



Office of
Environment
& Heritage

Your reference: 11/19448-1
Our reference: DOC12/32536; FIL11/11632
Contact: Steve Lewer, 4908 6814

Ms Diane Sarkies
Senior Planner Officer, Infrastructure Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2324

Dear Ms Sarkies

RE: REVIEW OF ENVIRONMENTAL IMPACT STATEMENT FOR ARTC HEXHAM RELIEF ROADS PROJECT, HEXHAM – SSI - 4992

Reference is made to the Department of Planning and Infrastructure letter received 8 August 2012 requesting comments on the accompanying 'Hexham Relief Roads Environmental Impact Statement' (including its appendices, dated August 2012 (the EIS)), including any recommended conditions of approval. OEH understands the EIS was on public exhibition from 8 August 2012 to 10 September 2012.

The Office of Environment and Heritage (OEH) has undertaken a review of the above document for adequacy and our detailed comments are provided in **Attachments A and B**. OEH acknowledges that in general the EIS is considered adequate, however, we are unable to offer our overall support to the proposal until an number of outstanding issues are appropriately addressed, namely:

- further quantification of the impacts on and management of the coastal floodplain, and
- specific details on likely conservation offsets that will be offered to compensate the loss of biodiversity and habitat on the subject site.

In summary, OEH still has a number of issues with some sections of the EIS and requires further detail and information in order to properly assess the proposal. These issues are discussed further in Attachment A. As such, OEH have been unable to develop draft conditions of approval, but will provide these (if necessary) once the above issues have been resolved.

If you require any further information regarding this matter please contact Steve Lewer, Regional Biodiversity Conservation Officer, on 4908 6814.

Yours sincerely

10 SEP 2012

RICHARD BATH
Head – Hunter Planning Unit
Conservation and Regulation, North East

Enclosures: Attachments A and B

ATTACHMENT A: OEH REVIEW – OUTSTANDING ISSUES

FLOODING AND IMPACTS ON COASTAL FLOODPLAINS

The following issues relate to further clarification of the impacts on and management of the coastal floodplain to which the subject site is located on.

GENERAL REVIEW

1. Cut and Fill

265,000 cubic metres of earthworks are proposed. Site material is classified as non-VENM (Virgin Excavated Natural Material) and has to be removed. Table 4.5c of the EIS estimates approximately 133,000 cubic metres of “Cut to Fill” operation would take place resulting in a level site. Various reports included as appendices to the EIS state how contaminated the soils are, particularly with acid sulphate soil (ASS), and so it is unclear how much of this fill will need to be imported and/or treated. Section 4.5 of the Traffic Impact Assessment by Parsons Brinkerhoff indicates that a maximum of 190 vehicles per day are expected to enter and exit the site – 120 of these heavy vehicles such as trucks and dog trailers. A potential borrow site has not been identified or discussed; therefore the nature of the potential fill material is unknown.

- Recommendation 1 – Update report to include all details of “cut-to-fill” operations on the site and fill borrow site, if required.

2. Construction staging

There are no details to indicate the staging of construction, particularly with regards to the cut-to-fill operations. The northern parts of the site are vital in the floodplain connection between the Hunter River and Hexham Swamp. The earthworks and works on the hydraulic controls need to be staged so there is no adverse impact on the connectivity between Hunter River and Hexham swamp floodplain, particularly in the north of the site. The staging of the works must also consider the ASS and erosion constraints of the site, as detailed below.

- Recommendation 2 – Update report to include details of construction staging.

HYDROLOGIC AND HYDRAULIC REVIEW

3. Flood Study

The BMT WBM report ‘Hexham Relief Roads – Flood Impact Assessment’ (Appendix B of the EIS) indicates the flood levels and flood extent over the site for a range of design flood events, from the 10% Annual Exceedance Probability (AEP) up to and including the Probable Maximum Flood (PMF). The report states, that the 10% AEP Hunter River design flood event is the threshold event whereby flood waters spill in to the Hexham Swamp over the New England Highway to the north of the site. Hexham Swamp is also filled from the southern end by flow through Ironbark Creek from the Hunter River South Arm. At the 1% AEP event, the Hexham Swamp floodplain becomes fully connected, with flood waters entering over the New England Highways and flowing back to the Hunter River between Hexham Bridge and Ironbark Creek.

A detailed flood study was carried out by Worley Parsons for the concurrent development application for the Train Support Facility, which was briefly referenced in the BMT-WBM report. The only additional information of benefit to this site that was taken from that report is that this Hexham Relief Roads (HRR) site is indicated as being located within high hazard flood storage area.

