Port Macquarie-Hastings Council
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PORT MACQUARIE
HASTINGS

25 January 2007

T.200.160.14

Heather Warton
Director of Urban Assessments
Department of Planning
GPO Box 39
Sydney NSW 2001

Dear Heather

**RE: REQUEST FOR PROVISION OF DETAILS OF KEY ISSUES AND ASSESSMENT REQUIREMENTS – PROJECT APPLICATION – RAINBOW BEACH – LOT 92 DP 1078055 OCEAN DVE LAKE CATHIE**

Thank you for the opportunity to comment on the above matter pursuant to Section 7F(4) of the Environmental Planning & Assessment Act 1979. Council would like to provide the following comments to assist the Department in determining requirements for the Project Application.

Council notes that the Department has previously issued Director General's requirements to Luke & Company for the preparation of an EIS for an "artificial waterbody for flood mitigation" (06/05/05; Ref. G9100183/Z). It is expected that these requirements will apply to the current Project Application as both proposals relate to lake/wetland of approximately 13 hectares in area. Council would suggest that the Department review the description of the current proposal to include the term "lake".

Council has provided comments in relation to the Concept Plan for the site by letter dated 14 December 2006. Council expects that the Project Application will address the following issues:

- The applicant should demonstrate how the lake contributes to significant water quality or habitat improvements in the context of Council's preferred water management strategy at the site, which is based upon Water Sensitive Urban Design principles (see report by STORM Pty Ltd with letter dated 14 December).
- A surface water and groundwater hydrological assessment is required to determine the impact of the proposed lake, particularly with respect to groundwater draw down effects and potential acid sulfate soils impacts.
- The hydrological assessment should include consideration of any impacts on the existing exfiltration system attached to the Bonny Hills Sewerage Treatment Plant.
- Water quality assessments should examine the potential for ongoing water quality problems, including algal blooms.
- The effect of the works on flood levels and existing development in the catchment. A flood study should be undertaken in accordance with the NSW Floodplain Development Manual.

- Any extension of landuse into the Bonny Hills Sewerage Treatment Plant buffer (e.g. Eco-Tourism) should include detailed information about the nature of the proposed use and any impact on the sewerage treatment plant operation.
- The proposed flora and fauna investigations and vegetation management plan should include plans to provide additional habitat and connectivity for koala populations in the area. The applicant should consult Council regarding the revised Koala Plan of Management that has been prepared for Area 14.
- Analysis of alternative options for sourcing fill for residential development.
- Public safety and public liability risk assessment associated with the lake.
- A risk assessment and analysis of the potential for the lake to provide habitat for aquatic weeds. Aquatic weed management is a major issue in the North Coast Region. Artificial water bodies are the primary habitat for these species, which include a number of declared noxious weeds.
- The proposal needs to address the establishment requirements (e.g. landscaping standards) and the on-going management requirements for all areas. Details of management requirements should include maintenance programs in the form of an operation management plan, a cost assessment for the required works, a risk assessment (e.g. water quality and aquatic weed infestations) and any necessary mitigation measures.
- The corridor is described as "Open Space/Drainage/Habitat Corridor" in the Area 14 Master Plan. It is important that the Project Application describe the relationship between open space, drainage and habitat functions in the proposed corridor and that connectivity is provided between different parts of the proposed corridor (e.g. footpaths, cycleways and roads) in accordance with adopted Master Plan.
- The application should describe the proposed ownership of different parts of the corridor. Where land is to be maintained in private ownership (e.g. in connection with the Eco Tourism site or proposed Catholic School) the application should detail how the corridor is to be maintained in conjunction with the associated use.

**Conclusion**

Council is in consultation with representatives of the St Vincent Foundation with the aim of identifying cost effective solutions to environmental management issues and facilitating sustainable urban development in the Area 14 urban investigation area. It has been difficult, however, to determine solutions in the absence of an application for the proposed lake and corridor.

Council therefore welcomes the proposed Project Application and the opportunity to consider the proposal in conjunction with the Concept Plan for the St Vincent Foundation property.

Council has recently taken part in an analysis of the cost of managing environmental land at another of the major release areas in the Hastings (Area 13). The Area 13 report identified significantly higher standards of environmental management than is currently undertaken throughout other urban areas in the Port Macquarie-Hastings local government area (LGA) and recommended that these areas be managed by Council.

It is possible that there will be similar recommendations regarding cost and public ownership of the corridor on the St Vincent property and Council is keen to ensure that this does not result in unreasonable demands on existing residents elsewhere in the LGA. At this stage, Council has not accepted that any part of the corridor will be transferred to public ownership.

Having regard to the history of strategic planning for the Area 14 urban investigation area, Council would therefore welcome the opportunity to carry out the assessment function for the Project Application.

