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11 March 2011

Department of Planning
GPO Box 39
Sydney NSW 2001
Attention: Felicity Greenway

Dear Felicity

Teralba Sustainable Resource Centre, Response to Post Submissions Report DoP Comments

Further to the meeting between representatives of Department of Planning (DoP), CiviLake and AECOM on 23 February, 2011, this letter responds to further requests for information from the DoP in relation to aspects of the proposal for the Teralba Sustainable Resource Centre (the proposed Facility).

The additional issues raised by the DoP at the recent meeting are in relation to offsets for Ecologically Endangered Community (EEC) disturbance at the proposed entry intersection and mitigation measures for traffic noise and truck movements around school opening and closing hours. Each of these issues are discussed in the following sub-sections.

1.0 Offsets for EEC Disturbance for Entry Intersection

Based on the concept design included in the **Environmental Assessment** (EA), it was estimated that approximately 100m^2 of swamp EEC would be removed at the proposed access intersection which would form the main access to the site from The Weir Road from the south. It was noted in the *Submissions Report* to the EA that minor modifications to the design of the intersection (through the detailed design process) will now result in approximately 200m^2 in the south-eastern corner and 400m^2 in the south-western corner of degraded and weedy swamp EEC being permanently removed at the edge of The Weir Road. AECOM notes that these areas are subject to the final detailed design of the intersection which will attempt to minimise the extent of impact as far as possible. The modifications to the entry intersection design are required for road safety purposes (the intersection is required to extend slightly into the EEC area to provide required road clearances due to the presence of high voltage power poles on the southern side of the Weir Road which were installed by EnergyAustralia without consulting Council). The majority of the area to be disturbed will comprise roadside drainage swales which will be revegetated.

The *Submissions Report* noted that the revised area to be impacted was inspected on 13 January, 2011 by Ecotone who advised that the habitat for the EEC in the revised area of impact was in poor condition and very weedy, with few native species. Being at the edge of a major road, the habitat is constantly subject to edge effects including runoff, rubbish dumping and weed invasion from The Weir Road. A few common Melaleuca shrubs or trees and other native shrubs or herbs that make up the EEC would be removed by the proposed road intersection.

Ecotone noted in *the Submissions Report* that the small area of EEC to be disturbed was in very poor condition due to its roadside location and the area to be impacted was only a very small percentage of the EEC. A large area of the EEC in much better condition occurs within the south-western corner of the site in an area that would not be developed and would be managed and monitored as part of the Construction Environmental Management Plan (CEMP) / Operational Environmental Management Plan (OEMP). Ecotone further noted that extensive areas of the EEC occur in the vicinity of the subject site and in the general locality. Given these considerations, together with the location and poor conservation value of the small area of near roadside habitat to be removed, Ecotone concluded that the minor modifications to the design of the entry intersection would not alter the original conclusion in the 2010 *Ecological Impact Assessment* . The assessment concluded that the EEC would not be significantly impacted upon. No offsets were proposed due to the small area and poor condition of the EEC.

After considering the Submissions Report, DoP requested that appropriate offsets be proposed to cover the small area of EEC proposed to be removed for the intersection design.

Ecotone was subsequently engaged to assess suitable offsets.

Using the Department of Environment, Climate Change and Water's (DECCW's) biobanking calculator, Ecotone assessed that a total of 2 ecosystem credits would be required to offset the loss of up to 0.1ha of the degraded EEC in the south-western and south-eastern corners of the site.

The biobanking calculator indicated that the credits are required to be obtained in the Hunter/Central Rivers CMA [Wyong Sub-region] and in any one or more of the following vegetation types:

- Forest Red Gum - Rough-barked Apple open forest on poorly drained lowlands of the Central Coast, Sydney Basin (HU546)
- Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin (HU591)
- River Oak riparian woodland of the North Coast and northern Sydney Basin (HU598)
- Swamp Oak swamp forest fringing estuaries, Sydney Basin and South East Corner (HU635)

Ecotone advised that the on-site vegetation in both the south-east and south-west corners of the site satisfy the above requirements. The combined area of both areas is approximately 1.1ha, the bulk of which consists of remnant vegetation in a generally disturbed condition. The small areas that do not currently contain the relevant vegetation community could be allowed to regenerate using assisted natural regeneration. Ecotone calculated, using the biobank calculator, which some 13 ecosystem credits would be available from these areas, more than 6 times what the biobank calculator indicates is required.

