RAINBOW BEACH, BONNY HILLS

Construction Environmental Management Plan

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Job No. 7135/01

St Vincents Foundation Pty Ltd

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RAINBOW BEACH, BONNY HILLS

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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1. INTRODUCTION AND PROJECT DESCRIPTION

St Vincents Foundation Pty Ltd proposes to develop a residential subdivision (the development) on parts of Lot 123 on DP1106943 and Lot 5 on DP 25886, Ocean Drive, Bonny Hills, Port Macquarie-Hastings Shire New South Wales (the site).

The proposed development consists of residential areas, associated community facilities and an open space corridor of about 82.6 hectares, located on higher ground on the northern part of the site along Ocean Drive. The open space corridor includes newly constructed wetlands located on the eastern part of the site on Duchess Gully. The watercourse forms an open space corridor of about 82.6 hectares. The areas of each proposed land use are shown in Table 1 and Table 2.

Table 1 Proposed Development Land Use Areas

Land Use	Area (ha)
Residential Area	67.8
Open Space, Drainage and Habitat Corridor	80.9
Village Centre	4.8
Northern School Site	5.0
Southern School Site	9.7
Eco Tourism Site	7.6
Northern Ocean Drive 10m Buffer	1.6
TOTAL	**177.4**

Table 2 Proposed Open Space Corridor Component Areas

Component	Area (ha)
CENTRAL CORRIDOR:	
District Sporting Fields	7.7
Existing Lagoons, Waterbodies and Wetlands	6.3
Proposed Constructed Wetland	10.5
Stormwater Treatment Wetlands (W1)	1.9
Stormwater Treatment Wetlands (W2, W3)	1.3
Central Open Space	47.5
TOTAL CENTRAL CORRIDOR	**75.2**
OTHER (OUTSIDE CENTRAL CORRIDOR):	
Eastern Creek and Swale	3.2
Stormwater Treatment Wetlands W4A and W4B	0.4
Pocket Woodland	2.1
TOTAL OTHER (OUTSIDE CENTRAL CORRIDOR)	**5.7**
TOTAL – OPEN SPACE CORRIDOR AREAS	**80.9**

Approximately 400,000m^3 of fill material will be sourced from excavation to establish the constructed wetlands. This material will be placed on low-lying parts of the residential areas and parts of the northern school site located in the north-west corner of the site.

This Construction Environmental Management Plan (CEMP) has been prepared to address potential impacts of the proposal and prescribes mitigation measures to manage truck movements, impacts on traffic and pedestrians, and impacts on the amenity of adjoining properties including noise, dust, sediment and erosion controls.

This CEMP provides environmental management requirements for construction works associated with the proposed plan of development and provides performance criteria that are to be met to ensure that impacts of the works on the physical and social environment are minimised. In particular, this CEMP provides mechanisms whereby the environmental performance associated with the works can be measured and if required, provides procedures where agreed corrective actions are to be implemented.

2. KEY ISSUES AND CEMP CONTEXT

The Director General of the New South Wales (NSW) Government Department of Planning has issued "Director General's Environmental Assessment Requirements" for the Development on 9 March 2007.

Key Issue 9.1 of the Director Generals Requirements requires:

"*an assessment of the potential impacts during construction of the proposal. The assessment should include, but not be limited to, consideration of:*

- *truck movements;*
- *traffic and pedestrians;*
- *noise;*
- *dust*
- *erosion; and*
- *sedimentation."*

This CEMP is provided to detail actions that will be implemented to manage the potential impacts associated with the development. Each element of the CEMP details a rationale for its inclusion herein.

Elements addressed within this CEMP include:

- Community Awareness;
- Air Quality;
- Noise and Vibration;
- Water Quality;
- Excavation and Erosion and Sedimentation Control;
- Flora and Fauna Management;
- Weed Control;
- Archaeological Sites Management;
- Waste Management;
- Dangerous and Hazardous Materials; and
- Contingency Planning.

This CEMP has been prepared pursuant to the New South Wales Department of Planning and Natural Resources, Environmental Management Plan Guideline - 2004.

3. PREAMBLE TO THE ENVIRONMENTAL MANAGEMENT PLAN

3.1 Terminology

The term **Principal** refers to St Vincents Foundation Pty Ltd.

The term **Contractor** refers to the party or company performing construction works relating to the proposed development and includes all employees of the Contractor and sub-contractors.

The term **Consultant** refers to the civil and/or environmental engineering consultant employed by the Principal.

The term **CA** refers to the Contract Administrator.

The term **Works** refers to all matters associated with the construction of the proposed development.

The term **DECC** refers to the Department of Environment and Climate Change.

The term **CEMP** refers to this Construction Environmental Management Plan.

3.2 References

3.2.1 Standards and Other Documents

This CEMP has referenced the following documents:

- NSW Department of Infrastructure, Planning and Natural Resources Guideline for the Preparation of Environmental Management Plans (2004);
- NSW Department of Planning Director Generals Environmental Assessment Requirements for Project Application Number MP 07_0001 (9 March 2007.);
- Darkheart Eco-Consultancy EPBCA – MNES 1999 Seven Part Tests SEPP 44 – Koala Habitat Assessments of Proposed Constructed Wetland and Filling on Part Lot 92 DP 1078055, Ocean Drive, Lake Cathie (July 2006);
- *AS 1940 The Storage and Handling of Flammable and Combustible Liquids*;
- AS2436 – 1981, *Guide to Noise Control on Construction, Maintenance and Demolition Sites*;
- ANZECC Guidelines – *Technical Basis for Guidelines to minimise annoyance to Blasting Over-Pressure and Ground Vibration (1990)*;
- Commonwealth Department of Transport and Regional Services Federal Office of Road Safety Australian Design Rule *ADR28- External Noise of Motor Vehicles*; and
- Environmental Guidelines: Assessment, Classification and Management of liquid and non liquid wastes (EPA 2004).

3.2.2 Legislation, Regulations and Policies

Legislation, regulations and policies of relevance to this CEMP include:

- *Environmental Planning and Assessment Act 1979*;
- *Noxious Weeds Act 1993*;

- *Threatened Species Conservation Act 1995*;
- *Protection of the Environment and Operations Act 1997*;
- *Protection of the Environment and Operations (Noise Control) Regulation 2000*; and
- *Protection of the Environment Operations (Clean Air) Regulation 2002*.

3.3 Program and Contractual Obligations

This CEMP covers the construction phase of the works and is defined as the period from the commencement of works to the substantial completion of the works. The Contractor is responsible for ensuring that the provisions of the CEMP are met, with the exception of certain planning or design issues, which are explicitly noted throughout the CEMP as being the responsibility of the Principal or the Consultant.

The Contractor shall ensure that all persons who are employed or sub-contracted for the works shall be trained as to their individual responsibilities as set out in this CEMP and as provided by the *Protection of the Environment and Operations Act 1997*, including the following.

Duty to Notify Pollution Incidents – whereby if a person in the performance of their duties becomes aware that serious or material environmental harm is caused or threatened then the person must immediately contact the Contractor whereupon the Contractor must immediately notify the Principal. If the Contractor cannot contact the Principal, then the Contractor must immediately notify the DECC.

Compliance with the CEMP – whereby a person in the performance of their duties shall do so in a manner that ensures that the provisions of this CEMP are complied with.

3.4 Non-Compliance and Corrective Action Requirements

The Contractor shall assume responsibility for implementation of this CEMP. Where the Contractor becomes aware of a site or operational condition that does not comply with stated performance indicator(s) of this CEMP, there is a requirement for corrective action to be undertaken.

A Corrective Action Request (CAR) form is to be completed and authorised in general compliance with the example CAR form provided in Appendix A of this CEMP. The Contractor is also required to maintain a register of CARs, which shall demonstrate that appropriate actions have been completed within a suitable timeframe.