Should you have any questions regarding the above, please contact Peter Cameron on (02) 65818110 or by email on peter.cameron@pmhc.nsw.gov.au

Yours faithfully

**PETER CAMERON**
**Coordinator Urban Growth Areas**

NSW DEPARTMENT OF
**PRIMARY INDUSTRIES**

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Our Ref: BAI-0158

Ms Heather Warton
Director, Urban Assessments
GPO Box 39
SYDNEY NSW 2001

19 January 2007

Attention: Ms Paula Tomkins

Dear Ms Tomkins

**Re: Key Issues and Assessment Requirements**
**Concept Plan Rainbow Beach – MP07-0001**

Thank you for your letter of 10 January 2007 requesting the Department of Primary Industries (DPI) outline assessment requirements for the above mentioned proposal.

The NSW Department of Primary Industries (NSW DPI) has been formed by the merger of NSW Fisheries, Department of Mineral Resources, State Forests and NSW Agriculture.

NSW DPI has both statutory and advisory responsibilities in relation to development and land use planning matters. The Department is an advocate of sustainable development and profitable and sustainable primary industries through appropriate access to and wise management of natural resources. NSW DPI through Forests NSW also has a commercial and operational interest in land use planning matters.

There are no mining or forestry issues. The Aquatic Habitat Protection Unit (AHPU) within DPI has an interest in contributing to the assessment of the proposal to ensure sustainable outcomes for fish and fish habitat and considering the links with MP06-0085.

**Fisheries Issues**
DPI's fisheries responsibilities cover managing fish (including aquatic invertebrates), and fish habitat throughout NSW. In addition, the department works to provide quality commercial and recreational fishing, and aquaculture opportunities. Issues that need to be adequately addressed to ensure fisheries matters are appropriately addressed include:

FISHERIES MANAGEMENT DIVISION
AQUATIC HABITAT PROTECTION BRANCH

1243 Bruxner Highway
WOLLONGBAR NSW 2477

ABN 51 734 124 190
www.dpi.nsw.gov.au
Tel: 02 6626 1269
Fax: 02 6626 1377

*GENERAL REQUIREMENTS*

Describe the purpose of the proposal;

Describe the location and area of the proposal;

Detail the location of all component parts of the proposal, including any auxiliary infrastructure;

Provide a timetable for construction of the proposal with details of each phases of construction;

Detail likely or possible future needs arising from the proposal;

Provide a legible topographic map with scale, contours, north represented and the date the map/plan/air photo was prepared;

Specify zoning, present land use and whether special conditions (eg SEPP 14 wetlands) apply to the land proposed for development or adjacent land;

Describe the surrounding geomorphology;

Identify all water bodies including wetlands and floodplains;

Specify the direction of river flow and provide hydrological and stream morphological including depth contours and stream bed substrate information, water quality and if appropriate tidal characteristics;

Describe / map aquatic habitats (generally within 100 metres of the boundary of the proposal and sometimes further if downstream) that could be impacted upon either directly or indirectly by the proposal during its construction, life and decommissioning including:

- gravel beds
- rocky reefs
- wetlands and floodplains
- deep pools
- riparian vegetation and snags
- under cut banks
- aquatic vegetation (seagrass, algae, mangroves, saltmarsh & emergent vegetation such as reeds

Identify recreational and commercial fishing areas and aquaculture ventures that could be effected by the proposal or works during its construction;

A statement about the presence or absence of threatened species. Threatened species and key threatening processes are listed in Schedule 4 of the *Fisheries Management Act* and regularly updated on the Fisheries Scientific Committee website: www.fsc.nsw.gov.au

Detail the potential impacts of the various phases of the proposal;

Outline ongoing management activities to ensure impacts on aquatic biodiversity are minimised;

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## REQUIREMENTS FOR ACTIVITIES THAT DAMAGE MARINE VEGETATION

Type of marine vegetation to be harmed;

Amount of marine vegetation to be harmed, map distribution noting percentage densities of species of marine vegetation;

Reasons for harming marine vegetation;

Methods of harming marine vegetation;

Construction details, including proposed drainage;

Duration and timing of works/activities;

Measures for minimising harm to marine vegetation under the proposal;

Environmental measures to be employed;

Method and location of transplanting activities or disposal of marine vegetation.

## REQUIREMENTS FOR ACTIVITIES THAT COULD IMPACT ON THREATENED SPECIES OR CONTRIBUTE TO KEY THREATENING PROCESSES

All assessments require a statement about the presence or absence of threatened species. Up to date listings are available on the Fisheries Scientific Committee website: www.fsc.nsw.gov.au

In determining the presence of threatened species, consideration must be given to the habitat types present within the study area, recent records of threatened species in the locality and the known distributions of these species;

The condition of the habitat within the area must be discussed noting habitat requirements of threatened species likely to occur and the effect of relevant historical events (including land clearing, agricultural activities, water abstraction/diversion, dredging, de-snagging, reclamation, siltation, commercial and recreational activities);

Assess potential impacts on threatened species via the 'Eight-Part Test' and upon completion, consultation with NSW DPI Aquatic Habitat Protection Unit prior to the EIS being finalised;

The proponent should note that where significant impact on threatened species is likely, a detailed Species Impact Statement must be prepared to assist in forming a determination.