The south-western offset area also contains 20 individuals of Angophora inopina. Civilake has already proposed to offset the loss of this species from the western boundary of the proposed recycling facility development by planting a number of trees in a dedicated offset area to the east of the proposed development site. The 20 existing trees in the offset area would further compensate for the loss of trees from the western boundary of the development site by providing an additional 113 species credits to the minimum 217 species credits that would be obtained from the proposed translocation site. Therefore a total of 330 species credits for Angophora inopina would be created which substantially exceeds the 217 species credits required to compensate for the loss of 13 individuals due to the proposal.

The south-west and south-east corners of the site are considered to be the most appropriate offset area to compensate for the removal of EEC due to the proposed intersection as:

- It represents the same swamp vegetation community as that being disturbed and is directly adjoining the area to be disturbed
- It is within the site and hence is readily able to be controlled and managed by CiviLake.

The Ecotone letter report attached includes a template for an Offsets Management Plan for implementing the management of the EEC offset area.

Prior to commencement of construction of the entry intersection and prior to disturbance of the EEC, CiviLake commit to:

- Preparing a detailed *Offsets Management Plan* (prepared by a suitably qualified consultant) and providing this to DECCW for approval.

In addition, CiviLake commit to:

- Establishing management zones, physical preparation of the offset areas and then carrying our ongoing monitoring and maintenance of the offset area in accordance with the approved *Offsets Management Plan.*
- Formally protecting the offset area by a suitable legal mechanism, likely to be a S88B-E Covenant on the title of the land.

Ecotone concluded that it is confident that the revised offsets strategy proposed will result in a ‘maintain or improve’ outcome with respect to biodiversity in general, and *the swamp EEC* in particular.

The intersection detailed design will be finalised over the coming weeks confirming the area of EEC requiring removal.

2.0 Traffic Noise Mitigations

DoP requested that the *Traffic Noise Impact Assessment* report, a copy of which was included in the *Submissions Report* be amended to included mitigations to reduce increases to traffic noise.

A revised *Traffic Noise Impact Assessment* report is attached to this letter, including recommendations for mitigations.

The report notes that the predicted increase in traffic noise due to the development is within the increase allowed under the DECCW ERCTN criteria, however recognises that there are still a number of practical mitigation measures which could be implemented to minimise future traffic noise increase.

One factor that can contribute to increased noise from trucks is poor road surface conditions where the surface has pot holes or sudden surface level changes brought about by inadequate road maintenance practice.

Council's asset management team regularly conduct a detailed survey of all roads in the Local Government Area (LGA) including the haulage route for the proposed Facility (currently approximately every 5 years). Where this survey assesses roads to be in poor condition, Council endeavours to repair them as soon as practicable. This routine maintenance is considered suitable to prevent major deterioration of the condition of The Weir Road.

In addition, noting that some potholing could potentially occur in between the routine surveys, the OEMP for the proposal will require CiviLake drivers to report any significant potholes they encounter along the route. Pothole locations will be reported by CiviLake to Lake Macquarie City Council (Council) for its action.

In considering the above factor it is important to note:

- The proponent CiviLake is a business unit of Council, and while fully owned by Council operates as a separate entity. That is, CiviLake is not associated with and has no control over the asset management part of Council which is responsible for road maintenance.
- The proposed Facility will contribute a relatively small percentage of the overall vehicle and truck volumes on the main haulage route. Hence traffic noise from vehicles associated with the Facility would only be responsible for a small percentage of the traffic noise along the haulage route, to quote Hunter Acoustics '*any increase in traffic noise levels as a result of the proposed development is not likely to be detectable by residents exposed to the traffic noise from the roadway*'. Similarly any damage to the road would only partially be caused by vehicles from the Facility. The proposed measures by CiviLake are considered to be appropriate given its likely contribution to traffic noise.

In addition to the above CiviLake commits to (as recommended in the Hunter Acoustics report):

- Providing regular site inductions to drivers and providing drivers with a copy of a Traffic Noise Management Plan that informs them of noise control requirements for operating on the site and on the haulage routes to and from the site.
- Regularly inspecting and assessing trucks under CiviLake's control for adequate maintenance conditions.
- Trucks that are found have inadequate mufflers, or that produce excess noise from loose or poorly secured body work or have noisy brakes will not to be received at the site and will not to be loaded for delivery from the site until the problems has been rectified.
- Instruct drivers to avoid the use of compression brakes within 400 metres of any residential area.

All of the above measures will be included in the Traffic Management Plan as part of the OEMP.

3.0 Truck Movements Around School Opening and Closing Hours

3.1 Response to DoP Comment

DoP requested that CiviLake consider further measures that could be implemented to reduce the risk from truck movements past Teralba and Barnsley Public Schools in response to the Hunter Regional Development Committee submission. This requested that a truck management plan be prepared which should include a restriction on vehicles travelling to and from the site immediately before and after school hours.