Any CAR registered in accordance with this CEMP shall be provided to the Principal, any State or Commonwealth Government Department, and any statutory authority or other person, consensually or as lawfully required.

In some instances, further investigation or monitoring may be required to establish whether the Contractor has failed to adequately implement the CEMP, or has failed to comply with relevant legislation, guidelines and statutes. In these instances, an independent party such as the Consultant shall carry out an investigation and any monitoring.

If it is established that the cause for the non-compliance with the stated performance indicator(s) has arisen from the Contractor's actions or omissions, then the costs of the monitoring shall be deducted from payments to the Contractor and paid to the Consultant, otherwise the costs of the monitoring shall be obtained from the Principal and paid to the Consultant.

3.5 Complaints

All complaints shall be responded to within 24 hours of receipt. The response shall identify whether the complaint is valid or identify whether further works are required to determine the validity of the complaint. The validity of the complaint shall be determined via and inspection of whether the subject of the complaint breeches any performance indicators of this CEMP. In the event it is identified that a performance indicator is breeched, a CAR shall be issued and the complainant notified of actions that will be undertaken to resolve the subject of the complaint.

3.6 Outline and Format of this CEMP

The CEMP has identified the following environmental elements required to be managed and monitored during construction of the development:

- Preparation of a Works Plan;
- Community Awareness;
- Air Quality;
- Noise and Vibration;
- Water Quality;
- Excavation, and Erosion and Sedimentation Control;
- Flora and Fauna Management;
- Weed Control;
- Dangerous and Hazardous Materials; and
- Contingency Plan.

This CEMP has addressed each element individually and for each element, the following components are included.

- Rationale for inclusion of each element in the CEMP.
- Objective/target to be achieved for each element.
- Tasks/actions to achieve the objective / target.
- Performance indicators to measure the success of the management strategy.
- Record keeping requirements.
- Reporting and review requirements to ensure the above are implemented.
- Corrective action response plan.

3.7 Distribution List

This CEMP is an active document and it is expected that updates will occur from time to time to reflect industry best management practice and any changes to the development. In this respect this distribution list will ensure that all official holders of this CEMP well be advised of any changes to the CEMP. The document control box at the front of this CEMP will be updated and new versions issued to reflect changes.

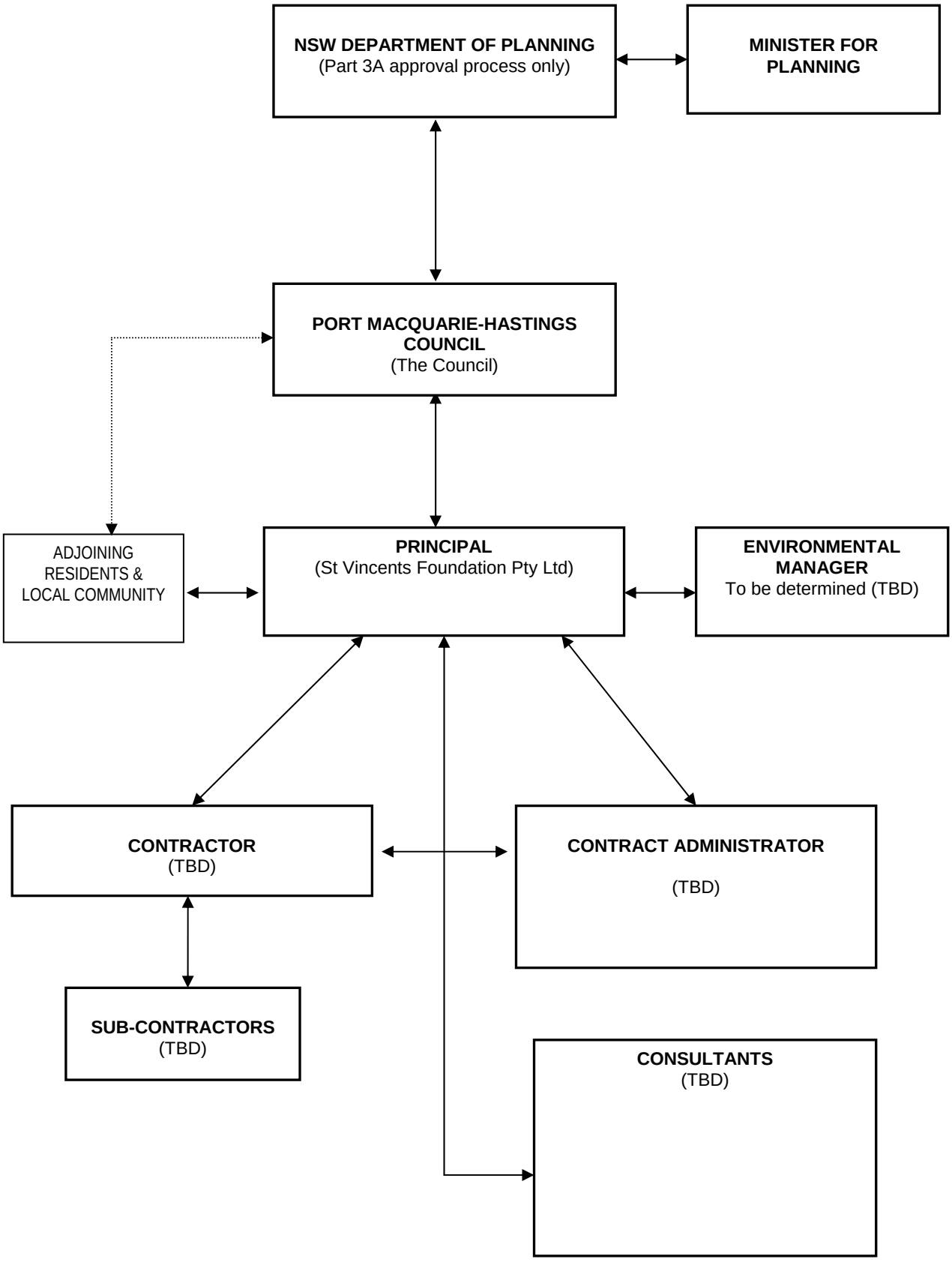
Version 3 of this CEMP (i.e. this version) is prepared to be included as an appendix to the document titled Rainbow Beach Estate, Bonny Hills Water Engineering and Environment DGR Assessments (Cardno 23 March 2008).

Copies of this CEMP have been formally distributed as an appendix within the Rainbow Beach Estate, Bonny Hills Water Engineering and Environment DGR Assessments (Cardno 23 March 2008) document to the following parties:

- NSW Department of Planning – Director Generals Office; and
- St Vincents Foundation Pty Ltd.

4. ENVIRONMENTAL STRUCTURE AND RESPONSIBILITY

The flow diagram provided below illustrates the reporting relationships of the various parties that will be formally involved in the construction phase of development and implementation of this EMP.



4.1 Council

The roles and responsibilities of the Council are to:

a. take reasonable and relevant steps to ensure that any applications for development permits and supporting documentation, including this CEMP, satisfy the relevant conditions of the development approval;

b. liaise with the Principal and its representatives to ensure that the development is carried out in accordance with all relevant conditions of the development approval;

c. attend pre-start meetings to be held at the site prior to the commencement of physical development works to confirm that all appropriate environmental management controls are being implemented;

d. promptly respond to any request from the Principal for advice concerning appropriate responses to any environmental incidents with the potential to cause environmental harm;

e. promptly assess any proposed changes to this CEMP and its implementation that may be requested by the Principal;

f. convey to the Principal any inquiries received, from adjoining residents and local community groups, that concern the development; and

g. assess CEMP implementation and performance at the completion of on-site works and following the maintenance and establishment periods.