The proponent should also note that the *Fisheries Management Act* 1994 contains provisions for strict penalties (up to $220,000 and 2 years imprisonment) to be imposed for individuals or companies that harm an endangered species, population or community or their habitat without proper authority carries.

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

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

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

**Please Note:** Persons undertaking aquatic surveys may be required to hold or obtain appropriate permits or licences under relevant legislation. It is recommend that, prior to any field survey activities taking place, those persons proposing to undertake those activities give consideration to their obligation to obtain appropriate permits or licences which may be required in the specific context of the proposed survey activities.

For example:

## Fisheries Management Act 1994

Permit to take fish or marine vegetation for research or other authorised purposes (Section 37)

Licence to harm threatened (aquatic) species, and/or damage the habitat of a threatened species (Section 220ZW).

*Animal Research Act* 1985:
Animal Research Authority to undertake fauna surveys.

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*Further Information*
The DPI Policy and Guidelines series contains more detailed information on techniques and practices that satisfy DPI requirements to minimise impacts of developments on fish and fish habitat. The Guidelines are available at www.fisheries.nsw.gov.au. Considering the information in these documents prior to developing and submitting your proposal is strongly recommended.

Another document "*Guidelines for the Assessment of Aquatic Ecology in EIA*" (Draft 1998) produced by the Department for Urban Affairs and Planning (now Dept of Planning) may prove useful in outlining appropriate procedures and methodologies for conducting aquatic surveys required for the preparation of an EIS.

**FISHERIES MANAGEMENT DIVISION**
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NSW Government

**DEPARTMENT OF NATURAL RESOURCES**

Contact: Linden Bird
Phone: (02) 6653 0121
Fax: (02) 6653 0144
Email: linden.bird@dnr.nsw.gov.au

Heather Warton
Director
Urban & Coastal Assessments
**Department of Planning**
Attn: Paula Tompkins
GPO Box 39
SYDNEY 2000



File: Coffs 101515 (EA 262)
Your ref: MP07_00001

7 February 2007

Dear Ms Paula Tompkins

**Re: Open Space and Wetland Project Rainbow Beach– Major Project 07_00001**

Thank you for your letter dated 10 January 2007. The Department has made an assessment of the information provided in the preliminary report and undertaken a brief site inspection.

This Department would like the following aspects dealt with in any proposal to develop Lot 92 DP 1078055, Lot 5 DP 25886 and Lots 1-4 DP 45956.

1. Impacts on biological/ecological and physical characteristics of local streams and local bushland.
2. Protection, rehabilitation and ongoing management of the Riparian Zone. The assessment should outline the structures and works in proximity to waterways. The assessment should also outline the nature of works to mitigate impacts on drain, creek and river bed and bank stability and to control erosion and sedimentation. This is particularly important in connecting the lake/wetland to Duchess Gully watercourse.
3. Potential for flooding – impacts on the nature and extent of flooding for a range of flood heights both during and post development. Impacts on land, infrastructure and assets from any changes to the flooding regime.
4. Stormwater management both during and post development.
5. Assessment and treatment of potential contaminated soils and potential acid sulfate soils. The assessment should clearly indicate the methods to be used to combat acid sulfate soils should they be disturbed. For further information on Acid Sulfate Soils, Project Consultants should contact
6. Mr Glenn Atkinson at the Department of Natural Resources Kempsey Office on 0265614969.
7. Surface and ground water -the assessment should outline the proposed uses for water and any impacts on surface and groundwater resources. As the wetland/lake proposal may intersect the groundwater table and given the proximity of the Hastings Council sewage treatment infiltration ponds, the groundwater relationship between the proposed wetland/lake and the treatment ponds should be considered – this includes impacts on groundwater flows into the Duchess Gully Creek and Rainbow Beach.

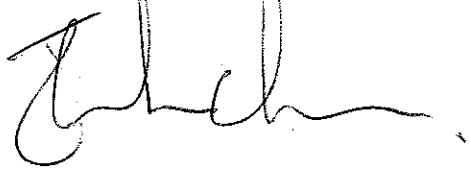
8. The Department in the review of Councils proposal to augment local systems for sewerage treatment, suggested there was an opportunity to improve warning signs re potential for bacteriological contamination to users on Rainbow Beach (in the vicinity of Duchess Gully Creek) and to possibly install a boardwalk/bridge across the Creek near the Beach so the community does not wade in the Creek. The proponent of MP 07-0001 may like to consider this area of open space at the mouth of Duchess Gully Creek as well as community access to Rainbow Beach.
9. The should be adequate access to Rainbow Beach for emergency services and dune care type activities.

Issues specific to legislation;

10. Work in or adjacent to streams will require a permit under the Rivers and Foreshores Improvement Act 1948 (works on private lands).
11. Water Act 1912 - Water licenses may be required for the use of water resources and activity that intersects ground water during construction.
12. SEPP 71 and the Coastal Policy - relating to environmental protection, community access and risk management of developments in proximity to the coastline.

Please do not hesitate to make contact should you wish to discuss any aspect of the Departments comments.

Yours Faithfully.



