubt whether the landfill operators have the capacity to strictly comply with the intention of the DECCW's GTA (No.3 – "*Waste*").

11.9 - Concerns for children's, cyclists and pedestrian safety as a result of the increased frequency of truck movements to and from the site (125)

It is important for pedestrians and cyclists to consider that trucks and buses are substantially larger, heavier and more powerful than a standard vehicle which require a longer stopping distance than cars. Pedestrians and cyclists need to factor this information into their decision making when sharing or crossing the roads such as Gumden Lane.

If there are truck drivers who are not regarding the local residents of Gumden Lane when accessing/egressing the quarry site, by driving dangerously or breaking the law, Council have a program entitled "*Dob in a Hoon*" which was launched in 2007 and is aimed at reducing the problem of dangerous driving occurring on many of the local streets. The main objective of this program was to assure local residents to feel safe when using the public roads in their area.

As a result of these considerations, the safety of children, cyclists and pedestrians should not be compromised as long as some care and responsibility is taken by those who frequent Gumden Lane and the remaining route to the Princes Highway.

11.10 - Potential for airborne particles from the proposed Waste Facility to affect nearby residents and the surrounding environment (58)

As the entire length of Gumden Lane is bitumen sealed, which also extends approximately 560 metres into the subject site, there is no immediate concern of 'dust' causing a nuisance from trucks travelling along an unformed, gravel surface on those residents who live on this Lane and along the remaining route to/from the Princes Highway. Further, DECCW has recommended a number of GTA's in their requirements for an application of an EPL which appear to satisfactorily address this issue.

(12) *S79C(e) - the public interest*

In the wider regional context, the proposed facility intends to receive non-putrescible waste from other local government areas (LGAs), within the Southern Councils Group, in order to extend their own finite resources. While the nature of the facility may be regarded as facilitating these regional requirements, the potential for increased noise, loss of residential amenity, reduced property values and adverse economic impacts, on local residents and their environments, would be considered contrary to the broader "public interest" and may result in social consequences which have not been examined in thorough detail.

In this regard, it is envisaged that the subject proposal has the potential to conflict with the "public interest" in terms of having:-

- An adverse effect on the amenity of local residents, their environments and on tourism by negatively impacting on the water quality and ecological sensitivity of Jervis Bay and St Georges Basin; and

- An adverse noise impact associated with an increase in truck movements along the proposed waste facility's access route which includes Gumden Lane, the Island Point Road and the Princes Highway.

(13) Other Issues:

13.1 - Owner's Consent

At the public briefing in the Tomerong Hall on 9 August 2010, it was purported that the person who signed the development application form on behalf the land owner, In-Ja-Ghoondi Lands Incorporated, had no authority to do so. On 10 September 2010, the applicant provided the following information, including a stamped 'Deed of Grant', confirming that the person who signed the DA form (Mr. Darren McCloud) had the authority to do so on behalf of this corporation.

"We refer to the issue raised at the Joint Regional Planning Panel public meeting in relation to the In-Ja-Ghoondji Lands Inc ownership of the Lot 4 DP 775296 and in particular Mr Darren M^{c}Leod ability to act on their behalf.

The In-Ja-Ghoondji Lands Inc by Deed of Grant pursuant to s.191D of the Aboriginal Torres Strait Islander Commission Act 1989 acquired Lot 4 DP 775296 on 26th June 1998. We have attached a copy of the stamped Deed of Grant.

In relation to Mr Darren M^{c}Leod ability to act on behalf of the In-Ja-Ghoondji Lands Inc, it is clearly demonstrated on page 7 of the Land Grant Document (Attached) that Mr M^{c}Leod is the Executive Manager. This page of the document contains the common seal (Reg No.Y2754017) of the In-Ja-Ghoondji Lands Inc as well Mr M^{c}Leod signature."

A copy of the subject 'Deed of Grant' has been included as **'Attachment E '**.

13.2 - Flooding

After reviewing the applicant's EIS, Council's Natural Resources & Flooding Unit requested the following information prior to determining whether there were any issues associated with proposed landfill facility during flood inundation of the site:-

1. Reassessment of flood impacts for a range of flood events up to 20% AEP including the PMF;
2. Calculations of the provisional flood hazard categories in accordance with the requirements of the 'Flood Development Manual';
3. Revised Site Plans which detail the catchment, the bridge and waste disposal sites including the extent of flooding for a wide range of flood events;
4. An assessment of potential blockages and structural impacts that may occur as a result of inundation.

On 8 October 2009, the applicant (Watkinson Apperley) provided responses to these issues.

Council's Flood Unit provided the following comments in response to the applicant's submission.