4.2 Principal

The roles and responsibilities of the Principal are to:

a. assume ultimate responsibility for compliance with development approval conditions and implementation of this CEMP;

b. nominate the CA who will represent the Principal in issuing instructions to and reviewing the performance of the Principal Contractor and relevant consultants;

c. promptly notify Council of any proposed changes to this CEMP and its implementation, reporting or monitoring, and any breach of development approval conditions and proposed corrective action;

d. be the primary entity for receiving enquiries concerning construction activities;

e. appoint consultants to assist (or represent the Principal) in overseeing works and monitoring compliance with conditions of relevant approvals and contract specifications;

f. appoint a Contractor to oversee the implementation of the CEMP;

g. appoint an Environmental Manager to provide environmental management advice as the need arises;

h. receive and maintain a register of any inquiries received, from adjoining residents and local community groups, that concern the development;

i. assess inquiries received, using the services of appropriately qualified consultants when required, and the need for and nature of any corrective actions required in respect thereof;

j. notify the Contractor of any enquiry received from adjoining residents and local community groups and the nature and timing of any measures that are required in response to such an inquiry;

k. advise Council and the relevant adjoining resident or local community group of the nature and timing of any measures that are to be implemented in response to their enquiry;

l. arrange for pre-start meetings prior to the commencement of construction activities associated with each stage of the development;

m. ensure that the Contractor complies with the requirements of the CEMP and any environmental management or corrective action directions issued; and

n. report to the Council on the implementation and performance, including any non-compliance, at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods of this CEMP.

4.3 Contractor

The roles and responsibilities of the Contractor are to:

a. satisfactorily demonstrate to the Principal and Council that appropriate measures have been implemented on-site during the execution of the contract to comply with the requirements of this CEMP;

b. ensure that an appropriate Environmental Management Induction Process is implemented during the construction phase of the development;

c. comply with workplace health and safety legislation and standards and to promptly advise the Principal of any conflict between the requirements of this CEMP and requirements under the workplace health and safety legislation, standards or policies implemented for this development;

d. maintain records of any complaints received and outcomes of investigation, complaint response and implement control measures as per the CEMP;

e. attend pre-start meetings and periodic site inspections during construction or as triggered by any environmental events (eg. major rain events causing run-off/erosion) and/or incidents from the commencement of the contract until the completion of the contract works;

f. notify the Principal regarding CEMP performance and monitoring, non-compliance and actions taken, and seek advice when required;

g. notify the Principal regarding environmental incidents with the potential to cause environmental harm or nuisance and provide written details within 24 hours of occurrence including details of corrective actions taken;

h. report on CEMP implementation and performance to the Principal at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods; and

i. follow directions of the Principal, or any nominated representative of the Principals, with respect to environmental performance.

4.4 Environmental Manager

The roles and responsibilities of the Environmental Manager are to:

a. on behalf of Principal liaise with the Contractor and CA to facilitate compliance with legislation, Council policies, the development approval conditions, and community expectations during the project;

b. attend a pre-start meeting with the Principal, CA, Principal Contractor and Council prior to the commencement of any vegetation clearing and earthworks;

c. conduct fortnightly site inspections during earthworks, clearing and landscaping stages, or as requested by the Principal, and as triggered by any environmental event or incident;

d. advise the Principal on compliance and effectiveness of the CEMP, including any corrective action instructions to be issued to the Principal and / or Contractor;

e. issue written corrective action instructions to the Principal and / or Contractor, via the Principal, within 24 hours of the identification of a need for corrective actions to be taken;

f. review and advise the Principal of any proposed alterations to the CEMP that may be required in response to issues that arise during the conduct of works; and

g. report on CEMP implementation and performance to the Principal at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods.

4.5 Contract Administrator

The roles and responsibilities of the CA are to:

a. oversee the documentation and implementation of project specifications that are compliant with the requirements of the approved plan of development, Council policies and this CEMP;

b. on behalf of the Principal and in consultation with the Environmental Manager, review tenders received from potential Contractors to determine whether adequate provisions have been made for environmental management compliance;

c. on behalf of the Principal, administer the contract(s) for the construction phase of works; and

d. on behalf of the Principal, assess the performance of the Contractor against the project specifications and contract requirements.

4.6 Consultants

The roles and responsibilities of Consultants are to:

a. provide the Principal with specifications for and certifications of specific works;

b. prepare plans and specifications that comply with relevant conditions of development approval and the requirements of this CEMP;

c. develop specifications and plans that adequately address environmental issues;

d. liaise with the Contractor and CA to facilitate compliance with development permits, Council policies and contract specifications; and

e. report to the Principal any areas of non-compliance with the specifications that may require corrective actions or modifications to the CEMP.

4.7 Environmental Induction

All employees including contractors and subcontractors working on site shall undergo general environmental awareness induction concerning their responsibilities under this CEMP. This shall include:

- a general site induction;

- familiarisation with the requirements of this CEMP; and
- environmental emergency/incident reporting.

All staff engaged on the project shall be instructed by the Contractor as to their obligations under this CEMP before work commences so that they are made aware of relevant environmental issues and correct compliance and reporting procedures.

During the conduct of development works a copy of this CEMP shall be kept on site by the Contractor and will be easily obtainable by relevant persons entering the site. Copies of this CEMP will also be retained by the Principal, CA, Consultants and Environmental Manager.

4.8 Emergency Contact

Prior to the commencement of any works associated with the construction phase of development, a sign detailing the project team must be placed in a prominent position, at each entrance to the development site. The sign must detail the relevant project coordinator for the works being undertaken on the site, and the following parties (where relevant):

- Principal; and
- Contractor.

The sign must provide a telephone number for the Principal and Contractor to which any inquiries concerning the conduct of development works on this site can be directed to.

5. ELEMENT 1: PREPARATION OF A WORKS PLAN

RATIONALE

It is the Contractor's responsibility to determine how the works will be conducted in compliance with this CEMP. This determination is to be reported to the Principal.

OBJECTIVE / TARGET

To prepare a works plan that complies with all elements and requirements of this CEMP.

The site shall be maintained so that environmental harm or nuisance is not caused during the construction works period.

TASKS / ACTIONS

The Contractor shall prepare a draft works plan prior to conducting any activities associated with the construction of the development.

The draft works plan is to contain the following elements:

- Community Awareness;
- Air Quality;
- Noise and Vibration;
- Water Quality;
- Excavation, and Erosion and Sedimentation Control;
- Flora and Fauna Management;
- Weed Control;
- Archaeological Sites Management;
- Waste Management
- Dangerous and Hazardous Materials; and
- Contingency Planning.

The draft works plan is to be provided to the Principal. The Contractor is to have due regard for comments made by the Principal and / or the Consultant prior to the preparation of the final works plan.

The draft works plan shall incorporate all relevant requirements of the most current Port Macquarie- Hastings Council Aus – Spec Development Construction Specification. In particular:

- C101 - General;
- C201 - Control of Traffic;
- C211 - Control of Erosion and Sedimentation;
- C212 - Clearing and Grubbing;
- C213 - Earthworks;
- C220 - Stormwater Drainage;
- C230 - Subsurface Drainage; and

- C273 – Landscaping.

A final works plan shall be provided by the Contractor for the approval of the Principal and Council.

The Principal is to issue its approval of the Contractor's draft works plan to the Contractor prior to the Contractor conducting any works.

No construction works are to be undertaken until the plans, specifications and pavement design are formally approved by the Council's Director of Development and Environment and the name of the contractor has been notified to, and approved by, the Council's Director of Development and Environment.

PERFORMANCE INDICATORS

Compliance with the elements of this CEMP.

RECORD KEEPING

Records shall be kept of all communication between the Principal and Contractor with respect to the tasks of this element.

