Office of Environment & Heritage

NSW GOVERNMENT

Your reference: MP_07_0171
Our reference: DOC12/48493; FIL12/6124
Contact: Steve Lewer, 4908 6814

Ms Swati Sharma
A/Senior Planner Officer – Rail and Ports
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Mick Fallon

Dear Ms Sharma

RE: REVIEW OF ENVIRONMENTAL ASSESSMENT REPORT FOR QR NATIONAL TRAIN SUPPORT FACILITY, HEXHAM: PART 3A (MP 07_0171)

I refer to you letter dated 19 November 2012 requesting comments and recommended conditions of approval for the 'QR National - Hexham Train Support Facility Environmental Assessment' (the EA). The Office of Environment and Heritage (OEH) understands the EA was on public exhibition from 21 November to 21 December 2012.

OEH has undertaken a review of the EA (including its appendices, dated 16 November 2012) and has provided detailed comments in **Attachments A and B**. OEH acknowledges that in general the EA is considered adequate with respect to biodiversity / threatened species matters, however, it is still deficient with respect to Aboriginal cultural heritage and coastal floodplain issues. As such OEH are unable to offer overall support for the proposal until the following outstanding issues are appropriately addressed:

- elimination of adverse flooding impacts to exiting developments or agreement with adjoining affected landowners of these predicated impacts
- incomplete Aboriginal cultural heritage assessment process and community consultation
- additional clarification of the targeted flora survey effort.

Given the above, OEH has 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

21 DEC 2012

RICHARD BATH
Head – Hunter Planning Unit
Regional Operations

Enclosures: Attachments A and B

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ATTACHMENT A: OEH REVIEW – OUTSTANDING ISSUES

FLOODING AND IMPACTS ON COASTAL FLOODPLAINS

The EA for the Queensland Rail Hexham Train Support Facility has been reviewed, and the following comments are offered regarding the hydrologic and hydraulic components of the application. Please note that it has been assumed that the industrial subdivision to the west of the Train Support Facility will form part of a separate application at a later date.

INTRODUCTION

The proposed Train Support Facility was examined individually, as well as in conjunction with the proposed Hexham Relief Roads and the proposed F3 freeway upgrade between Heatherbrae and John Renshaw Drive. The proposed Train Support Facility includes the proposed access road from the Tarro interchange.

The proposed Train Support Facility will consist of a fill platform and a raised access road from the Tarro interchange to the north of the site. The Train Support Facility will consist of approximately 38 hectares of the land within the 255 hectares to be developed. The development will provide for the relocation of fuelling, provisioning and inspection activities that are currently located on Kooragang Island and at Carrington. It will involve both the storage and maintenance of locomotives.

The Australian Rail Track Corporation (ARTC) is concurrently progressing a development proposal for the Hexham Relief Roads, which is proposing the establishment of five new rail tracks immediately to the east of the Train Support Facility and to the west of the existing railway line.

The majority of the Train Support Facility (22 hectares) is located within the IN3 Heavy Industrial zone and 16 hectares located within the E2 Environmental Conservation zone. The access road is located entirely within the E2 zone. During the construction phase there will be a four hectare temporary compound located within the E2 zone.

There will be a slight increase in the percentage impervious over the site. This may result in slightly increased hydrological flows from the site, primarily directed towards the existing Swam Oak Forest to the north-west of the site. In this location, overflows would be experienced yearly, rather than the current interval of two years

The BMT WBM report 'Hexham Relief Roads – Flood Impact Assessment' indicates the flood levels and flood extent over the site for a range of design flood events, from the 10% AEP up to and including the 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.

The report states that typical inundation depths across the proposed rail development site for the 1% AEP event are between 1.5 to 3.0 metres and 3 to 4 metres along the access road alignment in the north of the site. Peak flood velocities are typically less than 0.5 m/s, but are locally much higher near to the New England Highway, where the initial spilling from the Hunter River occurs.

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.

GENERAL COMMENTS

1. Extent of works

The Executive Summary of the EA states that the development will consist of 10 new train lines and sidings parallel to the existing main railway line and associated connections to the existing railway line; buildings; bulk fuel storage area with capacity for up to 400,000 litres of diesel fuel; internal and external access roads; earthworks, and utility adjustments.

Section 1.4 of the Stormwater Management Plan by Worley Parsons states that the development will consist of up to seven parallel railway tracks about three kilometres in length; associated operational buildings, access roads in the north and the south and stormwater controls.

The Flood Study by BMT WBM does not state how many rail lines it has included in its assessment.

There is a significant difference in the width of fill platform required between seven and 10 rail lines. This could have an impact on the flooding impacts.

> **Recommendation 1 - Verification of the extent of the design / number of railway lines assumed in the flood study and stormwater management plan required. Update associated reports if required.**

HYDROLOGIC AND HYDRAULIC COMMENTS

2. Flood study

(i)
Reference – EA Appendix G – Flood Impact Assessment – August 2012 – BMT WBM.

Section 4.2.1 of 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.