The lowest threshold design Hunter River flood event for impacts within the proposed development site is the 5% AEP design flood event. Impacts in the 2% AEP and 5% AEP design flood events are restricted to

the east and northern sections of the railway upgrade, whereas impacts in the 1% AEP design flood event are to the western and northern end of the works. There are minor impacts in the PMF event; however as flood waters are approximately four meters deep or greater over the whole site, these impacts are considered insignificant.

Climate change impacts were also assessed by BMT-WBM, with the following results reported:

- 10% increase rainfall intensity leads to increase in the 1% AEP flood levels of approximately 0.3 meters at the site
- 30% increase in rainfall intensity leading to an increase in the 1% AEP flood levels of 0.8m
- Sea level rise of 0.4 metres leads to an increase in 1% AEP flood level of 0.1 metre
- Sea level rise of 0.9 metres leads to an increase in the 1% AEP flood level 0.2 metres.

The report states that the impacts in the 2% and 5% AEP design flood events result in increased flood levels to the east of the site, where overland floodwaters become “trapped” behind the new rail embankments. However, no cross drainage structures were included in the assessment, despite the inclusion in the report of the statement “the provision of sufficient cross drainage structures in the affected locations would assist in mitigating the flood level increases”. The location of these flood level increases coincides with the location of existing industrial and residential development.

The proposed development also leads to an increase in the velocity in the 2% AEP design flood event around the north of the site by 300% - from 0.5m/s to 1.5m/s. It is unclear whether this impact is experienced solely on the site of the rail upgrade, or impacts properties with existing developments to the east of the existing rail lines as well.

Increasing the flood affectation on the existing developments adjacent to this site is considered unacceptable. The proposed design should be amended so that there are no resultant increases in flood affectation to adjoining properties as a result of the development to the west of the existing railway. In addition, the hydraulic modelling needs to be updated to include all proposed cross drainage structures through the rail embankments so that the real impact on the existing developments to the east of the site can be reported. The design needs to take into account the outlets for these cross drainage structures and where they will discharge in to, and include appropriate mitigation measures for water quality and quantity as required.

There is no evidence throughout any of the documents submitted as part of the EIS indicating what consultation has been adjoining land owners regarding these impacts.

There is no mention of management procedures for the site for floods greater than the 10% AEP. It is recognised that the risk of flooding during the life of this development may be low, the consequences are potentially high. The full range of consequences needs to be evaluated and incorporated in to a project risk assessment. These should be carried out in accordance with ‘AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines’. This is to include consideration of personnel working at the site, the use and storage of hazardous materials and other materials stored on site that could pollute floodwaters, for the full range of flood events up to and including the PMF.

All buildings or structures located below the flood planning level must be constructed of flood compatible materials. This includes the provision of residual current device (safety switch) on all electrical outlets and fixtures.

- Recommendation 3.1 – Update hydraulic assessment to include all proposed drainage structures in model. The assessment also needs to include the updated flooding impacts on adjoining properties.
- Recommendation 3.2 – Prepare a formal project risk management assessment in accordance with AS/NZS ISO 3100:2009 to include the consideration of the full range of flood events up to and including the PMF.

- Recommendation 3.2 – Ensure all buildings or structures located below the flood planning level are constructed of flood compatible materials. This includes the provision of residual current device (safety switch) on all electrical outlets and fixtures.

4. Drainage swale

Section 12.4.2 of EIS indicates that the drainage swale to the west of the rail lines is to be used during the construction phase as well as during the operational phase of the site. The size and/or capacity of swale has not been indicated anywhere. The outlet of the swale is unknown.

The reports that the swale may include measures to assist with sediment control, such as rock check dams, sumps excavated below the channel, flocculation of standing water and/or provision of access points to allow excavator or sucker trucks to remove trapped sediment. There is minimal difference in ground levels through the existing and proposed site, so it is not clear how the hydraulic grade line will enable this swale to function efficiently. The Groundwater Assessment report by Parsons Brinkerhoff states that groundwater levels are approximately between 0.5 to 1.7 metres below ground level, so it is unlikely that subsurface basins could be excavated to an adequate volume to be useful for water management. Careful consideration must be paid to the depth and location of the swale, so as to avoid permanent ponding of groundwater in it.

Figures 4.1(e) – (g) show an access track adjacent to the drainage swale, however, it is indicated as “proposed vehicular access” to Lot 312 DP 5874. If this track is to be used for maintenance vehicles such as sucker trucks, then the design of the road must take that in to account. This includes the depth of the excavations required for the road design so that it can cater for heavy vehicles, as well as provision for vehicle turning areas and access points to the swale.