REPORTING AND REVIEW

The Principal shall provide formal agreement to the Contractor to implement of the finalised works plan.

CORRECTIVE ACTION

Non-conformance with the works plan shall be documented and a corrective action request ("CAR") issued. All CARs shall be included in the CAR Register to be kept under the provisions of this CEMP.

The Contractor shall implement the corrective action as required within the agreed time frame noted on the CAR.

6. ELEMENT 2: COMMUNITY AWARENESS

RATIONALE

Construction activities are likely to have short term impacts on public amenity due to noise and dust emissions, road closure and diversions and disruption to property access.

OBJECTIVE / TARGET

To ensure that persons that may be affected by the works are notified of the nature and duration of the proposed works and proposed works program.

Relevant stakeholders within the project area include the following.

- Occupants of adjacent residential areas.
- Local community members.
- Conservation groups.
- Traditional land owner groups
- Port Macquarie-Hastings Council.
- Adjacent land owners.

TASKS / ACTIONS

The Contractor shall advise local residents of the nature of the proposed works and the proposed works program.

Media releases shall be undertaken to inform the wider community of any likely traffic disruptions.

Activities that may cause traffic disruptions shall be scheduled appropriately.

The Contractor shall manage traffic control pursuant to the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C201 - Control of Traffic.

The Contractor shall provide means to advise residents and landowners in advance of works that may impact upon them.

The Contractor shall provide a point of contact for receiving complaints or queries from stakeholders, which shall be clearly identified on signage at the site entrance.

Contact details shall include a contact telephone number which is to be manned during working hours. A 24 hour emergency contact shall also be provided.

The Contractor shall comply with the elements of this CEMP that relate to the protection of residential amenity.

PERFORMANCE INDICATORS

Local residents are informed of the nature and duration of proposed works.

All complaints are responded to within 1 working day.

All CARs are closed out within time frames agreed between the Principal and the Contractor.

All CARs raised in response to actual or potential environmental harm are actioned within a maximum of 24 hours.

RECORD KEEPING

The Contractor shall maintain a record of all complaints received in relation to construction activities including complainant details, nature of complaint and corrective actions undertaken.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Where complaints are received from affected community members, corrective actions should be undertaken to resolve the issue.

Non-conformance with the works plan shall be documented and a corrective action request (CAR) issued. All CARs shall be included in the CAR Register to be kept under the provisions of this CEMP.

The Contractor shall implement the corrective action as required within the agreed time frame noted on the CAR.

7. ELEMENT 3: AIR QUALITY

RATIONALE

Construction of the proposed development will involve the use of powered mechanical equipment for movement of earth material to achieve the required landform for the proposed development. The bulk handling of this material has the potential to create air impurity nuisances by release of dust as suspended then deposited particulate matter.

OBJECTIVE / TARGET

To comply with the *Protection of the Environment Operations (Clean Air) Regulation 2002 Act*, Council local laws and health and safety requirements and to ensure acceptable amenity for the development.

To minimise the emission of air impurities associated with construction works.

To comply with the stated performance indicators for air impurity levels in the locality of the works.

TASKS / ACTIONS

Activities resulting in the introduction of excessive dust and fumes to the local atmosphere shall be minimised as far as practicable during construction.

The Contractor shall establish a controlled site entry/exit point with a vehicle shakedown and wheel wash facilities. The site entry exit point shall be located with access to Ocean Drive, to minimise truck movement through established residential areas.

Internalised tracks shall be formalised (i.e. covered with gravel) to avoid bogging and dust emissions.

All parking areas within the site shall be sealed or covered with gravel during construction.

Trucks transporting materials that are subject to loss by wind suspension shall be covered.

Areas requiring vegetation clearing shall be progressively stabilised in order to minimise the area of open ground exposed at any one time.

All vehicles and equipment shall be operated and maintained in accordance with the manufacturer's specifications.

Dust-suppression measures such as watering of exposed areas shall be implemented as required.

Dust control measures shall be used on all processes that have the potential to generate dust.

Oil must not be used for the suppression of dust.

Stockpiles shall be maintained within designated areas and spread of stockpile material into adjacent areas shall be prevented.

Stockpiles to be left for longer than 8 weeks shall be stabilised appropriately, and all stockpiles shall be removed upon completion of works at the site.

Windbreaks and silt fences shall be provided as required to prevent loss of soil by wind and water suspension.

Silt fences shall be positioned as appropriate to prevent release of dust to the wetland area.

The emission of air impurities associated with operation activities shall be minimised to ensure compliance with the specified performance criteria.

Burning of waste materials shall not be undertaken at the site.

PERFORMANCE INDICATORS

No complaints received from adjoining operations, nearby residents or from statutory authorities regarding air impurities.

The following air quality criteria shall be achieved during monitoring where required by regulatory authorities.

Parameter	Maximum Acceptable Concentration
Annual 24 hour averaged particle concentration as PM_{10}^	50µg/m^3
Annual 24 hour averaged particle concentration as $PM_{2.5}$^	25µg/m^3 (allowed to be exceeded for 5 days per year)
Odour	No detectable odour outside the boundaries of the land.

^Source: National Protection Measure for Ambient Air Quality – as required by the NSW State Plan

MONITORING

Visual inspection of working areas and dust generating activities shall be undertaken on a daily basis during construction.

If through the CAR process it is determined that on the balance of probabilities the Contractor's actions have brought about a complaint then dust deposition or suspended particulate monitoring shall be undertaken in response to complaints received as directed by regulatory authorities.

Any particulate monitoring required by regulatory authorities shall be undertaken in accordance with the following Australian Standards as appropriate.

- AS35809.6-1990; and
- AS35809.7-1990.

RECORD KEEPING

The Contractor shall maintain a record of all complaints received in relation to air quality including complainant details, nature of complaint and corrective actions undertaken.

The Contractor shall maintain a record of any monitoring results undertaken including details of corrective actions and/or repairs undertaken.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should a complaint relating to excessive emission of air impurities from the works site be received the following corrective actions are to be implemented.

- Response to complainant outlining procedure for corrective action.
- Identification of the source(s) of the excessive emission of air impurities.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring of air impurity concentrations at nominated locations.
- Notification of complainant that complaint has been closed out, with details of corrective actions undertaken.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

8. ELEMENT 4: NOISE AND VIBRATION

RATIONALE

Construction of the proposed development will involve the use of powered mechanical equipment and increased vehicle movements. In addition, construction works may generate ground vibration. Appropriate management measures are required to ensure that noise and vibration produced during construction works does not result in disturbance at noise sensitive places or damage to nearby structures.

OBJECTIVE / TARGET

To control noise generated by construction activities, minimise the impact of noise to ensure acceptable levels of amenity for the closest sensitive receptors and to prevent damage to nearby buildings and structures as a result of ground vibration.

To undertake construction in accordance with AS2436 – 1981, *Guide to Noise Control on Construction, Maintenance and Demolition Sites* and C101.17 and C101.18 of the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C101 – General. In the event of a contradiction between these documents, the requirements of the Port Macquarie-Hastings Council Aus-Spec document shall prevail.

TASKS / ACTIONS

All noise generating mobile and stationary plant and equipment, and processes shall be controlled to minimise noise emission in accordance with AS 2436: *Guide to Noise Control on Construction, Maintenance and Demolition Sites*.

All works likely to generate vibration shall be undertaken in accordance with ANZECC Guidelines – *Technical Basis for Guidelines to minimise annoyance to Blasting Over-Pressure and Ground Vibration (1990)* or the most recent equivalent.

All powered mechanical equipment shall comply with C101.17 of the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C101 – General.

Unless otherwise specified by C101.17 of the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C101 – General. Working hours at the site shall be limited to between 7am and 6pm Monday to Saturday. There are to be no works conducted at the site on Sunday or during public holidays.