Josh Chivers
DNR, Coffs Harbour

Our reference : DOC07/1535 Fil06/920 Part 3A
Contact : Peter Hughes, 4908 6819

Ms Heather Warton
Director, Urban & Coastal Assessments
Department of Planning
GPO Box 39
SYDNEY NSW 2001

31 JAN 2007

Att: Ms Paula Tomkins

Dear Ms Warton

**PART 3A – RAINBOW BEACH OPEN SPACE AND CONSTRUCTED WETLAND – PART OF CONCEPT PLAN FOR RESIDENTIAL SUDBIVISION**

I refer to your letter received 15 January 2007 requesting the Department of Environment and Conservation's (DEC's) requirements for the preparation of an Environmental Assessment Report (EA) under Part 3A of the *Environmental Planning and Assessment Act* for the above proposal.

DEC has considered the general information provided in the Preliminary Environmental Assessment and has identified the information it requires to assess the proposal in **Attachment A.**

The proponent should ensure that the Environment Assessment (EA) is sufficiently comprehensive and detailed to allow DEC to determine the extent of impacts of the proposal. In summary, DEC's key information requirements are:

- Surface and ground water impacts including management of potential acid sulphate soils and stormwater.
- Impacts on Aboriginal cultural heritage.

DEC also notes that the proposal includes excavation of 430,000 cubic metres of sand from the open space area and its use as fill in the residential subdivision. An environment protection licence under the *Protection of the Environment Operations Act 1997* may be required for an extractive industry for this component of the project. The Environmental Assessment should assess the need to apply for a Licence.

The proponent should be aware that any commitments made in the EA may be formalised by way of conditions within an environmental protection licence should development consent be granted and a licence required. For this reason pollution control measures should not be proposed if they are impractical, unrealistic or beyond the financial viability of the development.

PO Box 488G, Newcastle NSW 2300
117 Bull Street, Newcastle West, NSW 2302
Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 30 841 387 271
**www.environment.nsw.gov.au**

DEC notes the relationship between this proposal and the broader Rainbow Beach concept plan for which we have already provided comment. There may be many common assessment issues between the projects and DEC does not expect that assessment work be replicated where the issues are common.

DEC requests that the applicant provide three copies of the EA for pre-exhibition review to the Department of Environment and Conservation, PO Box 488G, Newcastle NSW 2300. If you have any queries regarding this matter, please contact Peter Hughes on (02) 4908 6819.

Yours sincerely

**DAVID DARVALL**
**Head Regional Operations Unit**
**North East Branch**
**Environment Protection and Regulation**

Encl: Attachment A

## DEC'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS
## PROPOSED RAINBOW BEACH OPEN SPACE CORRIDOR AND WETLAND

### GENERAL INFORMATION

The Environmental Assessment report (EA) should identify the environmental objectives for the proposal. These objectives will guide decisions on environmental controls and management throughout the life of the development. The EA should detail the existing environment including a description of water, air, noise, cultural heritage, flora and fauna characteristics.

### 1. THE PROPOSAL

The objectives of the proposal should be clearly stated and refer to the:

- size and type of the operation, the nature of the processes and the products, by-products and wastes produced;
- use or disposal of products;
- anticipated level of performance in meeting required environmental standards;
- staging and timing of the proposal; and
- proposal's relationship to any other industry or facility.

### 2. THE PREMISES

The EA should fully identify all of the processes and activities intended for the site and during the life of the project, including details of:

- the location of the proposed facility and details of the surrounding environment;
- the proposed layout of the site;
- appropriate land use zoning;
- any third parties / adjoining landowners likely to be affected by the proposed facility;
- maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc in the locality that may be affected by the facility;
- methods to mitigate any expected environmental impacts of the development.

### 3. AIR QUALITY

If an environment protection licence is required DEC will require a detailed air quality impact assessment. The proponent should asses the need for a licence and, if applicable, include an air quality impact assessment in the environmental assessment. The assessment should identify and describe in detail all possible sources of air pollution and activities/processes with the potential to cause air pollutants including odours and fugitive dust emissions beyond the boundary of the development site.

The EA should demonstrate that the facility will operate within DEC's objectives which are to minimise adverse effects on the amenity of local residents and sensitive land uses and to limit the effects of emissions on local, regional and inter-regional air quality.

The EA should detail the measures proposed to mitigate the impacts and quantify the extent to which the mitigation measures will be effective in achieving the relevant environmental outcomes.

The assessment should be prepared in accordance with the DEC's *Approved Methods & Guidance for the Modelling & Assessment of Air Pollutants in NSW.* This publication is available from DEC's website at http://www.environment.nsw.gov.au/home.htm. The assessment should describe the methodology used and any assumptions made to predict the impacts. Air pollutant

emission rates, ambient air quality data and meteorological data used in the assessment should be clearly stated and justified.

## 4. NOISE IMPACTS

If an environment protection licence is applicable to the activity the EA must include a comprehensive noise assessment of the existing environment, potential impacts and proposed noise amelioration measures. The DEC's "*New South Wales Industrial Noise Policy*" (EPA, 2000) provides a guide to the methodology and assessment criteria used by the DEC to determine noise planning levels.