Section 4.2.2 again states that "*The provision of local cross drainage structures for stormwater drainage should provide mitigation against these indicative modelled impacts*".

Modelling that was completed for the Hexham Relief Roads, immediately to the east of this site, indicated that there would be a residual flooding impact to some of these properties after the cross drainage structures were included in the hydraulic model.

Section 4.2.3 and 4.2.4 discuss flood impacts on local housing and businesses as a result of the proposed development. This includes properties to the north, east and west of the development site. Irrespective if the proposed development will impact on the property and/or floor levels of these existing developments, there will still be an adverse impact on the developments as a result of this development.

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. If this is not feasible then the proponent must obtain the agreement of the affected landholders and occupiers to any increases in the frequency and extent of flooding. 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.

Recommendation 2 – Update flood impact assessment to include all proposed drainage structures in model. The assessment also needs to include the updated flooding impacts on adjoining properties.

(ii)
Reference – EA Appendix L – Stormwater Management Plan – August 2012 – Worley Parsons
Reference – EA Appendix G – Flood Impact Assessment – August 2012 – BMT WBM.

Section 5.1.6 of the Stormwater Management Plan states that the culverts under the main access road are designed to ensure no increase in flooding in storm events less than the 1:20 year ARI (5% AEP). The Flood Impact Assessment– Section 4.1 that states the "flood relief culverts" along the access road were designed and located to improve conveyance for lower order events, such as the 5% AEP, however, the final design may be refined during the detail design stage.

Section 2.3 of the Flood Impact Assessment states that in the 5% AEP design flood event, approximately 4% of the Hunter River flows spill in to the Hexham Swamp at the peak of the flood. This is assumed to occur in the northern section of the site. This contribution increases to approximately 34% of the Hunter River peak flow in the 1% AEP design flood event. Therefore, it is imperative that the design of the access road does not result in a loss in waterway area of Purgatory Creek, or in the capacity of the adjacent floodplain. The importance of maintaining this floodplain connectivity is further emphasised with the information presented in Figure 7-1 of the Flood Impact Assessment.

Recommendation 3 – The design of the crossing of Purgatory Creek for the access road is not to reduce the existing waterway area or conveyance capacity of the floodplain in all design flood events.

(iii)
Section 4.2.5 of the Flood Impact Assessment recommends that critical infrastructure, such as electrical supply and equipment is elevated above the 1% AEP level and a suitable freeboard, typically 500mm (i.e. 4.2m AHD). This would make this infrastructure approximately 1.7 metres above the top level of the fill pad. All buildings and structures located below the flood planning level should be are constructed of flood compatible materials. A residual current device (safety switch) on all electrical outlets and fixtures could be used in lieu of placing this infrastructure at the flood planning level.

Section 9.4.2 of the EA (page 158) states that provisioning and refuelling areas would be covered and bunded, so that there is no runoff from these areas to the environment. Section 12.0 details the environmental risk analysis for the storage of up to 400,000 litres of diesel fuel on the site. It is not clear if the impact of flooding on the development has been taken in to account, particularly the potential impact on the buildings/structures that will be storing hazardous material such as the diesel fuel. This will influence the design and level of bunding required for the storage of hazardous materials as well as the buildings and structures that are proposed as part of the works.

Section 6 of the report Flood Impact Assessment assesses climate change impacts as a result of sea level rise and increases in rainfall intensity. The cumulative impacts of the Hexham Relief Roads project and upgrade of the Pacific Highway have been included in this assessment. It appears that none of these impacts have been taken into account for the concept design of the Train Support Facility. It is assumed that these developments will stay on this site in perpetuity, and so it needs to be ensured that the design life of the structures and infrastructure takes these constraints in to consideration.

Section 7.4 Flood Impact Assessment states that stock and equipment could be relocated above the predicted peak level of the oncoming flood due to the long flood warning time available. The proposed development will have floor levels of the buildings at the 2% AEP flood level, with flood compatible materials used below the flood planning level. If the 1% AEP flood level is used to determine the flood planning level, then this would be approximately 1.7 metres above the floor level of the buildings. The application needs to indicate where this "stock and equipment" could be relocated to on site so that it is not impacted by the floodwaters, particularly as there will be significant amounts of fuels and chemicals stored on the site, for floods greater than the 2% AEP design flood. As there is almost no land flood free above the 2% AEP flood level on the site, the potential location for "rolling stock" that will be relocated to higher ground should also be indicated at this stage. This rolling stock would have to be moved prior to the onset of flooding on the site as the floodwater of the Hunter River will cross the railway lines in the north of the site before flooding of the site itself occurs.

Recommendation 4 – 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 and climate change considerations.

Recommendation 5 – 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

(iv)

Section 7 Flood Impact Assessment details a Flood Emergency Response Management Strategy. The applicant will be responsible for the implementation and update of this plan as neither Council, State Emergency Services or OEH have any jurisdiction on private emergency management plans. Therefore, it is up to the applicant to inform the occupiers of the site of this Flood Emergency Response Management Strategy.