Both public schools have 40km school zones but do not have Crossing Supervisors nor flashing lights for the school zones.

Having carefully considered the alternatives, CiviLake is prepared to commit to fund flashing lights for the 40km school zones along the main Haulage Route (i.e. York Street for Teralba School and The Weir Road for Barnsley School).

Such flashing signs would serve to highlight to drivers the presence of the school zone around school opening and closing hours and would provide a safety benefit for all vehicles using the roads, not just the small percentage of vehicles travelling from or to the Facility.

Noting that the Facility will be open to the public and hence a number of trucks using the Facility will not be controlled by CiviLake, this option will also cover trucks travelling to the facility which are not within CiviLake's control.

In addition to the above, the construction and operational traffic management plans will include requirements for inductions for all drivers under CiviLake's control, regarding the presence of the schools and the need to be particularly vigilant when driving around school opening and closing hours. Other drivers will be given a leaflet telling them about the school zones.

3.2 Barnsley Public School P&C Submission

A submission was provided to CiviLake via the DoP on 9 March, from Kylie Duncan, the P & C Secretary of the Barnsley Public School.

In the submission the P&C requested that 'Flashing School Zones ' be installed on The Weir Rd. She also noted that in the P&C's opinion that the road is in need of repair and requested that road repairs be carried out by Council.

As per Section 3.1, CiviLake is offering to fund flashing lights for the school zones on the main haul route both at Barnsley and Teralba schools.

In relation to the condition of The Weir Road, CiviLake has consulted Council's asset management branch who have confirmed that The Weir Road between the weir and Northville Drive including outside Barnsley Public School is scheduled for resealing by Council in the 2012 / 2013 financial year which is prior to the proposed Facility commencing operations.

4.0 Concluding Remarks

CiviLake would again like to draw the DoP's attention to the substantial environmental and economic benefits that the Facility will provide to the Lake Macquarie Community by decreasing both the amount of virgin materials Council and the local private construction sector is required to purchase for its civil works and the volume of construction waste Council and the local construction industry disposes to landfill. Both virgin resource generation (i.e. mining / quarrying) and landfilling can have significant environmental, economic and social impacts which will be reduced through the operations of the proposed Facility.

CiviLake also notes that substantial commitments have been made through the EA and submissions process to minimise impacts to the environment and community as the result of the construction and operations of the Proposed Facility.

We trust the information in this letter adequately responds to DoP's request for information. Please contact Joshua Lasky or the undersigned should you have any questions regarding the above.

Yours faithfully

Catherine Brady
Associate Director, Environment

encl: 1. Ecotone Letter on EEC Around the Entry Intersection
2. Revised Hunter Acoustics Traffic Noise Report

ECOTONE ECOLOGICAL CONSULTANTS Pty Ltd

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- **Wildlife Monitoring & Management**
- **Wildlife Photography**

20 March 2011

Mr Joshua Lasky
AECOM
PO Box Q410 QVB Post Office
SYDNEY NSW 1230

Dear Josh,

Re: Offsetting and Management of Impacts on the EEC due to the proposed entry road intersection at The Weir Road for the Proposed Teralba Recycling Centre

Under revised plans for the proposed entry intersection at The Weir Road for the proposed Teralba Recycling Centre, approximately 600m^2 of highly degraded roadside swamp community would be removed or disturbed. I understand that the exact area to be disturbed is to be confirmed through detailed intersection design, but is unlikely to alter the results of the analysis presented below. This community technically qualifies as the endangered ecological community *Swamp Sclerophyll Forest on Coastal Floodplains* as listed on the NSW Threatened Species Conservation (TSC) Act (Ecotone Ecological Consultants 2010).

BioBanking Credit Calculator

In order to objectively determine the level of impact and the ecosystem credits required to offset the loss of EEC due to the proposed intersection, the DECCW BioBanking Credit Calculator (version 1.2) was used for a development site.

It should be noted that the calculator was used purely to calculate the ecosystem credits required for the loss of the EEC to be disturbed by the intersection and those that could be generated in an offset site. A formal biobanking assessment was not undertaken and the results are not intended to form the basis of an ultimate BioBanking Agreement.