The evaluation should take into account the construction and operational phases of the development over the "operating" hours proposed and take into account adverse weather conditions including temperature inversions.

Sound power levels measured or estimated for all plant and equipment should be clearly stated and justified.

The EA should include an assessment of cumulative noise impacts, having regard to existing developments and developments which have received development consent in the area but which have not commenced.

## 5. WATER QUALITY

The EA should provide sufficient information to demonstrate that the proposed development can be operated while complying with the POEO Act, in particular, the protection of water quality during construction and operation of the proposed facility.

The methodology, data and assumptions used to design any pollution control works and assess the potential impact of the proposal on water quality (ground and surface waters), should be fully documented and justified.

The EA should characterise the quality of surface and discharge water from the site and detail appropriate water quality management practices for the site. DEC has adopted the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) as a guide for the assessment of environmental impacts on aquatic ecosystems.

## 6. SOIL MANAGEMENT

The Environmental Assessment should describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:

- erosion and sediment control measures; and
- proposals for the management of potentially acid sulphate soils soils. The proponent should refer to *Assessing and Managing Acid Sulfate Soils,* Environment Protection Authority 1995

## 7. THREATENED SPECIES

The EA Report must detail the existing environment including discussion on flora and fauna characteristics. The level of investigation should be appropriate to the site's current condition.

The proponent's attention is also drawn to the Commonwealth legislation, the *Environment Protection and Biodiversity Conservation Act 1999.* If any species requiring consideration under this legislation may be affected by the proposal, approval for the works may also be required from the Commonwealth Department of Environment.

Assessment of the potential impacts on threatened species, populations, and endangered ecological communities should be in accordance with the draft "*Guidelines for Threatened*

*Species Assessment"* (DEC & DPI July 2005), including the recommended structure and content of the report.

The website: www.threatenedspecies.environment.nsw.gov.au provides search tools that will assist in identifying threatened species, populations and ecological communities listed on the schedules of the *Threatened Species Conservation Act 1995*.

## 8. ABORIGINAL AND CULTURAL HERITAGE

It should be noted that Aboriginal cultural heritage is ubiquitous in coastal areas, even in areas which have already been highly modified. If any topsoil disturbance or excavation is proposed then there may be potential to uncover Aboriginal objects.

The presence or absence of Aboriginal objects should be established and the significance of the area to the local Aboriginal community must be determined. Accordingly a search of the Aboriginal Heritage Information Management System (AHIMS) should be conducted as a first step. Search results can be obtained upon written application to the Registrar, Cultural Heritage Division, on telephone (02) 9585 6471.

An assessment of the archaeological sensitivity of areas of the subject site and identification of significance of the site to the local Aboriginal community should be undertaken by an appropriately qualified person in consultation with the local Aboriginal community. This may require field survey.

Aboriginal objects and places of significance to the Aboriginal community should be detailed on a plan. This plan should be at the same scale as that of the subject site and development footprint, to assist in the assessment of the impact of the proposal on the identified cultural components.

A report discussing the results of survey and consultation, and including a description of measures proposed to mitigate impacts of the development on any identified Aboriginal objects and other recommendations should be prepared in accordance with the *NPWS Aboriginal Cultural Heritage Standards and Guidelines Kit* and submitted with the EA Report for review. Please note these guidelines are under review but should be used for reference purposes. A contingency plan that details the measures to be taken in the event that Aboriginal objects are discovered during the course of works on the subject site must be prepared.

Details of consultation with the local Aboriginal community must be provided as per the DEC Interim Community Consultation Requirements for Applicants, which may be found on the DEC website at www.nationalparks.nsw.gov.au/npws.nsf/Content/Publications. Please note these guidelines are interim, with a view to being finalised following consultation with external stakeholders.

## 9. DEC LICENSING REQUIREMENTS

Under schedule 1 of the POEO Act 1997 an environment protection licence may be required for the following activity:

**Extractive Industries**

(1) that obtain extractive materials by methods including excavating, dredging blasting, tunnelling or quarrying or that store, stockpile or process extractive materials, and

(2) that obtain, process or store for sale or re-use an intended quantity of more than 30,000 cubic metres per year of extractive material.

The proponent is encouraged to contact the DEC in relation to this issue.

APPENDIX B

COPY

NSW Government
Department of Water & Energy

Mr Alan Bright
A/Director, Coastal Assessments
Department of Planning
GPO Box 39
Sydney NSW 2001

Contact: Rod Browne
Phone: (02) 6740 2347
Fax: (02) 6742 3129
Email: rod.browne@dnr.nsw.gov.au

Our ref: ER 20271
Your ref: MP 06_0085
File: 9049341

21st May 2009

Dear Mr Bright,

**MP 06_0085 and MP 07_001, Rainbow Beach, Bonny Hills**
**Concept Plan, and Open Space Corridor and Constructed Wetland**

I refer to previous correspondence from late 2008 and subsequent communications seeking confirmation and clarification of the Department's (DWE's) position on this development proposal. DWE's technical assessment is based on the document, *Rainbow Beach Estate, Bonny Hills – Water Engineering and Environment DGR Assessments*, by Cardno (Qld) Pty Ltd, dated 21 August 2008, hereafter referred to as Cardno report, as well as a site inspection in late 2008.