3. Drainage swale and basins

(i)
Reference – Appendix V - Development Plans – ENG-03891-012 – D

Cross drainage box culvert structures under the railway fill platform discharge via a headwall into the cess drain that runs along the western edge of the fill platform. The invert level of these box culverts appear at the same invert level of the cess drain. It is unclear how these cross drainage structures would maintain a conveyance capacity as they would be full of water when the cess drain is flowing.

Recommendation 6 - Verification of the design and capacity of the cross drainage structures under the railway fill platforms in relation to the design of the cess drain.

There is a culvert proposed immediately adjacent to the fuel storage area along the cess drain. The intent or concept design of this culvert is unclear.

Recommendation 7 - Verification of the design of the culvert adjacent to the fuel storage area required.

(ii)
Reference - Appendix L – Stormwater Management Plan – August 2012

Section 2.3 states that groundwater levels generally range from RL 3.0 mAHD at the edge of the existing coal stockpiles, down to RL 1.0 mAHD in the west, and RL 1.5 mAHD to the east. The invert levels of the proposed basins are at RL 0.6 mAHD and the invert of the cess drain at RL 1.0 mAHD. Therefore, it is

anticipated that the basins and the cess drain would be full of groundwater prior to receiving any stormwater runoff.

Section 5.1.4 state that the existing tailings dam in the south of the site is typically full of water during normal conditions. Therefore, it is difficult to assume that this will no be the case for the developed case when this area is used as Basin 3.

Section 5.2.3 states that due to the expected groundwater levels in the locations of the proposed basins, the basins ponds will either need to be lined or raised to be located above groundwater levels. Due to the very flat nature of the site, raising the level of the ponds is not considered as a feasible design alternative and the only option available will be to line the basins with an appropriate liner. The design will have to ensure the liner and associated infrastructure is not forced upwards out of the ground during drier periods when the cess drain and basins are empty, and the groundwater is close to the surface. If the basins are lined, then they would have limited, if any, capacity to act as water quality control ponds. The proposed water quality control strategy may need to be reviewed as a consequence of lining the ponds – this is listed below under 'Water Quality'.

Section 5.1.3 states: "*The cess drain is level longitudinally and will operate via hydraulic gradient. The drain will act as a vegetated swale to assist in pollutant removal. This swale will contain some standing water and will be vegetated with appropriate species (e.g. carex) further enhancing pollutant removal.*"

Any vegetation growth in the cess drain will adversely impact the conveyance capacity of the cess drain and the associated cross drainage structures as well as the hydraulic gradient of the water it is trying to drain. If the drain is to contain standing water, the design capacity of flood/stormwater flows is unclear. The ability of the cess drain to convey these flows without overflow requires clarification. Considering the existing nature of culverts on site (primarily blocked / choked with vegetation and/or sediment) then the capacity of the open swale to remain with its design capacity is questioned.

Section 5.1.4 states the following conditions for the existing hydrological regime within the site. The issues must be taken in to consideration for the Train Support Facility, particularly with the channel and culvert designs and maintenance regimes required post-construction.

> "*Runoff from the Coal Stockpile currently drains to perimeter drains along the northern and western boundary. 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 water main 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.*
>
> *The southern portion of the site (the old rail loop and adjacent areas to the west) drain to a tailings pond that is typically full of water during normal conditions. There is a channel system through the centre of this area that directs flows to the east, through the tailings dam and discharging to the south-east in a controlled manner. The system hasn't been maintained for some time and therefore there are signs of flows spilling over at several points along the southern boundary. Also at least one culvert and pipe crossing exist in this area, however this is overgrown with significant vegetation and the discharge point couldn't be located (filled over or overgrown). Water was observed draining slowly through this pipe.*"

The final comment of Section 5.2.4 states "*maintenance of stormwater treatment devices are critical to ensure performance in accordance with the requirements of the SWMP. QR National would implement maintenance plans prior to initiating operations on the site*". It is anticipated that there could be substantial sediment load arriving at these stormwater treatment devices each year, and due to the very flat nature of the site, the treatment efficiencies of these devices will decrease rapidly with sediment deposition and

vegetation growth in them. Therefore, the approximate frequency expected for maintenance requirements with regard to cleaning out the sediment and vegetation growth in the devices is required at this stage of the approval process.

Recommendation 8 – Verification of the design and capacity of the cess drain and basins in relation to groundwater levels through the site.

Recommendation 9 – Verification of the design and capacity of the cess drain required.

Recommendation 10 – Details of proposed stormwater maintenance management for the proposed development need to be provided.

(iii)
Reference - Appendix J – Assessment of Potential Groundwater Level Impacts– November 2012

Section 4 – page 14 states that Basin 3, located in the south west corner of the site, is in the location of an existing tailings dam. This basin would discharge to the wetlands to the south. This is formalising the existing hydraulic regime on this part of the site. However, it is unclear if Basin 3 will be excavated and re-formed or the existing tailings dam will be used for this purpose. If the latter is proposed, then further detail is required as to the dam's characteristics to verify its suitability for such a purpose. This includes consideration of the embankment material quality and its permeability.