A summary of the results for the proposed intersection from the BioBanking Credit Report (development site) are as follows:

Ecosystem Credits

Vegetation Type

Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin [HU591]
Area: 0.1ha
Credits Required: **2**
Red Flag: Yes [*this is explained below*]

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Credit Profile

1. Credits must be obtained in an area with a minimum surrounding vegetation cover of 30%.
2. The minimum area of contiguous vegetation (patch size, including low condition) in which credits must be obtained is 5 ha [*the minimum area of contiguous vegetation adjoining the proposed offset areas is vastly in excess of this*].
3. Credits must be obtained in the Hunter/Central Rivers CMA [Wyong Sub-region] and in any one or more of the following vegetation types:

- Forest Red Gum - Rough-barked Apple open forest on poorly drained lowlands of the Central Coast, Sydney Basin (HU546)
- Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin (HU591)
- River Oak riparian woodland of the North Coast and northern Sydney Basin (HU598)
- Swamp Oak swamp forest fringing estuaries, Sydney Basin and South East Corner (HU635)

The relevant vegetation type is marked as a red flag because it is an EEC. In a formal BioBanking Assessment, this would mean that a biobanking statement cannot be issued unless the Director General determines that the proposal is to be regarded as improving or maintaining biodiversity values under section 2.3 of the methodology (DECCW 2009). There are a number of further considerations that must be examined and options that are available to overcome red flags according to the methodology. Firstly, the vegetation type is not a highly cleared vegetation type (90% or more cleared in the relevant CMA area) according to the Biometric Vegetation Types Database. The red flag may also be waived if the contribution of the red flag area to regional biodiversity values is considered to be low. Finally, conservation-based mechanisms such as formal reservation and management of habitat containing the red flag community may also contribute to overcoming a red flag. Given the small area, poor quality and low regional importance of the habitat for the EEC to be cleared, the formal reservation and management of offsets within the site in this case are considered sufficient to overcome the red flag according to the methodology.

The required credits could be obtained from the on-site vegetation in both the south-east and south-west corners of the site and satisfy the above requirements. These areas are to be excluded from any development and managed as offset areas. It is intended to legally protect both areas with a section 88B covenant. The combined area of both areas is approximately 1.1ha, the bulk of which consists of remnant vegetation in a generally disturbed condition. The small areas that do not currently contain the relevant vegetation community could be allowed to regenerate using assisted natural regeneration.

In order to objectively ascertain the total ecosystem credits that could be obtained from these areas the DECCW BioBanking Credit Calculator (version 1.2) was used for a biobank site. A summary of the results for both areas from the BioBanking Credit Report (biobank site), assuming appropriate management to improve the current condition of the vegetation, are as follows:

<u>Ecosystem Credits</u>

Vegetation Type

Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin [HU591]

Area: 1.1ha

Ecosystem Credits Created: **13**

Credit Profile
CMA: Hunter/Central Rivers
CMA Sub-region: Wyong (94)
Surrounding vegetation cover class: 31-70%
Patch size, including low condition: >100ha [*this means that the area of contiguous natural vegetation including low condition vegetation adjoining the proposed offset sites (both on-site and on neighbouring lands) is greater than 100ha – a minimum 5ha of vegetation in this category is required according to the results based on assessment of a development site as given above*].

Species Credits
The property is capable of creating species credits for 1 species:

Charmhaven Apple – *Angophora inopina*
113 Credits (20 individuals)

Additional Management Actions
The following management actions are required at the property. These actions are in addition to the standard management actions (see below) required at the property:

Charmhaven Apple – *Angophora inopina* (20 individuals)
- Nutrient Control

Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin [HU591] (1.1ha)

- Cat and/or fox control
- Exclude miscellaneous feral species
- Feral and/or native herbivore control/ exclusion (eg rabbit, goats, deer etc)
- Maintain or reintroduce flow regimes (aquatic flora)

The standard management actions required for all biobank properties are:

- Management of grazing for conservation
- Weed control
- Management of fire for conservation
- Management of human disturbance
- Retention of regrowth and remnant native vegetation
- Replanting or supplementary planting where natural regeneration will not be sufficient
- Retention of dead timber
- Erosion control
- Retention of rocks

The south-western offset area also contains 20 individuals of *Angophora inopina*. It is already planned to offset the loss of this species from the western boundary of the proposed recycling facility development by planting a number of trees in a dedicated offset area to the east of the proposed development site. The 20 existing trees in the offset area would further compensate for the loss of trees from the development site by providing an additional 113 species credits to the minimum 217 species credits that would be obtained from the proposed translocation site. Therefore

a total of 330 species credits for *Angophora inopina* would be created which substantially exceeds the 217 species credits required to compensate for the loss of 13 individuals due to the proposal.