The first component of the proposal for which approval is being sought at this stage is the Concept Plan which defines the footprint of the residential precincts, a major intersection location, future school sites, the location of a village centre, areas for ecotourism, and the boundaries of the Open Space, Drainage and Wildlife Habitat Corridor. It is understood a comprehensive Environmental Assessment (EA) is yet to be submitted.

The second component is a Preliminary Application for the Open Space, Drainage and Wildlife Habitat Corridor, which includes earthworks for Constructed Wetlands, the creation of fill areas, stormwater treatment and management, and district sporting fields and facilities. There are some significant water management-related issues and potential impacts affecting the drainage, wetland and water treatment components.

DWEs overall assessment comments to be addressed in the EA are provided below:

**Excavation for Constructed Wetland**

The proposal includes a 10.7 ha Constructed Wetland or lagoon, nominally of 2 m depth and holding around 165 ML at top water level (TWL). Based on an area to volume calculation, the actual depth would average around 1.5 m, but would be 2 m in places. It is to be located downstream of a similar but smaller existing lagoon that has been in place for a number of years, and which is part of the stormwater treatment system for urban development adjacent to the south. The proposed new lagoon, while being a component of the stormwater treatment train, has clearly been sized for the opportunity to gain material for filling various development areas to meet flood height requirements. The Cardno report is not ambiguous about this.

The report provides a reasonable description of the landform, soils and hydrogeology of the development site. The drainage corridor passes through, and the new lagoon is to be located over, a coastal depositional plain which consists largely of a sand profile varying from 0.5 to 5 m in thickness, below which is a denser layer of marine clay. The report indicates, especially when dealing with hydrological matters, that this sand aquifer contains a high quality water source fed by direct infiltration of rainfall, with Standing Water Levels (SWLs) often very close to the surface across the low lying areas. Unfortunately there is no proper groundwater quality investigation included in the report, which makes an adequate assessment of groundwater impacts impossible. However the assumptions about this aquifer seem reasonable and its modelled infiltration and discharge behaviour suggests, from DWE's perspective, that it is a high quality resource, and in line with similar sand aquifer resources along the coastline, deserving of conservation. There are no permanently installed groundwater bores or piezometers across the site to monitor aquifer water levels and quality accurately. Profile information has come from a grid of borehole sampling done to assess the distribution of acid sulfate soils (ASS).

There are a number of groundwater issues requiring comment.

- Impact on aquifer volume

The report, based on the borehole sampling, estimates that the excavated lagoon will be equivalent to a loss in aquifer volume of 7.2%, but which will be replaced by an equivalent surface water volume. DWE does not accept that good quality groundwater resources can be replaced by a surface water storage, particular when it will fluctuate in volume and quality according to seasonal conditions and runoff events. The permanent loss of aquifer volume is not an outcome that is supported, when other options may be available to minimise the impact. The sizing of the lagoon is not based on the scale needed to effectively treat or process stormwater, and thus has an excessive impact on the resource.

- Aquifer interference, dewatering and licensing

The excavation into such an aquifer would normally require licence under the *Water Act 1912* (WA), or an approval under the *Water Management Act 2000* (WMA) if located in an area covered by Groundwater Sharing Plan. In this case the former applies, although the repeal of the WA is expected later this year, transferring all matters to the WMA. DWE will require a more thorough investigation of groundwater impacts for licensing purposes or before endorsing a deemed WMA approval under Part 3A of the *EP&A Act*, and requires a monitoring program in place to measure baseline information.

It is proposed to dewater the aquifer beneath the new lagoon site, for excavation purposes. This requires a volumetric licence under both Acts, and requires an estimate of the quantity of water involved. Both temporarily over the construction period, and permanently if continuing losses are likely. The report suggests that post development SWLs will recover and reach equilibrium with the water level in the lagoons. However, the base of the lagoon will be the natural profile material, that is, sand, and the groundwater modelling parameters assume high vertical and particularly lateral hydraulic transmissivity, suggesting lagoon/aquifer interconnectedness. In other words the groundwater is likely to be in constant flux with water in the lagoon, which will fluctuate with seasonal conditions affecting catchment inflows and evaporation rates. The lagoon will potentially be a source of recharge, and contamination after major runoff events, or a cause of evaporative loss which also reduces water quality.

The destination and quality of dewatering discharge is not addressed in the report, other than it being expected to meet certain discharge requirements, presumably to meet licensing requirements imposed by the Department of Environment and Climate Change (DECC). DWE also has a statutory interest in the receiving water quality.