Recommendation 11 – clarification off the intent to use the existing tailings dam in the south of the site as Basin 3, and any works required to upgrade it to an appropriate condition.

Section 5.1.5 indicates that there will be an increase in flows to the south and south-west of the site in a 10% AEP design flood event. This equates to an increase in runoff volume of approximately 25% above the existing runoff volumes. This is the smallest design rainfall event assessed, so the potential increase in more frequent storm events is unknown. Both of these sites discharge in to an endangered ecological community, so comment should be sought from appropriately qualified person as to the potential impacts increases of freshwater flows may have to these communities.

Recommendation 12 – comment sought from suitably qualified persons on the impacts of increased stormwater runoff volumes on the flora and fauna to the south of the site.

4. Water quality control

(i)
Reference – EA Appendix L – Stormwater Management Plan – August 2012 – Worley Parsons

As noted above in Section 3 (ii), if the stormwater management basins are lined, then they would have limited, if any, capacity to act as water quality control ponds. There has been no consideration of lining the cess drain. This may be required if it is constantly full of groundwater. The proposed water quality control strategy may need to be reviewed as a consequence.

Section 5.2.2 of the report states that the rainfall data from the University of Newcastle were used for the water quality simulations in MUSIC. The length of record is not indicated. Generally, an extended period that covers wet, dry and average rainfall years is required for water quality modelling.

Section 5.2.3 of the report states that access roads are to be provided with roadside swales that will provide treatment through flow attenuation and sedimentation of suspended sediments. This is not reflected on any of the Development Plans included in Appendix V of the EA.

Recommendation 13 – Clarification of the design water quality treatment capacity of the 3 basins if liners are to be used to mitigate groundwater levels. Review and update of the water quality control strategy accordingly.

Recommendation 14 – clarification off the rainfall data used for water quality modelling.

Recommendation 15 – clarification off the water quality control measures proposed for the access roads.

5 - Section 256 approval under the Water Management Act 2000.

The works proposed as part of this development include filling on a declared floodplain of the Hunter Valley Flood Mitigation Scheme. This work falls within the definition of a ***floodwork*** under the *Water Management Act 2000* and as such, approval under Section 256 is required.

Recommendation 16 – An application is made to obtain Section 256 approval under the *Water Management Act 2000.*

THREATENED SPECIES

Although in general, OEH is of the opinion that the 'Ecological Investigations' report (Appendix F of the EA, authored by Eco Logical Australia, November 2012) is adequate, the following matters needs to be addressed before OEH can offer its potential support to the proposal:

- additional clarification of the targeted flora survey effort

1. Fauna and flora – baseline surveys

OEH acknowledges that Appendix D of the 'Ecological Investigations' report (Consolidated survey effort for all flora and fauna studies and comparison to guidelines) provides tables which detail the sampling methods and survey effort per stratification unit / vegetation type. As requested these tables provide scale / size of each sampling unit, the timing of surveys and the methodologies utilised, compared against vegetation / habitat types. This has enabled OEH to assess whether or not the minimum survey effort has been applied and that all appropriate methodologies used to detect likely species have been undertaken in accordance with OEH's survey guidelines (DEC 2004; DECCW 2009). OEH is of the opinion that the baseline surveys for both flora and fauna are adequate and in accordance with OEH guidelines. OEH notes that same sampling techniques, such as small mammal trapping (e.g. Elliott and pit fall trapping, cage traps and hair sampling tubes) were not undertaken due to the disturbed nature of the site and lack of likely habitats for these suit of species. OEH concurs with this reasoning and acknowledges this deviation from our guidelines.

2. Targeted surveys

Flora

OEH acknowledges that the EA states (as per Sections 3.2.3 – Targeted Threatened Flora Surveys) that specific targeted flora searches have been undertaken, in particular those species which OEH requested further details (OEH letter dated 3 July 2012): Trailing Woodruff (*Asperula asthenes*), Noah's False Chickweed (*Lindernia alsinoides*) and Small Water-ribbons (*Maundia triglochinoides*). However, specific details on these surveys are still lacking in Section 3.2.3, particularly in relation to timing (i.e. dates that each species was surveyed) and location of habitats that were searched with respect to individual species. As such OEH is unable to determine whether or not targeted searches undertaken are appropriate for each potential species, and whether or not all likely habitats have been searched. OEH notes Appendix D of the Ecological Investigations report provides some details of the targeted flora surveys, in the form timing (though some dates are broad), vegetation types and methodologies utilised, but does not specifically link the threatened flora targeted to these.

OEH acknowledges that the EA has, in part, has relied on surveys undertaken by Parsons Brinkerhoff (in 2012) for an adjacent similar project (ARTC Hexham Relief Roads Project) which surveyed the QR National project site as well. However, in OEH's written response to DP&I on this project, similar concerns were raised in relation to the targeted flora surveys. OEH noted that the Parsons Brinkerhoff ecological report, in their description of the surveys undertaken, did not indicate which predicted flora species were targeted and at what specific time (i.e. the report just provided a series of dates and did not link species to these dates).