In my letter of 20 January 2011, I provided a framework for management of the recipient area for the translocated *Angophora inopina* trees. In addition to this, I now provide a framework for management of the two southern offset areas for conservation of the EEC and existing *Angophora inopina* trees. This is presented as **Appendix 1**, and draws on the required actions listed above and the DECCW documents *Guide to establishing a biobank site* and *Instructions for completing the template for management actions.* Both frameworks will be used as the basis for the preparation a detailed Offsets Management Plan for the Teralba Recycling Centre Project.

Given the above, I am confident that the revised offsets strategy proposed will result in a 'maintain or improve' outcome with respect to biodiversity.

Yours sincerely,

Stefan Rose
Senior Ecologist
Accredited BioBanking Assessor No. 0024

References

DECCW 2009. *BioBanking Assessment Methodology and Credit Calculator – Operational Manual.* Department of Environment, Climate Change and Water (NSW), Sydney.

Ecotone Ecological Consultants 2010. *Flora and Fauna Impact Assessment: Proposed Recycling Facility at 80 The Weir Road, Teralba*. Prepared for EDAW AECOM (on behalf of Lake Macquarie City Council) – June, 2010.

Appendix 1. Proposed Teralba Recycling Centre: Framework of Offsets Management Plan for Conservation of swamp EEC community

Background

The entry road intersection into the proposed recycling centre at Teralba will involve the loss of approximately 600m^2 of degraded habitat for the EEC *Swamp Sclerophyll Forest on Coastal Floodplains* along the southern boundary of the site with The Weir Road. The exact requirement for offsets to compensate for this loss of EEC habitat was determined objectively by using the DECCW biobank calculator (Version 1.2). A run was performed for both the development (impact) area two adjoining offset areas that would be legally protected and managed to improve the value of the habitat. The results were that 2 ecosystem credits for the EEC would be required to compensate for the loss of habitat from the development site. At the offset site, the successful management and restoration of 1.1ha of habitat for the same EEC would be capable of generating up to 13 ecosystem credits in the long term. The proposed offset area in the south-western corner of the property also incidentally contains 20 individuals of the threatened tree *Angophora inopina*, which would generate 113 species credits, thus further offsetting the loss of this species due to impacts of existing trees in the development site. Together with the minimum 217 species credits to be obtained from an offset area at the recipient site for translocation of some 90 individuals of *Angophora inopina*, the total credits generated for the species would total 330.

The following framework sets out the steps and actions to be included in a full Offsets Management Plan that would guide the process to achieve this outcome. Note that some of the management actions required are passive (e.g., retention of dead timber) and others are active (e.g., removal and control of weeds).

A detailed Offsets Management Plan for the Teralba Recycling Centre project based on this framework plus the framework already prepared for translocation of the *Angophora inopina* trees will be prepared prior to construction and disturbance of the EEC at the proposed intersection.

Outline of Items to be Addressed in the Plan

1. <u>Establishment of Management Zones</u>

– The two offset areas would be divided into different areas on the basis of current condition and the consequent management requirements and intensity of restoration work required, such as:

- Bare with lack of any native vegetation cover – assisted natural regeneration or replanting needed.
- Dense weed cover - weed removal and assisted natural regeneration or replanting as above.
- Moderate to light weed cover – weed control as required followed by regular monitoring.
- No weeds and good condition vegetation – regular monitoring only.

2. <u>Physical Preparation of Offset Sites</u>

– The offset areas would be protected from physical disturbances and intrusions by erection of sturdy perimeter fences with locked gates. The fences should be erected at the boundary between the offset areas and the developed area and along the road boundary, but may not be necessary between the offset areas and adjoining naturally vegetated areas on other properties to the east and west. Dividing the offset sites from areas of adjacent EEC habitat should be avoided where

possible. The fences should be robust and sufficient to prevent the entry of vehicles including trail bikes and persons seeking to dump rubbish, but should allow free passage of native fauna along lengths where adjoining natural vegetation habitat occurs. Appropriate signage would be installed on the gates and fences.