- Groundwater quality

It is suggested that the new lagoon water quality will be similar to the current wetland lagoon, which is generally of good quality but fluctuates in nutrient, salinity and pH depending on inflow

events. Spikes can occur after significant runoff events. There is no aquifer water quality data provided to allow an assessment of the likely impact of surface/groundwater exchange. A further complication is the presence of high potential ASS, discussed below. This gap needs to be addressed in the EA, and, regardless, the proposal should include the installation of licensed groundwater monitoring bores and an ongoing monitoring program. The report indicates that 4 monitoring sites will be selected, a baseline reference site and 3 bores closer to dewatering activities. The proposed water quality parameters and criteria for groundwater monitoring are similar to those proposed for surface water, some of which appear to be in appropriate. The monitoring program needs to be discussed with DWE.

There is no information presented on the groundwater quality near the existing water treatment lagoon. If the new lagoon is likely to operate in a similar way, then the adjacent groundwater should also be of similar quality.

- Groundwater dependent vegetation and habitat

The report indicates that SWLs across the site, range from 3.2 to 4.7 m AHD, often around 3.5 m. The proposed base of the lagoon will be as low as 1.0 m AHD in places, with water depths of up to 2 m. The overflow weir to Duchess Gully from the lagoon (S4) is to be set at 3.00 m AHD. This suggests there is potential for a general lowering of the water table across the site on average. DWE has a concern that this may affect the condition of native vegetation and habitats, particularly the three Endangered Ecological Communities (EECs) that occur in sections of the site, which are accustomed to a high water table regime.

There are no specific groundwater management measures proposed in the report, other than future monitoring. The preferred approach by DWE to minimise impact and risk on the aquifer is, firstly, for the lagoon to be resized according to the scale and design needed for effective storm water quality treatment, and secondly, for the lagoon to be effectively segregated from the aquifer, typically by lining the bed of the lagoon with a suitable compacted clay material.

**ASS Management**

The Cardno report indicates that the sand resource beneath the proposed new lagoon contains potential acid sulfate soil (PASS) material. Based on the borehole sampling and analysis, it classifies the material into two distinct layers, low PASS material overlying higher PASS at depth. The low-high PASS boundary varies between 0.1 to 2.0 m AHD, often around 1.25 m AHD.

It is proposed to treat the low PASS material with up to 4 kg/m$^3$ of lime, including a safety factor, to neutralise it for suitability for landfill. The high PASS material is much more hazardous and the undertaking is to avoid disturbance of this material and to maintain water table levels above it. The bed of the lagoon is supposedly based on the depth of this boundary layer.

Excavation of the lagoon will therefore be a highly technical exercise involving careful testing of the profile to more accurately define the boundary, and control of dewatering activities to ensure the water table remains above it. The report indicates that excavation will take place sequentially in cells, and that each cell will be reflooded once excavation is complete. It is not clear whether this will be rapidly from a source of water, or by gradual recovery of the water table. While the report mentions the treatment of extracted soil in contained areas, the potential requirement to treat any acidic waters, either from dewatering or from treatment area drainage, needs to be addressed also. A more thorough draft ASS Management Plan will need to be included in the EA to address this issue.

In DWE's view, a reduction in the size of the lagoon, particularly depth, would reduce the risk and management challenges imposed by ASS material.

**Stormwater Drainage and Watercourses**

DWE is not opposed to the general layout of the water treatment and drainage system, but is concerned about the size, depth and unsealed bed condition of the large lagoon (W1). Stormwater treatment ponds W2, W3 and W4 are of much smaller size but presumably of sufficient capacity for effective treatment and appear well located. However, DWE would expect these also to be lined if constructed into the base sands of the profile. The modelling contained in the report reveals that the detention time of flows in the existing lagoon on average is around 30 days, but that the new larger lagoon would increase this to over 60 days. Clearly the sizing of lagoon W1 is based on sand extraction volume rather than water treatment criteria.

**Summary**

DWE is supportive of the general Concept Plan for the proposed development but has major concerns about the scale and design of the constructed wetlands, because of the potential risk to a high quality coastal sand aquifer. The protection of groundwater resources and associated vegetation and aquatic ecosystems is not something that should be negotiable depending on development cost factors prevailing at the time. The need for lining of excavations for water bodies constructed into good quality coastal sand aquifers is a policy issue that is being reflected in DWE responses to development proposals elsewhere along the coast.

DWE is prepared to engage with the proponent to consider the technical merits of measures to address the above concerns and to assist in fine tuning groundwater investigation and monitoring measures.

Please contact Rod Browne on 6740 2347 if you wish to clarify any of the above or to coordinate inputs from other DWE technical or licensing staff.

Yours sincerely

Mark Mignanelli

Manager Major Projects, Mine Assessments and Planning

APPENDIX C

RECEIVED
DATE 18/9/09 BY

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File ref: 09/1579

Mr Michael Tierney
Managing Director
Tierney Property Services
PO Box 493
PORT MACCQUARIE NSW 2444

Dear Mr Tierney

Following your meeting with Minister Costa on 16 June 2009, in the company of two other developers, I have been asked to bring you up to date on the review of this Office's advice to the Department of Planning (DoP) concerning your development.

Mr George Gates, Groundwater Manager, reviewed the data for Bonny Hills. He interviewed Office of Water staff involved in the original assessment and also obtained independent advice on water sensitive urban design (WSUD) from a leading consultant.