OEH acknowledges that in all likeliness, given the range of dates provided in the Parsons Brinkerhoff report and the Eco Logical Australia report, that adequate targeted surveying may have been done, however, given that OEH previously questioned the Parsons Brinkerhoff report and that it has, in part, been cited and used in the EA, OEH is of the opinion that the this EA also needs to clearly match survey dates to the each different species targeted. Under this scenario, both the dates cited in the Eco Logical Australia and Parsons Brinkerhoff reports should be used to justify survey adequacy. OEH needs to be certain that each potential threatened flora was sampled at the appropriate time, particularly cryptic taxa that requiring flowers and/or fruits to positively identify them. Similarly, OEH requests that the proponents indicate for each targeted species which specific habitats were searched, as this will enable OEH to assess whether all likely habitats were targeted.

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); similar to that provide for the general baseline flora and fauna surveys in Appendix D of the 'Ecological Investigations' report (i.e. Consolidated survey effort for all flora and fauna studies and comparison to guidelines). OEH requests that this information be provided for each likely species individually and should include schematic representations of the survey effort and habitats searched (i.e. individually mapped). If in the unlikely case that surveys are inadequate, then OEH recommends appropriately timed targeted surveys in accordance with OEH guidelines (DEC 2004) must be undertaken for all potential taxa not adequately targeted.

Fauna

OEH acknowledges that in general the baseline flora surveys (including timed call-back techniques) are generally the accepted methodologies utilised for sampling and detecting threatened fauna, and as such the methodologies detailed in Appendix D of the Ecological Investigations report are adequate. Specifically OEH notes that targeted survey appears to have been undertaken for the Green and Golden Bell Frog (including tadpole surveys and call playback). Appendix D indicates that these surveys are compliant with OEH survey guidelines for amphibians, and in particular for this species.

3. Threatened species assessment

OEH has completed a review of the biodiversity and threatened species sections (including the 'assessment of significance' components) of the EA (namely the Ecological Investigations report by EcoBiological), and generally concurs with their conclusions or are of the opinion that the proposed conservation offset utilising both the 'BioBanking Assessment Methodology' (BBAM) (DECC 2008) and OEH's 'offsetting principles' (as outlined on the website: *Principles for the use of biodiversity offsets in NSW* www.environment.nsw.gov.au/biocertification/offsets.htm) will likely provide commensurate or better compensatory habitat for the proposal, with respect to those threatened species and ecological communities to be impacted upon. The EA indicates that the following threatened species and endangered ecological communities (EEC) were recorded on site (as per Table 4): Swamp Oak Floodplain Forest EEC, Freshwater Wetland EEC and Coastal Saltmarsh EEC; Australasian Bittern, Eastern Bent-wing Bat, Eastern False Pipistrelle, Eastern Freetail Bat, Eastern Grass Owl, Greater Broad-nosed Bat, Grey-headed Flying-fox, Large-footed Myotis, Little Bent-wing Bat, Little Eagle, Magpie Goose and Painted Snipe; with a number of other highly mobile bird species and microchiropteran bats considered to potentially utilise the subject base on the presence of habitat. In general, the suite of threatened species recorded are considered high-mobile or were spot records / observations where such species were either recorded as

'flying over' and/or utilising the subject site for foraging. None of the species recorded on the subject site were observed as utilising the site as breeding and/or significant roosting habitat. In general, the EA concludes that the subject site provides foraging habitat (often limited) for these species. OEH concurs with the conclusions of the 'assessments of significance' that a significant impact on these species (including those with potential to occur) is unlikely. With respect to the EEC recorded, OEH notes that the BBAM was utilised to assess the impacts and appropriate offsets provided, as described below.

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' (OEH 2011b, the 'offset policy') can apply. The policy allows for modification to the BBAM under limited circumstances.

OEH notes that the Ecological Investigations report indicates that the development footprint will result in the clearing of 10.64 hectares of native vegetation / habitat, as well as non-native disturbed vegetation which is not considered habitat. As such, OEH understands that a BBAM has been undertaken which indicates development would require the retirement of 261 'ecosystem' credits. Section 6.3.2 and Table 10 provides details of the biodiversity credits required. OEH understands that the proponent will not necessarily retire the aforementioned credits from a registered BioBanking Agreement site, but has opted to conserve and manage the two proposed offset areas under a conservation agreement (under the *National Parks and Wildlife Act 1974*). OEH supports the use of a conservation agreement for securing the biodiversity offset, providing the management costs required to meet the 'site value' score gain assigned to vegetation types that will be either rehabilitated or improved (as entered in the BBAM credit calculator) are accounted for in nay management document produced for these areas.