Section 12.5 of the EIS states that the use and capacity of this drain to the west of the lines may need to account of runoff from both the proposed HRR development and the proposed Queensland Rail Train Support Facility (TSF) development to the west of this site. This needs to be indicated at this stage, as the capacity of the swale is highly restricted by the constraints on the sites, including ASS, high groundwater levels and very flat grades. The proposed access track immediately west of the drainage swale may constrain the inlet capacity from the TSF site as well. The different timings in construction between the two sites must also be taken in to account with the design and maintenance of the swale.

The Groundwater Assessment carried out by Parsons Brinkerhoff states that there is a high probability that the site is underlain by ASS. However due to the depth and extent of fill that is on the site, the possibility of ASS within the top 800mm of the soil is limited. The groundwater is relatively shallow throughout the site, and is generally saline to brackish. There is no consistent pattern to its depth and flow; however these were assumed to be primarily influenced by the tides. The report also states that there is an increased potential of high risk ASS towards the southern end of the site, in the direction of the Hexham Swamp. The local groundwater is shallow, and so there is a high potential that the shallow soils could be exposed during fluctuating water table levels. Any excavation activities near the Hexham swamp must ensure that the associated groundwater draw down does not desaturate acid sulphate soils within the Hexham Swamp itself. It is unclear if the design for the drainage swale and potential sediment traps have taken these issues in to account.

- Recommendation 4.1 – Detail of drainage swale to be provided, including but not limited to inlets, outlets, cross sections (including depth of excavations), capacity, maintenance access and whether it will cater for runoff from the adjacent Train Support Facility.
- Recommendation 4.2 – Detail of vehicle access track to the west of the swale to be provided, including design vehicle loading.

5. Stormwater Management

There are no details of stormwater management infrastructure as part of the development. This includes no information of potential “cross drainage” from the east to the west of the site.

Section 5.1 of the Water Quality Report completed by Parsons Brinkerhoff states the following:

“A pervious formation with open channels is the preferred drainage solution (UHVA, 2012a). This would maintain the preconstruction drainage behaviour and would involve deployment of 200mm graded igneous rock providing a large volume of intercedes. Drainage from the formation will be divided into three regions, southern, central and northern. The northern region would flow in to Mid-Site creek and the southern region in to Maitland Road creek, whilst the central portion would be divided by the ridgeline with water to the west flowing north and water to the east flowing south”.

It is unclear if this is referring to the drainage swale to the west of the site.

Reference is made to the report ‘Stormwater Management Plan – Hexham Train Support Facility’ by Worley Parsons, completed as part of the concurrent development application for the TSF for potential stormwater management issues.

The follow issues are raised in the report, and must be taken in to consideration for the HRR project, particularly with any channel and culvert designs.

“The flows are choked at a number of locations due to Structures. Flow rates (and subsequently overflow paths) are highly dependant on maintenance of culverts and channels;

The pipe culverts below the HWC watermain choke flows, causing overflows to discharge to the south of the site.

The drains around the coal stockpile are currently inundated, heavily vegetated and possibly full of sediment, reducing the amount of detention and conveyance”.

- Recommendation 5.1 – Details of stormwater management for the proposed development need to be provided, including, but not limited to the inlets, outlets, capacity, ownership and ongoing maintenance requirements. Constructability under the existing railway line needs to be included in these details.

6. Fluvial Geomorphology

Section 4.1 of the ‘Fluvial Geomorphology’ report by Parson Brinkerhoff states that one of the mitigation measures during construction as: *“Where practicable, stockpiled material would be placed away from water on stable, level ground above the 10% AEP flood level”*. The study does not indicate the 10% AEP flood extent, however Figure A-5 of the report by BMT-WBM “Hexham Relief Roads – Flood Impact Assessment” and Figures 12.2(a) – (d) were consulted for this analysis. The figures from this latter report indicate that almost the entire site is inundated in a 10% AEP event – except the artificially ‘filled’ areas (approximately between chainages 2100 and 500) through the centre of the site. Figure 4.1 of the EIS shows ‘proposed compound areas’, however, it is unclear if these are to include the stockpiling of material as mentioned above. The ‘proposed compound areas’ almost coincide with the existing small areas free of floodwater inundation in a 10% AEP flood event.

The Fluvial Geomorphology report also states that the site soils are susceptible to sheet and rill erosion particularly where they vegetation cover / top soils has been disturbed or removed. Section 4 of the EIS indicates that construction works are expected to take approximately 19 months – from March 2013 to October 2014. Therefore it is imperative that the stockpile and compound locations are located as far as possible out of the flood prone area. Accordingly, it needs to be ensured that all stockpile and compound

locations are to be located out of the 10% AEP flood extent, with appropriate erosion and sediment controls in place for the remainder of the work areas.