- Protocols for prevention of disease or pathogens (e.g. *Phytophthora cinnamomi*) introduction into the site would be established. These would include applying a Hazard Assessment at Critical Control Points (HACCP), e.g. disinfectant trough, sterilisation of tools, removal/treatment of soil on vehicles, any organic matter/soils brought to site, etc.).
- All cattle and other stock are to be removed and excluded from the offset areas.
- Where weeds occur at high density (patches of lantana, wild tobacco, dense kikuyu etc.) initial weed removal would be undertaken by mechanical methods using a slasher, backhoe and/ or bobcat within the appropriate management zone. Larger exotic trees would be cut down and the wood mulched (if appropriate). Any weed species with high potential for spread of seed or propagules would be removed from the site and disposed of appropriately. Removal and control of any Class 4 noxious weeds throughout all areas will be guided by the methods recommended in Control Plans for each species published by the local control authority (Lake Macquarie City Council).
- Regular follow-up treatment for weeds is likely to involve judicious and targeted spot-spraying with glyphosate or similar targeted herbicide.
- All remnant and regrowth native vegetation would be retained and protected from herbicides and weed control activities.
- Some logs and a small amount of fallen timber occur in parts of the offset areas. These would be left in place for fauna habitat and to stabilise the soil.
- The offset areas do not appear to have any natural rocks, but any that are encountered will be retained.
- Being on flat land, both offset sites are at low risk of erosion. However, efforts will be made to avoid creation of bare soil areas and such areas would be stabilised, mulched and/ or rapidly planted to minimise the risk of any erosion.
- Works would be carried out in such a manner that the natural hydrology of the site is not adversely affected.
- Reference photos would be taken from set photo points both before any work is commenced and at the completion of site preparation.
- A legal mechanism to secure protection of the offset sites in perpetuity (such as a section 88B covenant) will be negotiated between the proponent and DECCW.

3. <u>Management/ Maintenance Phase</u>

- Frequency of site maintenance visits during the 1st year are expected to be weekly for the 1st month, fortnightly for the 2nd month, then monthly for the rest of the first year – more frequent during extended dry periods. Expected work to be undertaken during each site visit would include weed control plus any watering, mulching, fertilising etc. required where plantings have been undertaken.
- Supplementary visits to the site would be undertaken during or immediately following any severe weather or environmental events (severe storm, extended drought, flood, fire etc.).
- A water tanker would be provided for hand watering of any plantings during longer dry periods, if necessary.
- An Integrated Pest Management Policy would be established that would address safe and appropriate application of any pest control measures as required.
- Regular assessment of the success of the process would be undertaken and recommendations for any changes to management made. This would be achieved by reviewing data from the monitoring and maintenance visits and recommending any adjustments as required.

- Any follow-up site remedial works would be carried out if and when required.
- In general, artificially imposed fire is not considered necessary in the swamp community. However, if it is deemed during a monitoring visit that imposition of a controlled ecological fire would be of benefit for the long-term ecological health of the community, this would be undertaken in a controlled manner during an appropriate season when conditions are suitable.
- Follow-up photos of sites would be taken at each site visit.
- Compliance would be assured by an independent third party on the basis of a review of monitoring data and periodic site inspections.

5. Monitoring Phase

- Once it is determined that the EEC community has achieved a suitable state of regeneration and health, a timetable for longer-term monitoring would be developed (a suggested duration of monitoring would be quarterly monitoring for up to 3 to 5 years from initial works and then once a year for perpetuity).
- Monitoring and any control of weeds would be undertaken as required.
- Any remedial works would be carried out as required.
- Compliance would be assured by an independent third party – each visit will check and report on the above, as per phase 4.

14 March 2011

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Our Ref 8272-201.3 - Traffic Noise Update

Attn Joshua Lasky

Traffic Noise Impact Assessment for Proposed Teralba Sustainable Resource Centre

Introduction

Civilake has submitted an Environmental Assessment (EA) for a proposed Sustainable Resource Centre to be located on The Weir Road at Teralba. The Department of Planning (DoP)has requested that further traffic noise impact assessment be conducted for residences on The Weir Road and Northville Drive, and at the Barnsley Public School. The Department has also sought clarification as to the existing noise levels at York Street Teralba.

In response to the DoP request a traffic noise impact assessment has been conducted for the locations requested by the DoP and also at 29 York Street. To perform the assessment traffic noise monitoring was conducted at four representative locations during the afternoon traffic peak on the 16th of November 2010 and during the morning traffic peak on the 17th of November 2010. The four locations are shown in Figures 1 and 2 below and represent the sensitive receivers that may experience changes to the traffic noise conditions as a result of the development of the proposed Sustainable Resource Centre.

Method of Assessment

The traffic noise assessment has been conducted by measuring the existing sound levels at the nominated locations and then using the measured sound levels to calibrate a CORTN noise model for each site. The calibrated model was then used to determine the likely change in traffic noise levels at each location that may result from changes in traffic volumes due to the operation of the proposed development. The traffic flows used in the assessment are those from the Traffic Impact Assessment Report prepared by AECOM dated 22nd of June 2010.