I can advise that the review showed up some variances in the approach to environmental assessments undertaken by the Office's staff across NSW. I have instigated measures to rectify this, including provision of training in the area of water sensitive urban design (WSUD), and the development of a guideline for staff on what is an acceptable impact on the State's groundwater resources.

I am advised that the Bonny Hills site overlies a relatively thin sand aquifer, which has some potential for future development and has a high beneficial use. This means that groundwater could be used, albeit in a limited capacity, for domestic purposes, irrigation and drinking supplies (with treatment) both now and into the future. It is NSW policy to maintain and protect aquifers that have a high beneficial use. I have also been made aware that previous forms of land use have altered the value of groundwater dependent ecosystems at the site, and the site should be considered as a moderately disturbed ecosystem in this respect.

Because of this latter aspect, I believe that an appropriate WSUD could negate the Office's previous requirement to fully line any ponds that penetrate and expose the water table. You would need, however, to demonstrate that WSUD can efficiently handle the nutrients that are associated with the development.

I will notify the Department of Planning regarding the change to the Office of Water's position.

Should you have any further enquiries about this matter, I have arranged for Mr Gates to assist you. He may be contacted on telephone number 02 9895 7956.

Yours sincerely

15/9/05

**David Harriss**
**Commissioner, NSW Office of Water**

Land and Property Management Authority

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Our Ref: 07/2241
Your Ref: .....
25 June 2010

Attention: Natasha Ridler

**Re: Request for comment – Rainbow Beach Project Application 07_0001**

I am writing in response to your letter dated 9 June 2010 regarding the above proposal, and offering the opportunity for the Land and Property Management Authority (LPMA) to comment on the project.

Crown land managed by the LPMA exists directly to the east of the site forming a band parallel to the coastline, bordering Lot 5 DP 25886. This land forms part of the Hastings Regional Crown Reserve R1011448 for Future Public Requirements notified 31 March 2006. Regional Crown Reserves have been established to aggregate Crown land into larger precincts, allowing holistic planning as well as balanced and sustainable management. Regional Crown Reserves allow for multiple purpose usage, generating improvements in the environmental, economic and social fabric of the area. In designing major development projects, any potential impacts the development may have on the current/future use, management or amenity of any Crown land, as defined by the Crown Lands Act, 1989 that is directly affected by the proposal should be considered.

Crown roads previously existed within Lot 1232. According to initial investigations, these Crown roads have recently been closed, creating Lots 1-4 DP 1150758, which have since been purchased by the adjoining landowner. Hence the LPMA has no further interest in this land.

From the information provided, the LPMA has the following comments regarding the project:

- Crown land identification – the assessment should identify the location and status of any Crown land directly affected by the project.

- SEPP 26 Littoral Rainforest – the site adjoins Crown lands containing SEPP 26, which has recognised conservation and environmental protection values. The SEPP 26 buffer would impact upon Lot 5. Mapped key habitat and the Lake Cathie / Camden Head Regional Corridor also exists, impacting upon both the project site and Crown land. Adverse impacts of the development on Crown land vegetation are to be avoided.



New South Wales Government

- Beach access – the proposed development will create public access demands to Rainbow Beach through the Crown Reserve. According to aerial photography, a single access track to the beach currently exists from Lot 5, through the Crown reserve within the SEPP 26. The LPMA requests that the project includes strategies to safeguard and protect this valuable asset by formalising this access track (preferably for pedestrian access only). The track can be formalised by a commercial licence from the LPMA. Any work on the track may not be carried out without the issue of a licence from the LPMA prior to the commencement of work. The proponent is responsible for all environmental assessments and approvals required. Environmental assessments must consider aspects such as vegetation attributes, erosion, weed invasion and mitigation techniques to minimise impacts upon native vegetation. Any additional track that may be proposed would require strong justification and reviewed on merit by the LPMA. Any activity is not to impinge on the Crown reserve in any way, including vegetation removal, weed removal and rehabilitation works, without prior approval from the LPMA.

- Fencing – to reduce impacts on the reserve, the boundary between the development and the Crown reserve is to be fenced allowing access only to a formalised track.

- Storm water runoff – storm water can significantly impact upon Crown land and downstream environments by causing erosion, sedimentation, altering nutrient levels, increasing pollution, spreading weeds and exacerbating flooding. These can degrade natural systems, increase the Authorities land management costs and limit current and future uses/values of Crown land. Stormwater / runoff should be managed so it does not adversely impact upon the adjoining Crown land. The LPMA does not support direct beach outfall. Stormwater measures should be considered as part of a Stormwater Management Plan, with a focus on on-site measures such as retention and treatment for pollution removal. This plan should include an assessment of potential impacts on the adjoining Crown land, in particular the SEPP 26.

- Bushfire – Requirements under Planning for Bushfire Protection 2006 for Asset Protection Zones to be entirely within the development and not impact on the adjoining Crown land.

For any further enquiries, please do not hesitate to contact myself on the above details.

Yours sincerely,

Jaimee Vlastuin
Environmental Officer
Land Management
Crown Lands Division, Taree