Section 6.1 of the same report and Section 19.4.1 of the EIS discusses the bunding of areas that will store or use hazardous materials, as well as for vehicle maintenance areas. There is no mention of management in floods greater than the 10% AEP design flood event.

Section 4.1 of the Fluvial Geomorphology report by Parson Brinkerhoff report also states that *"Erosion would be minimised as per Blue Book Guidelines"*. Due to the expanse of earthworks proposed, potential for ASS, the location of waterbodies and/or wetlands to the north, south and west of the site, the erosion management details must be detailed in staged construction management plans.

The same section of the report states:

"During the construction phase, diversion channels and new crossings / culverts would be designed according to standard codes of practice."

It is unclear what these diversion channels would be for, and where they would be located (i.e. are they intended to divert external flows around the site or divert internal flows to a different outlet?) It is unclear what 'Standard codes of practice' include for such designs.

Section 4.2 then goes on to state:

"During the operational phase, the existing and newly diverted channels that will be utilised post-construction will be sized appropriately and designed to ARTC standards."

It is unclear what these ARTC standards include and whether they are the most appropriate for this site. At a minimum, the AusRoads 'Waterway Design - a Guide to the Hydraulic Design of Bridges' and/or the Newcastle City Council DCP (which references Aus-Spec) should be used for any new crossings / culverts / diversion channels. Particular consideration must be paid to the ASS and high groundwater levels throughout the site. Runoff water should not be diverted to different receiving catchments. Runoff water should be adequately treated before it discharged from the site. Hydraulic capacity of existing culverts / crossings must be maintained as a minimum – the potential to expand the capacity should also be considered.

The report also notes the susceptibility of the waterways banks to failure, therefore the integrity of the banks of the watercourses within the project area must also be considered in the design of the culvert crossings and/or upgrades, particularly with the estimated number of truck movements. Their high potential for failure due to their composition and the high water table and the ingress and egress of tidal water flows could be exacerbated with potential climate change impacts on sea level rise and changes in rainfall patterns in the future.

Section 12.4.3 of the EIS states:

"All waterways, spillways and their outlets, would be constructed to be stable in at least the 10% AEP time of concentration storm event."

Section 3.2 of the Fluvial Geomorphology Assessment by Parson Brinkerhoff states:

"At present it is proposed that drainage channels be sized for a 20 year rainfall event (UHVA, 2012c). The flooding extent plan for the 5% AEP indicates that the Project Area is 90% free of catchment wide flooding. Anything above this would inundate the Project Area rendering any local drainage ineffective."

Consistency is required with the proposed channel design capacities. A greater channel capacity is recommended, due to the flat nature of the site.

Section 12.4.4 of the EIS states:

"The existing road network contains waterway crossings and no significant upgrades or new waterway crossings are proposed."

It then goes on to recommend that a low flow pipe and aggregate over geofabric – as per Standard drawing SD5-1 from the 'Blue Book' - should a crossing upgrade be required. Section 4.5 of the Traffic Impact Assessment by Parsons Brinkerhoff indicates that a maximum of 190 vehicles per day are expected to enter and exit the site – 120 of these heavy vehicles such as trucks and dog trailers. It is unclear if the capacity of the existing culverts has been assessed to be able to withstand these forces. A temporary waterway crossing, of the like mentioned, would not be supported by OEH.

- Recommendation 6.1 –Compound and stockpile locations are to be located completely outside of the 10% AEP flood extent. Prepare a formal project risk management assessment in accordance with AS/NZS ISO 3100:2009 to include the consideration of the full range of flood events up to and including the PMF.
- Recommendation 6.2 – Details of culvert / channel upgrades required including, but not limited to the inlets, outlets, hydraulic capacity and vehicle loading capacity.
- Recommendation 6.3 – Clarification required of design parameters for drainage channel capacities. The design parameters should be consistent and take into account the work presented in support of the development application.

THREATENED SPECIES

Although in general, OEH is of the opinion that the 'Ecological Assessment' (Appendix of the EIS) is adequate, the following matters need to be addressed before OEH can offer its potential support to the proposal:

- additional clarification of the fauna survey effort
- submission of the BBAM credit calculator files and documentation in accordance with Attachment B
- further details on the proposed offset package.

1. Fauna and flora surveys

In general, OEH acknowledges that the flora and fauna survey components for the proposal appear to be adequate. OEH supports the use of the Biobanking Assessment Methodology (BBAM) in assessing the impacts of the proposal and quantifying the habitats / vegetation types on the subject site.