The works plan required by Element 1 herein shall provide details of the type, location, expected time and duration of use, expected noise levels generated and noise attenuation measures of all plant and equipment proposed to be used at the site.

All vehicles entering or leaving the site or used at the site shall enter/leave via a controlled site access point.

All vehicles entering or leaving the site or used at the site shall be operated and maintained in a manner which ensures that the noise levels produced by the vehicles are within the limits of the Commonwealth Department of Transport and Regional Services Federal Office of Road Safety Australian Design Rule *ADR28- External Noise of Motor Vehicles*.

In the event of the adjusted noise level for a single noise source or activity exceeding the background noise level by more than 10 dB (A), consideration shall be given to restricting the times during which the activity can take place to a number of separate hours each day. Persons affected by the noise shall be consulted with regard to suitable hours and advised of the agreed operations schedule.

Wherever practicable, noise and vibration generating activities shall be substituted by alternative processes or shall be screened or enclosed.

PERFORMANCE INDICATORS

No complaints of noise or vibration impacts are received.

The works shall be carried out by such practicable means necessary to prevent the emission of noise that constitutes *"offensive noise"* as defined by the *Protection of the Environment and Operations Act 1997*.

Noise and vibrations shall remain within the limits specified in C101.17 and C101.18 of the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C101 – General.

MONITORING

If it is determined that the Contractor's actions have brought about a non-vexatious complaint of excessive noise then noise monitoring shall be undertaken in response to complaints received as directed by regulatory authorities.

RECORD KEEPING

The Contractor shall maintain a record of all complaints received in relation to noise emissions including complainant details, nature of complaint and corrective actions undertaken.

The Contractor shall maintain a record of any monitoring results undertaken including details of corrective actions and/or repairs undertaken.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should a complaint relating to excessive emission of noise from the works site be received, the following corrective actions are to be implemented.

- Response to complainant outlining procedure for corrective action.
- Identification of the source(s) of the excessive emission of noise.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring of noise levels as a result of the works at nominated locations.
- Notification of complainant that complaint has been closed out, with details of corrective actions undertaken.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

9. ELEMENT 5: WATER QUALITY

RATIONALE

Construction of the proposed development will involve excavation of soils and the alteration of landform at the site. Site investigations by Holmes & Holmes Pty Ltd identified that acid sulfate soils occur throughout excavated areas of the site. Stormwater coming in contact with exposed soil material has the potential to transport sediment and/or other contaminants to natural drainage lines and receiving waters adjacent to the site.

OBJECTIVE / TARGET

To minimise the risk of any release of contaminants originating from the site entering surface and ground waters in the locality of the site.

To ensure that the existing qualities of the receiving surface and ground waters in the locality of construction works are not adversely affected by activities associated with the works.

To undertake construction in accordance with the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C220 – Stormwater Drainage.

In the event that any potential or actual Acid Sulfate Soils (ASS) are identified on the site, ensure that no leachate from Acid Sulfate Soils is released from the site.

TASKS / ACTIONS

Should there be any inconsistencies between this element and the following plans established for the site, the requirements of the following shall prevail.

- Acid Sulfate Soil Management Plan (ASSMP);
- Surface Water Management Plan (SWMP); and
- Groundwater Management Plan.

The Contractor shall carry out baseline sampling at strategic locations within the property and drainage system outfalls prior to commencement of any activities on the site.

The Contractor shall undertake surface water sampling from the nominated surface and groundwater sampling points and at any location within the site prior to commencement of construction works to enable monitoring of runoff water quality from the work sites. The nominated surface and groundwater sampling points are shown on Figure 1. The water quality shall be assessed at a NATA accredited laboratory for the water quality parameters listed in Table 3.

The Contractor shall undertake surface water quality monitoring during the course of the works and storm events during and after work hours where runoff is generated from the property.

The Contractor shall provide measures to divert clean stormwater runoff from disturbed areas of the site to ensure that clean stormwater runoff does not become contaminated.

Where an area of greater than 1 hectare will be disturbed at any one time, stormwater detention ponds shall be provided for treatment of stormwater prior to discharge from the site.

The Contractor shall cover stockpiles and install temporary sediment control devices on downhill slopes.

The Contractor shall establish a site access point with shakedown and wheel wash to prevent soil-tracking onto external roads.

Stormwater Quality Improvement Devices (SQIDs) shall be installed to improve the quality of stormwater discharging into receiving waters.

The Contractor shall undertake construction in accordance with the most current Port Macquarie-Hastings Council Aus-Spec Development Construction Specification C220-Stormwater Drainage.

Where possible the Contractor shall ensure all water is reused on site as much as is practicable unless it can be demonstrated that the water quality meets the release criteria stated in Table 3.

Any necessary testing of waters shall be undertaken by the Contractor in accordance with ANZECC Guidelines to ensure effective environmental management of its works activities and protection of existing watercourses and their ecosystems.

PERFORMANCE INDICATORS

The development shall ensure that any waters being discharged from the works site comply with the following quality characteristics or demonstrate that there is no worsening of existing conditions.

Table 3 Water Quality Parameters

Water Quality Parameter	Release Criteria
Turbidity	1-20 ntu or no higher than baseline value*
pH	6.2 to 8.6^
Dissolved Oxygen (% saturation)	>90% or no less than baseline value*
Total Nitrogen (mg/L)	0.44mg/L^
Total Phosphorus (mg/L)	0.01*^
Oil and Grease	No visible sheen
Litter	No visible litter

*Source •"Australian Water Quality Guidelines for Fresh and Marine Waters" Freshwater Lakes, Reservoirs and Wetlands (ANZECC 2000)
^Source• "Hastings Council Aus-Spec Design Specification" (2003)

MONITORING

Water quality monitoring shall be undertaken in accordance with the following schedule.

Location	Frequency	Type	Parameter
Nominated monitoring points shown on Figure 1	Monthly and during rain events of > 25mm / 24 hours	Field Analysis	pH Dissolved Oxygen
		Laboratory analysis	Suspended Solids Total Nitrogen Total Phosphorus
All control structures	Daily	Visual inspection	Inspection of structures to ensure measures are in place and
Temporary sedimentation basins	Weekly	Visual inspection	Leachate staining Algal blooms Signs of erosion Sediment accumulation at discharge points

Location	Frequency	Type	Parameter
Groundwater Monitoring Bores in dewatered zone adjacent to excavation areas	Monthly and during rain events of > 25mm / 24 hours	Field Analysis	pH

Water quality monitoring shall be undertaken until the site has been adequately stabilised.

The Contractor shall maintain a record of any monitoring results undertaken including details of corrective actions and/or repairs undertaken.

RECORD KEEPING

The Contractor shall keep record of all water quality monitoring results and report recommendations for inspection by relevant authorities on request.

REPORTING AND REVIEW

Results of monitoring shall be forwarded periodically to a suitably qualified environmental consultant to assess water quality.

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

10. ELEMENT 6: EXCAVATION, EROSION AND SEDIMENTATION CONTROL

RATIONALE

Construction of the proposed development will involve alteration of landform at the site. Excavated areas and stockpiles are to be protected from erosion and at the completion of the works the ground surface is to be rendered stable to ensure erosion and sedimentation of receiving waters does not occur as a result of the works.

OBJECTIVE / TARGET

To minimise the impacts of soil erosion and sedimentation on the receiving waters adjacent to the site.

To control erosion and sedimentation in accordance with the requirements of the *Soil Erosion and Sediment Control Guidelines, Institute of Engineers Australia* and the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C211 Control of Erosion and Sedimentation and C213 – Earthworks. In the event of a contradiction between these documents, the requirements of the Port Macquarie-Hastings Council Aus-Spec document shall prevail.