To assess whether or not this is correct, and that the BBAM has been correctly applied, OEH required the proponent to submit the relevant credit calculator files and documentation as outlined in previous correspondence. OEH confirms that the proponent has submitted the relevant calculator files via the OEH BioBanking portal.

<u>Use of BioBanking Methodology for Development Site</u>

The Ecological Investigations report indicates that the BBAM has assessed the development footprint to determine the quantum and type of offsets required to compensate for the loss of native vegetation (including EEC and threatened species) on the proposed development site. OEH notes that Table 2 of this report provides a breakdown of the biometric vegetation types (BVT) that will be impacted upon: (i) Swamp Oak swamp forest fringing estuaries, Sydney Basin and South East Corner, (ii) Coastal floodplain sedgelands, rushlands and forbs of the North Coast, (iii) *Phragmites australis* and *Typha orientalis* coastal freshwater wetlands of the Sydney Basin, and (iv) Saltmarsh in estuaries of Sydney Basin and South East Corner; with the remaining vegetation to be impacted upon considered to be disturbed / cleared vegetation that does not represent threatened species habitats. All of these BVT's are considered EEC, except the planted variant of 'Swamp Oak Floodplain Forest' which is inconsistent with the NSW Scientific Committee Final Determination for this community. Given the majority of the native vegetation to be impacted upon represents EEC the proposal is unable to achieve 'improve or maintain' and therefore trigger the 'Red Flag' provisions of the BBAM. As such the proponent has applied the variation criteria under the offset policy and will achieve a predominantly Tier 2 outcome, with a Tier 3 outcome being achieved for the 'Coastal floodplain sedgelands, rushlands and forbs of the North Coast' BVT. OEH supports this approach providing the offset policy has been appropriately used, which we discuss in greater detail below, and that the appropriate quantum and types of credits are conserved and managed in perpetuity (in this case under a conservation agreement).

OEH has reviewed the information submitted, and that outlined in the Ecological Investigations report, and is generally satisfied that the developments impacts have been appropriately assessed under BBAM,

though notes a number of operational issues described below that may require the re-running of the credit tool. The current BBAM has calculated that the proposal will need to retire 262 ecosystem credits and no species credits. As stated above the proposal will impact on EEC and as such OEH offset policy for State significant major projects has been applied, to which OEH concurs has been utilised appropriately, except for minor issues outlined below in the offsets section of this response. BBAM operational issues that need to be addressed:

- The percentage of native vegetation entered for both the 1000 and 100 hectares assessment circles appears low (e.g. <10% for 1000 hectare circle), particularly in comparison to the adjacent project (ARTC Hexham Relief Roads Project), which has ranges of 21-30% and 41-50% for the two 1000 hectares assessment circles used, and 11-20% and 21-30% for the 100 hectares circles, OEH is of the opinion that the estimations of the remaining native vegetation remaining for the ARTC project are likely more realistic, given that to the south, south-east and west large expansions of wetland vegetation (albeit in varying condition) remains, particularly in the Hunter Wetlands National Park. Additionally, OEH notes for the QR National Biobank offsets sites the estimation of the remaining vegetation in 1000 hectares circles is 21-30% (with an increase to 51-60% based on site improvements, such as revegetation / rehabilitation). The OEH requests the proponent to provide justification for the figures entered for 'percentage of native vegetation'.
- Explanation of how the connectivity value - before and after development was determined. Again this differs significantly from ARTC development that estimated at the low ranges.
- Explanation of why some of the BVT used in the credit calculator have not been assigned EEC status, such as: HU635 - Swamp Oak swamp forest fringing estuaries, Sydney Basin and South East Corner, HU673 - Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin, Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin, and HU532 - Coastal floodplain sedgelands, rushlands, and forblands of the North Coast. OEH is of the opinion these would represent Swamp Oak Floodplain Forest and Freshwater Wetlands on coastal floodplains EEC.

Based on OEH's technical review of the submitted credit calculator files, OEH would expect in addressing the above issues, the BBAM tool will need to be re-run and as such it is likely that this will result in a change to the number of biodiversity credits that will be required to be retired. As such, OEH would support an approval condition that requires the proponent to retire or ensures that the proposed offset sites contain the appropriate amount of biodiversity credits (both 'ecosystem' and 'species') providing the credit tool is re-run and/or appropriate justification as outlined above is given for any deviations, including suitable explanation for applying Tier 2 and Tier 3 outcomes under the policy, as described below.

4. Provision of offsets / compensatory habitat

OEH has completed a review of the offset strategy section (Section 6.3) of the EA (namely the Ecological Investigations report by EcoBiological), and generally supports the strategy that comprises of two on-site offset areas on the northern and southern parts of the study area, adjacent to or nearby the proposal and existing OEH conservation estate (i.e. Hunter Wetlands National Park). The 'Northern' and 'Southern' offsets cover approximately 53.63 hectares of native vegetation and habitat that is similar and commensurate with the development site (i.e. similar BVT and EECs). The offset strategy utilises both utilises both the BBAM (DECC 2008) and OEH's 'offsetting principles' (as outlined on the website: *Principles for the use of biodiversity offsets in NSW*. OEH supports this approach providing the application of BBAM credit calculator and offset policy is correct, and the appropriate quantum and type of offsets is conserved and managed in perpetuity.