In OEH's correspondence on 'adequacy of the Draft EIS' (dated 30 May 2012), we requested that further clarification of how the stratification units were determined and how survey design was applied to these would enable OEH to determine whether or not adequate survey effort had been undertaken for fauna. OEH acknowledges that details have been provided on the stratification, fauna habitats and specific features assessed, however, OEH suggested that the proponent provide a table that details sampling methods and survey effort per stratification unit. This appears to be absent and as such OEH is unable to definitively conclude whether or not the fauna survey effort is adequate. We note that some sampling techniques appear not to have been applied, such as small mammal trapping (e.g. use of Elliott / cage traps, pitfalls and/or hair sampling tubes etc...). This may be due to this specific guild of animals being unlikely present, however the EIS needs to specify why such methods are not utilised, if the survey deviates from the recommended effort stated in OEH guidelines (i.e. DEC 2004). As such OEH requests that the proponent provide table that details sampling methods and survey effort per stratification unit, including size of each unit, timing of surveys (not just the survey, but each specific component), prevailing

climatic conditions at time of survey, and how they meet the minimum requirements in OEH survey guidelines (DEC 2004). As previously requested (30 May 2012), a map overlaying the survey details over the stratification units / vegetation types would also be helpful. With respect to sampling techniques and methodologies utilised, OEH is unsure from the EA whether the minimum effort has been applied, and information as requested above will help determine this.

Section 2.5 'Field Survey' of the Ecological Assessment component of the EIS indicates that targeted surveys were undertaken from 15-22 June, 5-6 September, 4 November and 7-8 November 2011, inclusive, but do not distinguish between flora and fauna, nor do they indicate whether these dates apply to general baseline surveys or specific threatened species targeted surveys. Further information is required with respect to timing of surveys, which should be incorporated in the above recommended tabular format for justification of how the surveys undertaken meet OEH guidelines.

2. Targeted surveys – flora

OEH acknowledges that the EIS states that specific targeted flora searches have been undertaken, in particular those species which OEH requested further details on (in our correspondence dated 30 May 2012): Trailing Woodruff (*Asperula asthenes*), Noah's False Chickweed (*Lindernia alsinoides*), Small Water-ribbons (*Maundia triglochoides*), Tall Knot-weed (*Persicaria elatior*) and Horned Pondweed (*Zannichellia palustris*). However, specific details on these surveys are still lacking, particularly in relation to timing, location, species targeted and habitats searched. OEH notes that Section 2.5 Field Survey provide a number of dates for 'targeted surveys', but these do not indicate which predicted flora species were targeted and at what time. Similarly Appendix C 'Threatened species and populations of plants' details whether or not species were recorded on-site but does not link this information to specific targeted timed searches.

To determine the adequacy of such targeted flora surveys OEH requests the proponent provide details on location, survey methodology (e.g. observation technique, random meander, parallel belt transects etc...), timing, seasonal / climatic conditions, duration / effort and habitats searched be provided (as per OEH guidelines – DEC 2004). If surveys are inadequate, then OEH recommends appropriately timed targeted surveys in accordance with OEH guidelines (DEC 2004) be undertaken for all potential taxa.

3. Threatened species assessment

OEH acknowledges that the impact assessment on threatened species, ecological communities and their habitat has utilised the 'BioBanking Assessment Methodology' (BBAM) (DECC 2008) as defined under Section 127B of the *Threatened Species Conservation Act 1995* (TSC Act) and the 'BioBanking Assessment Methodology and Credit Calculator Operational Manual' (OEH 2011a). OEH supports this approach as this is consistent with how threatened species impacts can be formally assessed under other parts of the *Environmental Planning and Assessment Act 1979*. As the BBAM has been used OEH's 2011 "Interim policy on assessing and offsetting biodiversity impacts for Part 3A development" (the 'policy') can apply. The policy allows for modification to the BBAM under limited circumstances. As such, in accordance with this policy the EIS states that the development would require the retirement of 230 'ecosystem' credits, based on 9.1 ha of native vegetation. For OEH to assess whether or not this is correct and that the BBAM has been correctly applied, we require the proponent to submit the relevant credit calculator files and documentation as outlined in Attachment B. As such OEH requests that DP&I recommend this to the proponent.

Please Note: On 1 April 2012, the BioBanking Credit Calculator Version 2 has become the compulsory version of the tool to use for BioBanking assessments (see www.environment.nsw.gov.au/biobanking/calculator.htm for further details). The credit calculator is now web-based and no longer produces 'xml' files. Instead a copy of the assessment can be sent electronically to OEH by following the steps outlined in Attachment B. The requirement of submitting background files for OEH to use in checking the BioBanking assessment still stands and is also explained in the attachment.