"Flooding

The revised flood impact assessment addresses the flooding issues previously raised by Council's Natural Resources and Floodplain Unit. The additional information satisfies the requirements of the Floodplain Development manual.

It is noted that the bridge will be unsafe to cross when inundated and it is proposed to close the proposed landfill facility so as waste material is not received once the bridge becomes inundated. It is unclear what measures will be put in place to ensure safe and timely closure of the bridge in time of flood. If it is proposed to use signage and should the application be approved, the following condition of consent is suggested:

"The operator of the facility shall erect prominent signage to indicate when the bridge is closed, at times of floodwater inundation."

13.3 - Regional Impacts

The EIS concentrates on local impacts and in this respect does not satisfactorily address broader regional impacts. As the proposed facility is intending to receive non-putrescible waste from other local government areas (LGAs), within the Southern Councils Group, any impacts from such a proposal need to be recognised in a regional context. Issues such as effects on the regional waste disposal system, regional tourism as well as traffic routes that originate outside the Shoalhaven LGA should have all been given due consideration.

The proposed landfill is to be a regional facility, proposed to service the waste management needs of several LGAs within this region, as opposed to the development of multiple, smaller scale landfills for each individual Council area.

In this regard, development of a regional landfill in the Shoalhaven should have addressed the following specific issues:-

- Greater haulage costs and increased energy use;
- Environmental and social impacts of importing regional waste from another region;
- Decreased landfill life of the local resources in receiving non putrescibles landfill from other LGA's

(14) Referrals

14.1 – Internal

Building Surveyor: No objection to the proposal and no recommended conditions to be imposed on any issued development consent.

Development Engineer: No objection to the proposal subject to the imposition of recommended conditions on any issued development consent.

Manager Environmental Health: Raised concerns with the surface and groundwater modelling; the operational noise considerations and the potential contaminating effect of this proposal on the sensitive environs of the Jervis Bay Marine Park and St Georges Basin.

Threatened Species Officer: Raised concerns with the lack of detail contained in the applicant's "Flora and Fauna" assessment by not concurring with the environmental consultant's conclusions of non-significance, pursuant to s5A of the NSW EP&A Act.

Manager Traffic & Transport: No objection to the proposal subject to conditions being

imposed on any issued development consent requiring the upgrade and resurfacing of all the public and internal roads leading to/from the proposed landfill facility.

Natural Resources & Flooding Unit: No objection to the proposal subject to the imposition of recommended conditions on any issued development consent.

14.2 - ***External***

DECCW (EPA): No objection to the proposal subject to compliance with all the GTA's issued for the application of an EPL.

NSW Office of Water (NOW): Raised concerns about the inadequacy of the surface and groundwater modelling that need to be undertaken prior to the issue of a license in accordance with Part 5 of the Water Act 1912.

Dept. of Primary Industries (Minerals): No objection to the proposal subject to the imposition of recommended conditions (i.e. weed control measures) on any issued development consent.

RTA: No objection to the proposal subject to conditions being imposed on any issued development consent requiring the upgrade and resurfacing of all the public and internal roads leading to/from the proposed landfill facility, in line with the recommendations of Council's Traffic and Transport Manager.

NSW Police: At the time of writing this report, no response had been received from this Authority.

15. Conclusion

Even though the DECCW are now prepared to issue an Environmental Protection License for the proposed non - putrescible waste facility, there are fundamental concerns that the 'General Terms of Approval', associated with this concurrence, are articulated in a manner whereby the requirements of these conditions do not have to be satisfied until after a development consent is granted for this proposal (See **'Attachment B'**). Given the potential for this proposal to have an adverse environmental impact on natural attributes located on this site, such as Tomerong Creek and the SLEP identified "Land of Ecological Sensitivity", it is considered prudent to take a cautious approach to ensuring there will be no contaminants emanating into these areas. In this regard, it is relevant to adopt a precautionary approach in terms of not supporting this application until such time as the issues raised in Sections 7 and 9 of this report have been comprehensively addressed and properly resolved. Unless there is a greater degree of certainty and a demonstrated acceptable impact on these sensitive environments, as well for residents living in close proximity to the subject site, then the current application should not be supported.

Further, without this information it is difficult to determine if the site falls within an *'environmentally sensitive area'* as defined by Table 1 of the 'NSW Solid Waste Guidelines' which describes areas which are considered inappropriate for landfilling. Areas considered inappropriate for landfilling include "*an area overlying an aquifer which contains groundwater which has a high or very high vulnerability to pollution*". Without a more detailed investigation of the groundwater (preferential flow pathways, depth, surrounding soil type, flow regime, water quality and interaction between ground and surface waters) it is unknown if the aquifer within the subject site has a high vulnerability to pollution. It is certainly in the broader public interest to answer these questions, because potential impacts from landfilling operations

have the ability to cause substantial and lasting environmental harm off-site. These potential off-site impacts may also have wide ramifications for the community, such as the local tourism industry, on recreational activities and water quality.