Use of BioBanking Methodology for Project Offsets

OEH has reviewed the information submitted, and that outlined in the Ecological Investigations report, and is generally satisfied that the offset sites have been appropriately assessed under BBAM, though notes a number of operational issues described below that may require the re-running of the credit tool. The current BBAM has calculated that the offsets will generate 431 ecosystem credits and no species credits (as per

Table 11 – Credits generated by Offsets). Both offset areas contain similar EEC vegetation to that of the development footprint and as such are considered commensurate with the proposal, particularly once OEH offset policy for State significant major projects has been applied. BBAM operational issues that need to be addressed:

- the percentage of native vegetation entered for both the 1000 hectares and 100 hectares assessment circles appears low, particularly in comparison to the adjacent project (ARTC Hexham Relief Roads Project), as stated above. Similarly OEH requests justification / evidence for the figures that have been entered, particularly for the 1000 hectares assessment circle, and how such an increase in the 100 hectares circle from 21-30% to 51-60% will be achieved
- an explanation of how the connectivity value was determined
- an explanation of why some of the BVT used in the credit calculator have not been assigned EEC status.

OEH has reviewed Table 13 which provides justification / reasoning as to how the offset strategy meets OEH's 'offsetting principles'. OEH generally concur with all the assumptions.

In conclusion, OEH acknowledges that the Ecological Investigations report indicates that the strategy has utilised the BBAM assessment to determine the appropriate quantum and type of offsets required, and that the two offset sites will be conserved and managed under a conservation agreement (under the NPW Act). If DP&I approves the proposal, OEH recommends that a condition is included that ensures the two proposed offset sites are secured and appropriately managed under a conservation agreement, preferably in place prior to any development commencing.

5. Conservation in perpetuity of offset lands

OEH again acknowledges that the EA has indicated that an offset strategy will conserve and manage the identified offsets under a conservation agreement, under the NP&W Act. OEH supports this approach, however, if this can not be achieved the proponent will need to provide an alternative measure that ensures long-term conservation (as outlined in previous correspondence).

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. The management plan or outline there of, should clearly document how the offset area(s), 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 previous correspondence.

OEH acknowledges that if the offset package utilises a conservation agreement under the NPW 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.

DECC (2009) *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians.* April 2009. Department of Environment and Climate Change (NSW), Goulburn Street, Sydney.

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

OEH's review of the documentation, including the 'Environmental Assessment Report – Hexham Train Support Facility – Property: Maitland Road, Hexham' (dated 15 June 2012) (the draft EA) and Appendix K of the draft EA entitled: the 'QR National Hexham Train Support Facility – LGA: Newcastle - Aboriginal Heritage Impact Assessment' (dated August 2012) ('the AHIA') and all available cultural heritage knowledge. The review was undertaken to assess the potential impacts of the project on Aboriginal cultural heritage, in accordance with the OEH's Aboriginal cultural heritage assessment guidelines and the requirements of Part 6 of the *National Parks and Wildlife Act 1974* (NPW Act).

SUMMARY OF KEY ISSUES/INADEQUACIES

- Incomplete Aboriginal cultural heritage assessment process. The results of proposed further archaeological investigations are required to the complete Aboriginal cultural heritage assessment and to determine whether Aboriginal objects are likely to be impacted by the proposal. If predicted, appropriate mitigation strategies should also be developed.
- Incomplete Aboriginal community consultation process. Additional evidence is required in support of the Aboriginal cultural heritage assessment.

DETAILED COMMENTS

1. Consultation

OEH refers to Section 8.5 and Table 9 of the EA. It is noted that OEH's meeting with the proponent's representatives on 18 July 2012 concerning Aboriginal cultural heritage matters has not been included in the records of consultation undertaken with stakeholders. This meeting was relevant to the Aboriginal cultural heritage assessment process and it is recommended that the EA is amended to capture the key matters addressed at this meeting.

2. Investigation of potential archaeological deposits

OEH understands that the proposed access route from the QR National project area to the Tarro Interchange will be a shared resource between QR National and neighbouring ARTC Hexham Reliefs Roads project. It is noted that a portion of the proposed access route is located on potential archaeological deposits (PADs) identified as Aboriginal sites: 'PCD' and 'HIS'. As part of the Aboriginal cultural heritage assessment process for both projects, sub-surface investigations were proposed to determine the nature, extent and significance of any Aboriginal objects present within the PADs. Further, if any objects were identified the proponents were to develop appropriate management strategies in consultation with the registered Aboriginal parties (RAPs) for the project/s.