Additionally, OEH recognises that any possible inadequacies the review of the survey methodology reveals, as outlined above, will also need to be incorporated into any revised assessment / BBAM.

4. Provision of offsets / compensatory habitat

OEH acknowledges the EIS states, that a conservation offset area will be provided, either through a variety of possible offset strategies (as outlined in Section 9.6 of the 'Ecological Assessment' of the EIS) ranging from on-site offsets to an offsite offset package (i.e. securing and improving existing habitat at another site or retiring appropriate biodiversity credits in accordance with the Biobanking Assessment Methodology). OEH supports the use of the BioBanking Assessment Methodology and the interim offset policy (OEH 2011b) in advising the quantum and type of offsets required, as outlined in Section 9.4 of the 'Ecological Assessment'.

This assessment appears to have been conducted on the native vegetation component of the development footprint (i.e. *Phragmites australis* and *Typha orientalis* coastal freshwater wetlands of the Sydney Basin, Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin, and Swamp Oak swamp forest fringing estuaries, Sydney Basin) and not the planted vegetation, disturbed grassland or exotic herbfield communities, which OEH acknowledges is predominantly exotic (though OEH notes that *Capillipedium spicigerum* which is recorded as an exotic in the EIS is in fact a native grass). OEH notes that the native vegetation to be cleared represents three endangered ecological communities as listed under the TSC Act, namely 'Swamp sclerophyll forest on coastal floodplains', 'Swamp Oak floodplain forests' and 'Freshwater wetlands on coastal floodplains'. All three of these communities on site are in varying condition and typically weed invaded.

The EIS states that the development would require the retirement of 230 'ecosystem' credits, based on 9.1 ha of native vegetation.

At this stage the EIS has not provided an indication to where the offset will be located nor provided any specific details on the biodiversity value(s) of such an offset. As identified in previous correspondence, OEH would have expected a more descriptive package in the revised EIS regarding a potential offset(s). This is not the case, and the dialogue of the EIS remains essentially the same as the draft version. OEH acknowledges ARTC commitment to developing an offset that adequately meets the quantum of the biodiversity offset requirement as calculated using the BBAM (as per Section 9.4), however, OEH requires an indication of the where the offset is to be located and what its inherent biodiversity values are, so that its adequacy can be assessed against that being lost. OEH would recommend that if a package is to be developed that it would be submitted and reviewed by OEH prior to any approvals given for the project.

OEH supports the concept of an offset package being provided, but requests its specific details regarding location and biodiversity values be provided so that OEH can assess that the BBAM and associated policy has been correctly applied, and that it represents a suitable offset to compensate the loss of habitat on the development site. OEH requests the following information on the proposed offset package in any future iteration of the EIS:

- submission credit calculator files as outlined in **Attachment B**
- all appropriate BioBanking assessment files (including all reports, associated maps, field sheets etc), and any relevant expert reports (if applicable). Attachment B is a checklist of information required when utilising the draft Biobanking Assessment Methodology and can be used as a guide to the relevant information required
- all appropriate GIS shape files (e.g. maps, plots and transects, assessment circles, species polygons)
- geo-referenced map(s) showing the locality of the offset lands, relevant vegetation zones and management areas (if applicable)
- how the offsets will be conserved and managed in perpetuity (*refer to next paragraph).

5. Conservation in perpetuity of offset lands

OEH again acknowledges that the EIS has indicated that an offset strategy will ensure any identified offsets will be secured under an appropriate conservation measure (as stated in the EIS in accordance with OEH preferred options – Section 9.8). As stated in previous correspondence OEH requires the proponent:

- to indicate up front the mechanism to be used to achieve conservation in perpetuity
- provide an outline of all appropriate management regimes (including other habitat enhancement or mitigation measures)
- indicate financial security with respect to ongoing management.

OEH expects this detail to be included in future reiterations of the EIS.

6. Management plan

Typically, OEH requires that an appropriate Management Plan (such as vegetation or habitat) be developed and implemented as a key amelioration measure, prior to any approvals. This will facilitate the assessment of the EIS and whether or not it adequately addresses impacts on threatened species, their habitat and EEC. OEH would expect that any such plan would be underpinned by an appropriate monitoring program and adaptive management regime to ensure ongoing success.