Traffic noise was measured using attended sound level loggers that were set up at the front boundary of each of the monitoring sites and the traffic noise levels were logged as 15 minute L_{Aeq} values, as recommended by the NSW DECCW Environmental Criteria for Road Traffic Noise (ECRTN). The recorded 15 min equivalent continuous sound levels were logarithmically combined to give a 1 hour L_{Aeq} ($L_{Aeq\ 1hr}$) value for each peak traffic period. The highest measured $L_{Aeq\ 1hr}$ level for the peak traffic flows was then used to compare with the traffic noise criteria in the ECRTN to determine the likely traffic noise impact at each assessment location.

The sound monitors (with the exception of 29 York Street) were set up under free field conditions at the boundary of the premises that were monitored. In order to be able to compare the measured levels with the traffic noise criteria from the ECRTN, appropriate distance attenuation has been subtracted from the measured levels to determine the noise level at the building facade and a facade correction factor has been added to the measured levels.

The ECTRN requires that assessment of the noise impact on the Barnsley Public School be conducted by assessing the noise levels from traffic within the class rooms against the sound levels for classrooms set out in Table 1 of AS NZS 2107-2000 Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors.

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Monitoring at Teralba

The selected monitoring points at Teralba were number 29 York Street and number 53 York Street.

Number 53 York Street is located between Short Street, which is used to access Rhonda Road via Railway Street, and Toronto Road and so receives noise from south bound traffic from the existing quarry on Rhonda Road. Number 29 York Street is exposed to a lesser level of heavy vehicle traffic since north bound traffic from the quarry departs via Rhonda Road to Wakefield Road then to Barnsley joining Northville Drive at Appletree Road. Our observations during the survey showed that a significant component (about 50%) of northbound heavy traffic on York Street does not travel via Short Street to Rhonda Road but continues north to Racecourse Road. The two sites were selected to establish if there was any difference in the noise impacts as a result of the split of the heavy vehicle traffic flow.

Based on the traffic report by AECOM the noise monitoring site at 29 York Street is considered representative of the residence at or near 180 The Weir Road as it has very similar traffic flows with similar percentage of heavy vehicles and similar traffic speeds.

Figure 1 Traffic Noise Monitoring Points at York Street Teralba

Noise Monitoring Locations

A number of the residences on the southern end of York Street are older and have small set backs from the road. The older residences in the area have a total distance from the edge of the carriageway to the dwelling facade of 6 meters. The noise monitor was placed 6 meters from the carriageway and is directly representative of the older dwellings in Teralba township proper. Dwellings in the northern part of York Street have larger setbacks ranging from 8 metres to 25 metres, therefore, the measured sound levels have been adjusted in accordance with the CORTN model for the sound attenuation due to the increased distance from the road.

Traffic Noise Monitoring at Barnsley

The selected monitoring points at Barnsley are a point on the boundary of the Barnsley Public School which had a direct line of sight from the logger location to the nearest classroom. The best available monitoring location was 60 meters from the nearest class room and 6 metres from the carriageway. The class room that is closest to the road is 45 meters from the edge of the carriageway and so distance adjustments in accordance with CORTN were applied to determine the sound level from traffic level at the worst affected classroom.

A second location for monitoring was chosen at number 39 Northville Drive a distance of 6 metres from the carriageway. Dwellings along Northville Drive have setbacks that give a distance between the carriageway and the facade of 10 metres and so distance attenuation adjustments have also been applied for these dwellings.

Figure 2 Traffic Noise Monitoring Points at Barnsley

- *Noise Monitoring Locations*

Traffic Noise Monitoring Results.

The measured traffic noise levels at each monitoring location are presented in the tables below.

Location	**Measured Average Hourly L_{Aeq} 7am - 9am**	**Measured Average Hourly L_{Aeq} 3pm - 5:30pm**	**Facade correction +2.5**	**Distance Correction**	**Existing Facade Noise Level PM**	**Average Peak Internal Sound Pressure Level**
	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$			dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$
29 York Street	62	64	N/A	-0.7 (15 metres)	63	N/A
53 York Street	64	66	66.5	+0	66.5	N/A
39 Northville Drive	66	66	68.5	-1.5 (10 metres)	67	N/A
Barnsley Public School	62	64	66.5	-7.1 (45 metres)	59.4	40 dB(A)

Predicted Changes to Existing Noise Levels as a Result of the Proposed Development.