OEH understands that QR National is liaising closely with ARTC to coordinate the approval process, consultation with all stakeholders and development works associated with both projects. OEH also understands that as a component of this coordination additional sub-surface archaeological investigations were undertaken of a portion of the PADs identified along the shared route, in October 2012 by Australian Museum Business Services. However, the results of the investigations have not been supplied by the proponent. OEH recommends that the results of these additional investigations and evidence of the consultation process undertaken with the RAPs regarding these investigations are provided by the proponent to support the Aboriginal cultural heritage assessment undertaken for this project.

OEH also refers to the meeting between OEH, QR National and their consultant archaeologists on 18 July 2012. OEH understood that QR National were planning to undertake separate additional investigations of PADs along the proposed access route located wholly within the QR National project area and to inform the

Aboriginal cultural heritage assessment process. OEH also refers to the mitigation measures prepared in Section 9.12.3 of the draft EA (dated 15 June 2012) and the measures numbers 4 and 5 to conduct further investigations if the identified PADs will be impacted. OEH also refers to Section 6.5.2 and Figure 12 of the EA. It is noted that proposed primary site compound is to be established within the 'PCD' site and the establishment of the compound involves ground disturbance potentially impacting Aboriginal objects located in this area. Additional archaeological investigations are also required in this location prior to any construction occurring to determine the nature, extent and significance of any Aboriginal objects present.

OEH's preference is for the assessment of the PADs to be included as a component of the development application process. The results of any additional sub-surface investigations undertaken for the access route and site compound have not been presented in the EA by the proponent in support of the project application. This concerns OEH and reflects the incomplete nature of the assessment. It is therefore recommended that the proposed investigation program is undertaken promptly in consultation with the RAPs to inform the Aboriginal cultural heritage assessment process and the results provided in support of the development application. The results should also include copies of Aboriginal Site Impact Recording Forms completed for each site to be submitted to OEH for registration in the Aboriginal Heritage Information Management System.

3. Local Aboriginal community consultation

Effective heritage management requires knowledge of values or cultural significance. An understanding of what makes a place culturally significant and why, enables appropriate decisions to be made about the management of that place. OEH recognises and acknowledges that Aboriginal people are the primary source of information about the value of their heritage and how this is best protected and conserved and must have an active role in any Aboriginal cultural heritage planning process.

OEH acknowledges a summary of the consultation with the local Aboriginal community has been provided by the proponent in Section 2.0 of the AHIA and within the untitled table in Annex A of the AHIA. However, it is noted that no further evidence of consultation has been included regarding the progress of the project following the unattended (and short notice) site inspection on 2 April 2012. In particular, no evidence has been provided following the discussion concerning the proposed sub-surface test excavations noted in Section 2.6 of the AHIA and the Australian Museum Business Services PAD investigations which were conducted in October 2012.

The lack of any additional evidence of consultation since 2 April 2012 indicates that the consultation process for the Aboriginal cultural heritage assessment is incomplete.

In order to progress this inadequacy, OEH recommends that the proponent provide evidence of any further consultation undertaken with the RAPs regarding the Aboriginal cultural heritage assessment in order to form a complete submission. OEH would also expect the proponent to detail any contrary or differing positions to those of the RAPs if there is some disagreement with the outcomes of the assessment process.

OEH also encourages the proponent to maintain continuous consultation processes with the community for the entire life of the project and for all Aboriginal cultural heritage matters associated with the project area. As a general rule, gaps in the consultation process of six months or more will not constitute a continuous consultation process. Where a proponent or developer envisages a gap of more than six months it is recommended that RAPs are regularly informed of any progress and records collected appropriately.

4. Conclusion

The Aboriginal cultural heritage assessment is currently incomplete. Further details are required to ensure the assessment is concluded prior to any consideration by the consent authority regarding the determination of the development application.

NATIONAL PARK RESERVE

OEH's Parks and Wildlife Group (i.e. NPWS) has reviewed the EA and the proposal in respect to potential impacts to the adjacent Hunter Wetlands National Park, and makes the following comments.

1. A number of changes within the wider catchment in very recent years have impacted on both adjacent national park reserve and some adjoining freehold properties, especially with regard to water flows and nutrient/contamination. There is concern that the combined QR and ARTC developments will impact further on these reserves, neighbours and the wider catchment.

   It is recognised that Purgatory Creek, although currently non functional, originally drained the swamp north of the Richmond Vale Rail, which includes Blue Gum and Minmi Creeks to the west of the development. The development as it currently stands would preclude any future opportunity to reinstate flood flows along this creek to the Hunter River. Consideration should be given in the current development design to allow future restoration of flows along Purgatory Creek.

2. The NSW Government is currently investigating the adaptive re-use of the Richmond Vale rail corridor and the Hunter Water pipeline corridor for the construction of a cycle / pedestrian shared pathway (Richmond Vale Rail Trail). It is noted that the EA recognises the proposed Richmond Vale Rail Trail and has indicated that it will not be impacted by the current development. DP&I should ensure that the proposed development does not impact on the viability of the Richmond Vale Rail Trail, including short and long term access. Consideration of general access to the pipeline maintenance track and Hexham Swamp generally would also assist with NPWS management and development in the area.