The management plan or outline thereof, should clearly document how the offset area, any retained vegetated areas or habitat features and proposed habitat management within the development footprint (e.g. buffer zones, habitat trees and nest boxes) will be managed and implemented with respect to long-term conservation and viability, including clear details on how they will be funded. The plan should cover, but not be limited to, the issues outlined in our 30 May 2012 correspondence.

OEH acknowledges that if the offset package utilises a biobanking agreement under the TSC Act, then a management plan will be part of that process.

References

DEC (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities*. Working Draft. November 2004. Department of Environment and Conservation (NSW). This document is available at: www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf.

DECC (2008) *BioBanking Assessment Methodology*. Department of Environment and Climate Change NSW.

OEH (2011a) *BioBanking Assessment Methodology and Credit Calculator Operational Manual*. Office of Environment and Heritage (NSW), Goulburn Street, Sydney. www.environment.nsw.gov.au/biobanking/calculator.htm

OEH (2011b) NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects. NSW Office of Environment and Heritage, Sydney, June 2011.

ABORIGINAL CULTURAL HERITAGE

1. Aboriginal cultural heritage assessment

OEH acknowledges the significance of the local environment to the local Aboriginal community and acknowledges that the Aboriginal cultural heritage assessment has been undertaken in accordance with OEH's Aboriginal cultural heritage assessment requirements. The results of the Aboriginal cultural heritage assessment for the project area are also acknowledged and OEH supports the specific recommendations provided to manage any Aboriginal cultural heritage values associated within the project area.

2. Management of Aboriginal cultural heritage

OEH notes that the proponent has committed to managing the potential impact from the project on Aboriginal cultural heritage values and OEH supports this commitment. It is noted that Section 14.9 of the EA identifies a range of management strategies developed in consultation with representatives of the local Aboriginal community in an effort to management the potential threat on Aboriginal objects as a result of the major project application. OEH has included recommended conditions of approval to address these matters.

3. Aboriginal Heritage Management Plan

OEH acknowledges and supports the proponent's commitment to develop and implement an Aboriginal Heritage Management Plan (AHMP) for the project area, to clearly articulate culturally appropriate management strategies in the event that Aboriginal objects are encountered and likely to be impacted by the proposal. OEH has included a recommended condition of approval to address this matter.

4. Conclusion

OEH has no additional concerns with the Aboriginal cultural heritage assessment for the project application and recommends that the following amended conditions of approval for Aboriginal cultural heritage are reflected in any approval conditions for the project.

RECOMMENDED AMENDED CONDITIONS OF APPROVAL FOR ABORIGINAL CULTURAL HERITAGE

1. The proponent must consult with and involve all the registered local Aboriginal representatives for the project, in the ongoing management of the Aboriginal cultural heritage values. Evidence of this consultation must be collated and provided to the consent authority upon request.
2. The proponent must develop an Aboriginal Heritage Management Plan (AHMP) for the project area to detail procedures for managing the Aboriginal cultural heritage values of the project area. The AHMP is to be implemented in consultation with the registered Aboriginal parties. The plan must also detail the involvement and responsibilities of the Aboriginal stakeholders in the implementation of all cultural heritage management actions; details of the responsibilities of all other stakeholders; details of all mitigation and management strategies (including further investigations); procedures for the identification and management of previously unrecorded sites (including human remains); details of an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged through the development process; details of the Aboriginal Cultural Heritage Education Program for all contractors and personnel associated with construction activities; and compliance procedures in the event that non-compliance with the AHMP is identified.
3. In the event that surface disturbance identifies a new Aboriginal object, all works must halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeological specialist and representatives of the local Aboriginal community must be contacted to determine the significance of the object(s). The site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by OEH) and the management outcome for the site included in the information provided to the AHIMS. The proponent will consult with representatives of the local Aboriginal community, and the archaeological specialist to develop and implement management strategies for all objects/sites.
4. All Aboriginal sites impacted by the project must have an Aboriginal Site Impact Recording (ASIR) form completed and be submitted to the AHIMS Registrar within three (3) months of completion of these works.

5. If human remains are located in the event that surface disturbance occurs, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Environment Line on 131 555 and representatives of the local Aboriginal community. No works are to continue until OEH provides written notification to the proponent.
6. An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the project. The program should be developed and implemented in collaboration with the local Aboriginal community.

ATTACHMENT B:

CHECKLIST OF INFORMATION REQUIRED WHEN UTILISING THE BIOBANKING ASSESSMENT METHODOLOGY & SUBMITTING THE BIOBANKING ASSESSMENT TO OFFICE OF ENVIRONMENT AND HERITAGE (OEH) USING THE BIOBANKING CREDIT CALCULATOR VERSION 2.0

The *Assessors' Guide to Using the BioBanking Credit Calculator v.2* has been finalised and it is now available for download from the Office of Environment and Heritage website. The guide provides information on the operation and use of the web-based BioBanking Credit Calculator v2.0.