Location	AM Peak Hourly Traffic 2009 L_{Aeq} 7am - 9am	AM Peak Hourly Traffic 2022 L_{Aeq} 2022 7am - 9am Without proposed Development	AM Peak Hourly Traffic 2022 L_{Aeq} 2022 With Proposed Development	Facade Noise Level for AM Peak Hourly Traffic Existing	Predicted Facade Noise Level for AM Peak Hourly Traffic Existing	Predicted Facade Noise Level for Peak Hourly Traffic in 2022 Without Proposed Development	Predicted Facade Noise Level for Peak Hourly Traffic in 2022 With Proposed Development	DECCW ECRTN Criteria	Predicted Change due to development
	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$	dB(A) $L_{eq\ 1hr}$
180 The Weir Road	135 14% HV	152 14%HV	174 22% HV	NM	61	62	63.6	60	+1.6
29 York Street	146 16% HV	164 13% HV	186 20% HV	63	62	62	64	60	+2.0 dB(A)
53 York Street	342 20% HV	385 20 % HV	408 23% HV	66.5	67.5	68.8	69.2	60	+0.4 dB(A)
39 Northville Drive	478 10% HV	551 10% HV	557 10% HV	67	68	69	69	60	+1 dB(A)
Barnsley Public School	181 8% HV	198 9% HV	218 11% HV	59.4	59	60	60.5	60	+1.5 dB(A)

Note Traffic volumes from Traffic Assessment (AECOM 2010)
HV = Heavy Vehicle Percentage - NM = Not Measured

Discussion

The predicted received traffic noise levels for the existing conditions are in good agreement with traffic noise levels measured at the various locations on the 16th and 17th of November 2010 and I am satisfied that the traffic noise modelling is representative of the facade noise levels at the various locations.

The predictions have been carried out only for the AM peak traffic because only the AM peak traffic flows were available in the Traffic Assessment (AECOM 2010) and although the PM peak traffic noise levels are slightly higher than the AM peaks most of the traffic associated with the development will occur in the mornings. There is no reason to believe that a larger increase in noise levels is likely in the PM peak than that predicted to occur in the AM peak.

The predicted noise levels for 2022 show increases in traffic noise due to the development of between 0.4 and 2.0 dB(A) which is within the increases allowed under the DECC ERCTN criteria and any increase in traffic noise levels as a result of the proposed development is not likely to be detectable by residents exposed to the traffic noise from the roadway.

Ongoing Traffic Noise Management and Mitigation

While the predicted increase in traffic noise due to the development is within the increase allowed under the DECC ERCTN criteria, there are still a number of mitigations measures that would be recommended to minimise future traffic noise increase.

Noise from heavy vehicles can be increased if there is deterioration in the road conditions or if the equipment used to transport the material is poorly maintained and/or inappropriately operated. Factors that contribute to excessive increases in road traffic noise at residential receivers include:-

- Poor road surface conditions where the surface has pot holes or sudden surface level changes brought about by inadequate road maintenance practices,
- Excessive noise from empty truck and trailer bodies due to poor maintenance of the body work and tail gate latches,

- Failure by operators to adequately secure tailgates and other truck equipment,
- Excess or inappropriate speed near residential areas,
- Inappropriate use of Jacobs (engine compression) brakes near residential areas,
- Poor maintenance of vehicle brakes leading to excessive brake noise,
- Poor maintenance vehicle mufflers and body work leading to excess engine noise and excess noise from bodywork,

In order to mitigate against noise increases from the above measures, the following recommendations are made with respect to noise control from heavy vehicles associated with the development:

a) Road surfaces on the haulage routes, within 400 metres of any residence, are to be inspected regularly and the outcomes of the inspections are to be reported to Council for action.

b) Road surface deterioration is to be corrected as soon as practical and until the work is completed drivers are to be advised to reduce speed and avoid rough or damaged surfaces where possible.

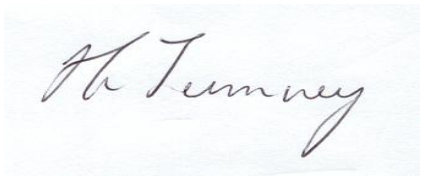
c) The operator of the site is to provide regular site inductions to drivers and provide drivers with a copy of a Traffic Noise Management Plan that informs them of noise control requirements for operating on the site and on the haulage routes to and from the site.

d) Trucks under the control of CiviLake are to be regularly inspected and assessed for adequate maintenance conditions. Trucks that are found have inadequate mufflers, or that produce excess noise from loose or poorly secured body work or have noisy brakes are not to be received at the site and are not to be loaded for delivery from the site until the problems has been rectified.

e) The use of compression brakes should be avoided within 400 metres of any residential area.

If you have any questions regarding the above information please do not hesitate to contact the author.

Yours Sincerely
Hunter Acoustics



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