TASKS / ACTIONS

Should there be any inconsistencies between this element and the following plans established for the site, the requirements of the following shall prevail.

- Acid Sulfate Soil Management Plan (ASSMP);
- Surface Water Management Plan (SWMP); and
- Groundwater Management Plan.

General

The Erosion and Sediment Control component of the works plan required by Element 1 of this EMP shall incorporate relevant provisions of the Hastings Development Control Plan No. 17 - Subdivision Code, which is available at the following internet address:

http://www.hastings.nsw.gov.au/www/html/564-development-control-plans.asp?intSiteID=1

The Contractor shall plan and undertake all works in accordance with relevant aspects of the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C211 Control of Erosion and Sedimentation and C213 - Earthworks.

All works that involve any disturbance to the surface of land are to be carried out in accordance with the approved works plan and the approved ASSMP.

Pre-Construction

The Contractor shall schedule earthworks to retain as much ground cover vegetation as possible and limit the duration for which disturbed areas are exposed.

Construction

Stormwater drainage works and earthworks for erosion and sediment controls are to be constructed early in the development.

The Contractor shall designate a stabilised entry/exit point to/from the site so that access for construction vehicles and equipment is limited to a single control point. This area shall include a shakedown area and wheel wash to prevent soil-tracking onto external roads. The entry crossing shall be stabilised with geotextile fabric and blue-metal to allow all-weather access.

The contractor shall direct intercepting and redirecting stormwater away from the site in a controlled manner to minimise water flow across disturbed areas.

The Constructed Wetland shall not be excavated below the depth of the Acid Sulfate Soil line shown on Baseline AA Cross Sections included herewith as Appendix B.

Any batters should be constructed to be no steeper than a grade of 1 in 3 (where existing ground slopes allow) unless otherwise specified by NSW government authorities.

Fill material shall be primarily sourced from material excavated from the constructed wetlands. Other sources of fill shall be used upon approval from the Council.

Reclamation earthworks shall occur within one continuous operation.

Sediment traps are to be placed at inlets to stormwater pipes and any sediment is to be retained on major drainage lines.

Runoff from areas exposed during the work shall be controlled in accordance with the approved ASSMP established for development of the site.

Vegetation clearing shall be undertaken in stages to minimise soil erosion. Topsoil removed during vegetation removal shall be stockpiled at heights of no more than 1.5m and located within designated storage areas. Stockpiled topsoil shall be used in revegetation following completion of earthworks.

When excavating for services installation, trenches shall be left open for the shortest possible amount of time.

In instances that trenches require pumping dry for pipe installation, the pumped water shall be filtered through a grass buffer or a suitable silt trap prior to discharge.

Roads and pavements shall be swept, not hosed as required to prevent entry of soils to stormwater drains or gutters. Sediment controls shall be placed around stormwater drains as a precaution.

The Contractor shall remove all uncontaminated material from sediment and erosion control devices on a fortnightly basis and following rain. Uncontaminated material shall be returned to a secure stockpile area.

Stockpiles

The Contractor shall retain topsoil for effective revegetation works.

The Contractor shall store topsoil away from drainage lines and other hazardous areas in a manner that protects the stockpiles from erosion.

All stockpiles shall have sediment fences installed on downhill slopes to prevent mobilisation of stockpile materials into waterways. Grassed areas should be maintained downslope of sediment fences to trap excess materials.

All stockpiles that are to be left for more than 1 month shall be stabilised using suitable vegetation/grass cover species.

Completion of Works

The Contractor shall ensure exposed areas are revegetated with local native species within one month after completion of earthworks to stabilise exposed areas and in accordance with the approved Open Space Landscape Plan and most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C273 - Landscaping.

PERFORMANCE INDICATORS

Sediment control devices are installed and operational prior to commencement of site preparation and construction activities.

No failure of erosion and sedimentation control devices is detected during construction works.

Sediment concentrations in water discharged from the site are in accordance with water quality criteria stated in Element 5.

MONITORING

The Contractor shall visually inspect all sediment and erosion controls on a daily basis and following rain and undertake repairs or maintenance where necessary.

The Contractor shall visually inspect the integrity of stockpiles on a daily basis and following rain.

The Contractor shall inspect all stormwater drains daily and following rain to ensure they are free of debris.

RECORD KEEPING

The Contractor shall maintain a record of any monitoring results undertaken including details of corrective actions and/or repairs undertaken.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

11. ELEMENT 7: FLORA AND FAUNA MANAGEMENT

RATIONALE

The site encompasses areas of significant flora and fauna habitat that have been specifically identified for retention and enhancement. These ecologically significant areas for retention are shown on Figure 1. The development will involve the use of heavy machinery and selective clearance of native flora habitats.

OBJECTIVE / TARGET

To ensure the protection of identified ecologically significant areas and identified vegetation and to minimise the requirement for the removal of vegetation at the site.

To comply with the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C212 - Clearing and Grubbing.

TASKS / ACTIONS

General

Prior to preparation of tender the Principal shall identify and obtain all relevant permits and approvals for removal of vegetation on the site.

Prior to commencement of construction the Contractor shall erect star picket fences around all areas of vegetation identified for retention. The star picket fences shall display “no go zone” signage at regular intervals as appropriate to demarcate the limit of works. The boundaries of the limit of works are identified on Figure 1.

The Contractor shall not direct any artificial lighting toward the natural and constructed wetland.

The temporary construction fence that is established around the development envelope shall be removed within a month following completion of construction works.

Preparation for Vegetation Clearing

Prior to the commencement of any vegetation clearance at the site, the Contractor shall identify all vegetation to be cleared and all vegetation identified for retention on approved tree clearing plans in accordance with Clause 212.02 of the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C212 - Clearing and Grubbing.

Vegetation Clearing

Clearing shall be undertaken in accordance with Clause 212.03 of the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C212 - Clearing and Grubbing.

The Contractor shall plan clearing operations so clearing is carried out progressively and only the minimum area of land is left disturbed at any time.

The erection of structures, excavation and filling, changes to soil profiles, stockpiling of spoil, storage of other materials and driving or parking of any vehicle or machinery within 4m of the trunks of trees to be retained shall not be permitted unless approved by the Environmental Manager.

No tree roots are to be cut without the prior approval of the Environmental Manager.

All trees and stumps, on or within the limits of clearing, unable to be felled and removed by the clearing methods used by the Subdivider shall be removed by grubbing in accordance with Clause C212.04 of the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C212 - Clearing and Grubbing.

Grubbing operations shall be carried out to a depth of 0.5m below the natural surface or 1.5m below the finished surface level, whichever is the lower.

Holes remaining after trees and stumps have been grubbed shall be backfilled promptly with suitable material to prevent the infiltration and ponding of water. The backfilling material shall be compacted to at least the relative density of the material existing in the adjacent ground.

Reuse and Disposal of Vegetation

Unless otherwise approved by the Environmental Manager in writing, disposal of timber and other combustible materials by burning shall not be permitted. Where the Contractor obtains the prior written approval of the N.S.W Rural Fire Service, the Contractor shall comply with all statutory requirements applicable to burning off, and any such burning off shall be carried out in such a manner that no damage is done to any trees outside the limits of clearing.

No burning shall occur within the wetlands area.

Smoke resulting from such burning off shall not cause a traffic hazard.

The Contractor shall produce a wood-chip and mulch derived from crowns of cleared native trees and branches of cleared native shrubs. The storage size of wood-chip mulch produced shall in accordance with Clause C212.05 of of the most current Port Macquarie - Hastings Council Aus-Spec Development Construction Specification C212 - Clearing and Grubbing.

Where possible, trunks of fallen trees shall be maintained for landscaping purposes.