To submit your assessment to OEH, open your assessment in *Edit* mode, navigate to the *Assessment details* page and select the *Submit* button in the top right hand corner. A *Submit the assessment for approval* box will appear (Figure 1), where you can confirm submission (*OK* button) or cancel submission (*Cancel* button). Once a case has been submitted to OEH, the status of the case will change in your *My work* tab from *Work in progress (WIP)* to *submitted*. Please note that you cannot make any edits to an assessment that has been submitted, although you will be able to view the assessment.

Submit the assessment for approval



Are you sure you want to submit this assessment for approval?



Figure 1: Menu box in the BioBanking Credit calculator v. 2 that enables an assessment to be submitted to OEH.

The following documentation must be submitted with your Environmental Impact Statement or Environmental Assessment report (in hard copy and soft copy):

- BioBanking Assessment Report including a list of dominant indigenous species for overstorey, mid-storey and ground cover for each vegetation type and, where required:
 - local benchmark data;
 - request for increase in gain of site value;
 - a description of the proposed development;
 - measures to avoid and mitigate the impacts of development;
 - an assessment of indirect impacts;
 - a statement of on-site measures;
 - a description of the application of the BioBanking Assessment Methodology, including details of and assumptions made in utilising the methodology, such as (but not limited to) placement of assessment circles, remnant value, connectivity and reasoning behind selection of vegetation types in the Biometric Vegetation Type database;
 - plot and transect values including a list of the indigenous plant species identified in each of the plots; and
 - a description of targeted threatened flora and fauna surveys, and any general baseline surveys (incl. vegetation specific surveys). These should be also be provided schematically.

and

Where required, the BioBanking Assessment Report should also include:

- expert reports;
 - an application for a determination on red flag areas;
 - more appropriate use of local data for vegetation types, benchmarks or threatened species;
 - environmental contributions accompanied by a BioBanking Agreement Credit Report (if applicable); and
 - an application for deferred retirement arrangements (if applicable).
- Copies of completed field data sheets, and updated with correct plant taxonomy in instances where field names have been used.
 - Maps (soft copy as A4 jpgs) of:

- offset site / BioBanking Agreement boundary or development footprint;
- vegetation zones;
- management zones;
- and where required:
 - existing waste;
 - existing erosion; and
 - existing structures (in waterways)
- Separate shape files should be supplied for all the maps mentioned above plus:
 - plots and transects;
 - assessment circles;
 - species polygons;
 - polygons for adjacent remnant area; and
 - the location or habitat area of sensitive species, and the management area related to that sensitive species (as this information cannot be displayed publicly).

All maps must include:

- a title (as per the names above);
- the site's name, location and lot/Deposited Plan (DP) numbers;
- the scale;
- the date it was prepared; and
- a legend.

Boundaries and zones must be confirmed on the site using a GPS. This information should be digitised onto an ortho-rectified aerial photo or SPOT-5 image. Maps must be easily readable and submitted to OEH as a Geographic Information System (GIS) file that is ESRI compatible. Shape files must use GDA94 datum. Name each shape file as: 'biobank site name_descriptor'. For example, 'Hill Farm_photo points' or 'Hill Farm_management zones'.

Photo points should be named A, B, C, D, E, F, G, etc. Photo points should be located in areas where change is expected, i.e. where replanting, natural regeneration, intensive weeding or other active management actions are to be carried out. As a rough guide, include at least one photo point in each management zone where active management actions will be undertaken. Boundaries and zones must be confirmed on the site using a GPS. This information should be digitised onto an ortho-rectified aerial photo or SPOT-5 image. Maps must be easily readable and submitted to OEH as a Geographic Information System (GIS) file that is ESRI compatible.

Shape files must use GDA94 datum. Name each shape file as: 'biobank/development site name_descriptor'. For example, 'Hill Farm_photo points' or 'Hill Farm_management zones'.

Additional requirements for offset sites that may be required (based on liaison with OEH):

- completed biobanking agreement management action template (provided in Word format), and
- Biodiversity Credits Pricing Spreadsheet.

Once the case has been received OEH will review the data entered, and any supporting documentation. For State Significant Development (SSD), State Significant Infrastructure and residual Part 3A (under the *Environmental Planning and Assessment Act 1979*) this review will take place during the assessment of the Environmental Impact Statement or Environmental Assessment report (for Part 3A matters).