Without examining these issues in greater detail, it is envisaged that over time the cumulative impacts associated with this type of facility have the potential to deteriorate the water quality in both Jervis Bay and St Georges Basin, lead to an unacceptable level of noise from the increased number of trucks travelling along the haulage route and significantly reduce the residential amenity of all those living in close proximity to the subject site.

After assessing the issues raised in over 850 objections and the 'Matters for Consideration', under Section 79C of the Environmental Planning and Assessment Act 1979, it is considered that Regional Application No RA09/1002 (DA09/2077) should be REFUSED for the reasons specified in the following "Recommendations".

16. Recommendations

Pursuant to Section 79C of the E P and A Act, 1979, it is recommended that the proposed non-putrescible waste facility, which is the subject of RA09/1002 (DA09/2077), be REFUSED for the following reasons:

1. The application is considered unacceptable pursuant to the provisions of S79C(1)(a)(i), (b) and (e) of the E P & A Act 1979 in that the proposed development does not comply with the requirements of SEPP 33 as there is insufficient information to determine whether the "hazardous" and "offensive" components of this development have the potential to pose a significant risk and adverse impact in this environmentally sensitive locality.

2. The application is considered unacceptable pursuant to the provisions of S79C(1)(a)(i), (b) and (e) of the E P & A Act1979 in that the proposed
development does not comply with Clauses 9(a) to (d), 11(a) and (b); or 13(1) of the Jervis Bay Regional Environmental Plan (JBREP).

3. The application is considered unacceptable pursuant to the provisions of S79C(1)(a)(i) of the E P & A Act 1979 in that the proposed development does not comply with 'Objectives' 1(b), 1(c)(i), 1(c)(iv) and 1(c)(v) of the 1(d) (Rural "D" (General Rural) Zone as detailed in Clause 9 of Shoalhaven Local Environmental Plan 1985 (SLEP 1985).

4. The application is considered unacceptable pursuant to the provisions of s.79C(1)(a)(i), (b) and (e) of the E P & A Act 1979 in that the proposal is likely to intercept or use groundwater and the need for a water license under Part 5 of the WA 1912 has not been addressed, in terms of further surface and groundwater modelling. Without this level of detail, there are concerns that the potential of leachate contaminating both the surface and groundwater tables in this location could pose a significant and adverse impact on the sensitive environs of St Georges Basin and the Jervis Bay Marine Park..

5. The application is considered unacceptable pursuant to the provisions of s.79C(1)(a)(i), (b) and (e) of the E P & A Act 1979 in that the application is deficient in terms of providing an adequate assessment on how threatened species, their populations, ecological communities and/or habitats will be impacted by the subject proposal in this locality, as required under s5A of the NSW E P& A Act, and the location of the intended noise attenuation barrier being proposed within an area indentified as "*Land of Ecological Sensitivity*" (Clause 21 of SLEP 1985).

6. The application is considered unacceptable pursuant to the provisions of S79C(1)(a)(i), (b) and (e) of the E P & A Act1979 in that the applicant has failed to submit any information detailing how the proponent expects to "*avoid or mitigate the threat from bushfire"* as a

consequence of the proposed land activity in accordance with Clause 28 (*Danger of Bushfires)* of SLEP 1985.

7. The application is considered unacceptable pursuant to the provisions of S79C(1)(b) and (e) of the E P & A Act 1979, in that, there will be an unacceptable impact from the intensification of additional truck movements on Gumden Lane and Council's road network given that there has not been any long term, on-going proposal for road maintenance put forward. In addition, without the necessary road maintenance, there will be a detrimental impact on the existing and future amenity of those residents' living in close proximity to the subject site, in terms of additional offensive 'noise' and an unreasonable increase in truck traffic.

8. The application is considered unacceptable pursuant to the provisions of S79C(1)(b) and (e) of the E P & A Act 1979, in that, appropriate details of screening procedures have not been provided which satisfactorily address how all prohibited materials will be adequately recovered from every truck laden with material.

9. The application is considered unacceptable pursuant to the provisions of S79C(1)(c) of the E P & A Act 1979 as the subject site is considered to be an unsuitable use of the subject land.

10. The application is considered unacceptable pursuant to the provisions of S79C(1)(e) of the E P & A Act 1979 as the proposed development is not considered to be in the "Public Interest".

Stephen McDiarmid
Senior Development Planner