Where practicable, remove all hollow bearing limbs from felled trees and relocate into areas nominated for retention or suitable areas within the area of significant conservation value to provide additional denning habitat resources for native fauna in these areas.

Unless specified by government authorities elsewhere, all other materials cleared and grubbed shall be removed from the site and legally disposed of.

Fauna Management

The Contractor shall train all employees involved in construction works of the importance and sensitivity of *Crinia tinnula* (Common name: Wallum Froglet) habitat prior to the commencement of construction.

Sediment detention fences shall be provided around the wetland on the aspect exposed to the construction area to prevent risk of sedimentation.

Vegetation clearance shall be conducted in a manner that avoids any injury or harm to native fauna during and following construction works.

The Contractor shall ensure that a suitably qualified wildlife spotter-catcher inspects all trees and vegetation identified for clearances for native animals, in particular Microchiropteran Bats prior to clearance.

Where possible, the actual felling of habitat trees shall be conducted in a manner that will maximise survival of any fauna remaining within tree hollows.

The Contractor shall ensure any vegetation containing native fauna is retained until the fauna either moves, or is removed.

The Contractor shall report any observations of sick or injured native animals within or adjacent to the work area and contact the National Parks and Wildlife Service (NPWS) to receive advice concerning specific measures to be taken.

Fauna recovered during vegetation clearance shall, immediately upon capture, be inspected for any signs of physical injury. If the fauna appear to be injured, they shall be immediately transported to a suitably qualified veterinary surgeon for appropriate treatment.

Uninjured fauna recovered during vegetation clearance shall be relocated to a suitable, habitat in the surrounding area and released at an appropriate time of day (i.e. after nightfall if the animal is nocturnal, or during daylight hours if diurnal) in order reduce the risk of predation.

MONITORING

The Contractor shall inspect the work site on a daily basis to ensure that vegetation protection measures, in particular sediment fences around the natural wetland, are effective.

The condition of retained vegetation shall be inspected visually on a weekly basis for signs of stress or poor health.

PERFORMANCE INDICATORS

Retained vegetation within the site is maintained in a healthy condition during and following the construction phase of the development.

Wetland vegetation is protected and access is restricted at all times during construction.

No injury to native fauna.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

12. ELEMENT 8: WEED CONTROL

RATIONALE

The development has the potential to result in the introduction of new noxious weed species to the site during both the construction and post-construction phases of development. In this respect, appropriate management of earthworks and landscaping in particular must be implemented to minimise the potential for the establishment of new noxious weed species on the site and/or the off-site transportation of noxious weeds to external areas.

OBJECTIVE / TARGET

Prevent the spread of established exotic weeds and noxious and declared pursuant to the *Noxious Weeds Act 1993* from the site to adjoining properties.

TASKS / ACTIONS

The Principal shall identify the location of noxious weed infestations on the site all contractors should be made aware of the noxious weed infestations and the particular measures that are required to prevent its spread.

All areas of weed infested vegetation are to be clearly marked on construction plans and in the field prior to works.

During the induction all employees are to be informed of the plants that are declared pest plants pursuant to *Noxious Weeds Act 1993*.

Weed management measures specific to the type and location of the weed infestation should be implemented to prevent the spread of the established weed to areas outside the site. Appropriate measures for management of noxious weeds are available at:

http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed

The contractor shall separate native and non-native vegetation into different stockpiles as far as practicable.

Non-native vegetation, in particular those listed below shall not be mulched for re-use on site, to minimise the risk of propagation.

- Lantana (*Lantana camara*);
- Fireweed (*Senecio madagascariensis*);
- Parramatta grass (*Sporbolus africanus*);
- Rhodes grass (*Chloris gayana*);
- Whisky grass (*Andropogon virginicus*); and
- White passionflower (*Passiflora subpeltata*).

The contractor shall remove cleared non native vegetation from the property for disposal at a suitable facility as soon as possible.

All trucks transporting noxious weed infested materials for disposal shall be securely covered, to reduce the risk of seed and vegetative dispersal during transportation.

Onsite traffic movements shall be controlled to avoid areas of noxious weed infestations as far as practical.

The Contractor shall ensure that all equipment, boots and vehicles used in a noxious weed infested area are washed down thoroughly before equipment is moved into weed-free areas of the site.

Vegetative material shall be prevented from entering water courses as far as practicable.

To minimise the risk of propagation, non-native vegetation shall not be mulched for re-use on and within the site.

Non native vegetation stockpiles should be covered to prevent wind dispersal of seeds. Stockpiling should not occur in or near a water course.

Only native species of the Port Macquarie-Hastings local government area shall be used for revegetation.

MONITORING

The Contractor shall inspect the work site on a weekly basis to ensure exotic and noxious weed infestations are not spreading to uninfected areas.

PERFORMANCE INDICATORS

Noxious and exotic weeds are not spread to or from the site during construction.

REPORTING AND REVIEW

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

13. ELEMENT 9: ARCHAEOLOGICAL SITES MANAGEMENT

RATIONALE

A number of archaeological sites have been identified on the site. Ground disturbance has the potential to damage these sites.

OBJECTIVE / TARGET

To comply with the provisions of the *National Parks and Wildlife Act 1974* for the management of archaeological sites.

TASKS / ACTIONS

The Contractor is to address the issue of Archaeological Sites Management in the Site Works Plan required under Element 1 of this CEMP.

The Contractor is to ensure that all management strategies detailed in the works plan are complied with at all times during the conduct of the works.

The Principal shall seek a whole of development Heritage Impact Permit (with salvage) pursuant to Section 90 of the *National Parks and Wildlife Act 1974* for any aboriginal objects that may be impacted by the development.

Any conditions outlined within the Heritage Impact permit (with salvage) shall be incorporated into the works plan required by Element 1 of this EMP.

With the exception of the management recommendations for Site 4, the Management Recommendations provided in the report titled *Proposed Development at Rainbow Beach, Bonny Hills Aboriginal Cultural Heritage Reassessment* (July 2006) prepared by Jacqueline Collins shall be incorporated into the works plan required by Element 1 of this EMP.

Site 4 shall be managed as detailed in correspondence provided in Appendix C.

The Contractor shall ensure that temporary fencing is installed and maintained along the 6 metre contour interval adjacent to site 4 to define the 'no go' zone until completion of construction. Site 4 is shown on Figure 1.

The Principal shall seek formal approval from the Department of Environment and Climate Change for any disturbance above elevation of the 6 metre contour surrounding Site 4.

In the event of a find of human bones during excavations, the Contractor shall notify the New South Wales Police and the Department of Environment and Climate Change (DECC).

Ensure all bones remain in-situ until identified. Ensure works do not recommence until notification has been given by the New South Wales Police or DECC that suitable arrangements have been made for removal.

PERFORMANCE INDICATORS

No destruction or damage of significant archaeological sites or objects of cultural value occur at any time during the works, unless permitted by the Heritage Impact Permit (with salvage).

MONITORING

The Contractor shall inspect the work site on a daily basis to ensure that archaeological site protection measures are being adhered to.

RECORD KEEPING

Records of monitoring shall be maintained for the duration of the Construction works.

Records of any communications or archaeological finds outside the marked “Archaeological Areas” shall be maintained for three years following completion of Construction works.

REPORTING AND REVIEW

In the event of an archaeological or historic site, item or place being discovered, the find shall be immediately reported to the Principal and DECC.

The Contractor shall report to the Principal upon the requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Corrective action will be determined via consultation with DECC and relevant local traditional owner parties.

Should there be non-compliance with the stated performance indicators the following corrective actions are to be implemented.

- Response provided to the complainant outlining procedure for corrective action.
- Identification of the source(s) of non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring of non-conformance at nominated locations.
- Notification to the complainant that the complaint has been closed out, with details of corrective actions undertaken.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

14. ELEMENT 10: CONTAMINATED SITES MANAGEMENT

RATIONALE

The Rainbow Beach Proposed Urban Development Ocean Drive, Bonny Hills Preliminary Site Investigation prepared by ERM November 2007 identified potential sources of asbestos within the dwellings that require demolition. Polycyclic aromatic hydrocarbons (PAH) including benzo(a)pyrene and the Organochlorine pesticides (OCP) compound Dieldrin was also detected in surface soils surrounding a telegraph pole within the electricity easement along the eastern areas of the site.

OBJECTIVE / TARGET

To ensure no harm to human health as a result of exposure to identified areas of contamination.

TASKS / ACTIONS

Demolition of existing dwellings on site shall not occur until an asbestos survey and appropriate demolition management plan is prepared.

The Principal shall engage an appropriately qualified consultant to undertake a specific asbestos survey and demolition management plan for the existing dwellings.

Soils beneath the power poles within the electricity easement shall be appropriately remediated to sensitive land use standards prior to any landscaping work occurring therein.

PERFORMANCE INDICATORS

Appropriate management and/or disposal of any material indentified as contaminated.

MONITORING

Following remediation works, a contamination investigation of remediated areas shall be undertaken using the same methodology outlined in the report titled Rainbow Beach Proposed Urban Development Ocean Drive, Bonny Hills – Preliminary Site Investigation prepared by ERM November 2007.

RECORD KEEPING

Records of all contaminated area remediation assessments and management actions shall be maintained by the Principal.

REPORTING AND REVIEW

Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

Reporting shall be supplied to government authorities on request.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.
- Records kept of non conformance by way of the system defects.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

15. ELEMENT 11: WASTE MANAGEMENT

RATIONALE

Waste management at the works site is to focus on appropriate methods to avoid, reuse recycle and dispose of waste materials generated as a result of the works.

OBJECTIVE / TARGET

To maximise reuse of materials used on the site.

All non recyclable wastes shall be disposed of at a Department of Environment and Climate Change (DECC) licensed waste facility in accordance with the "Environmental Guidelines: Assessment, Classification and Management of liquid and non liquid wastes "(Department of Environment and Conservation 2004).

TASKS / ACTIONS

The Contractor is to address the issue of waste management in the works plan required under Element 1 of this CEMP.

The Contractor is to ensure that all management strategies detailed in the works plan are complied with at all times during the conduct of the works.

The Contractor shall maintain a regular waste removal schedule and document all waste disposal activities. These activities shall be listed on a Waste Register Form, an example of which is provided in Appendix D.

The Contractor shall provide appropriate methods for the collection and lawful disposal of any wastes produced at the site during the works.

The Contractor shall provide separate on-site storage bins for reuse of waste materials. Waste materials that cannot be reused on site shall be separated into designated holding containers for collection.

The Contractor shall provide separate waste holding bins and recycling bins within construction working spaces.

The Contractor shall colour code all waste holding bins for separation of wastes into categories.

The Contractor shall provide adequate signage for all waste holding and disposal bins.

The Contractor shall locate waste disposal skip(s) in a designated area(s) suitable for collection by waste disposal vehicles.

The Contractor shall organise for waste to be collected for disposal on a regular (at least weekly) basis, and additional services shall be arranged if required. The collection site shall be inspected weekly by the Contractor to determine the need for additional collection services.

Drilling fluid, construction materials, chemicals and other equipment shall be reclycled where practicable.

Best practice energy efficiency principles shall be employed to meet relevant standards set by the Building Code of Australia.

The Contractor shall utilise the Council waste and recycle services as appropriate.

PERFORMANCE INDICATORS

No waste of any description to be released from the site in an uncontrolled situation.

Maximum recycling of all wastes where practicable.

MONITORING

Visual inspection of on-site waste holding and waste collection areas shall be undertaken daily during construction. Evidence of waste spillage or dispersal shall indicate non-compliance with the objectives of this element.

Visual inspection of on-site stormwater drains shall be undertaken daily during construction. Evidence of stormwater blockage by wastes or pollution shall indicate non-compliance with the objectives of this element.

The Contractor shall maintain a record of all complaints received in relation to waste including complainant details, nature of complaint and corrective actions undertaken.

RECORD KEEPING

Records of all waste management actions shall be maintained including details of regulated waste tracking, removal by contractors and proposed disposal.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.
- Records kept of non conformance by way of the system defects.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

16. ELEMENT 12: DANGEROUS AND HAZARDOUS MATERIALS

RATIONALE

Construction works on the site may involve the use of dangerous or hazardous materials such as fuel, paints, solvents, adhesives and sealants. While these are not expected to be stored or used on the site in large quantities, the site is required to be managed to prevent impacts on human health and the receiving environment as a result of accidental release or spillage of dangerous or hazardous materials associated with the works.

OBJECTIVE / TARGET

To comply with the Australian Standard *AS 1940, The Storage and Handling of Flammable and Combustible Liquids 1990.*

To effectively manage the safe storage, handling and disposal of dangerous or hazardous materials within the site.

TASKS / ACTIONS

Site Induction training shall include instructions to site workers on correct procedures for storage and handling of dangerous and hazardous substances.

Dangerous or hazardous substances shall be stored in an adequately bunded containment area. Incompatible substances shall be stored in separate containment areas.

Material Safety Data Sheets (MSDS) shall be displayed with each dangerous or hazardous substance stored within the containment area.

A register shall be maintained of all dangerous or hazardous substances stored within the site and all associated MSDS.

Bunding shall be designed to ensure the containment of spillages in accordance with the nature of stored materials and in accordance with the MSDS and manufacturers' instructions.

Containment areas shall be designed to prevent entry of stormwater and rainfall.

All maintenance and cleaning of plant and equipment shall be undertaken within designated containment areas.

All refuelling shall be undertaken by minitanker within designated containment areas.

Waste materials shall be collected in appropriate containers and stored within containment areas.

Containment areas shall make provision for drainage of spilled materials to a holding tank for disposal in accordance with the MSDS and manufacturers' instructions.

An adequately signed off-site washout facility shall be provided for concrete pumping vehicles and equipment.

Excess concrete shall be re-used within the development where possible or stored in appropriate containers within the designated containment area for collection by a licensed waste disposal contractor.

Disposal of hazardous waste materials shall be undertaken by a licensed contractor as approved by the DECC.

Spill kits shall be maintained on site for clean up of chemical or fuel spills.

Emergency procedures for spillage events and containment measures shall be displayed in a prominent position within the site working area, or addressed in site induction proceedings.

(Note: Any flammable or combustible liquids as defined by Australian Standard AS 1940 involved with the works are to be stored and handled in accordance therewith.)

PERFORMANCE INDICATORS

No adverse human health or environmental impacts associated with hazardous materials is experienced on the site at any time during the works.

No spill or handling incidents that may potentially cause impact to humans or environmental degradation.

All CARs are to be actioned and closed out within time frames agreed between the Principal and the Contractor.

All CARs raised in response to actual or imminent potential environmental harm to be actioned within a maximum of 24 hours.

MONITORING

Weekly site monitoring shall include inspection of containment areas to ensure that spillage or seepage has not occurred and the integrity of the containment area is not compromised.

RECORD KEEPING

The Contractor shall maintain a record of any accidental release or spillage of hazardous materials including details of corrective actions undertaken.

The Contractor shall make all records available for inspection by relevant authorities on request.

REPORTING AND REVIEW

Environmental incidents shall be reported immediately to the Principal.

The Principal shall notify the DECC immediately in the event of accidental release of hazardous materials from the site.

Records of disposal and clean up measures shall be maintained with site records.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.

- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.
- Records kept of non conformance by way of the system defects.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

17. ELEMENT 13: CONTINGENCY PLAN

RATIONALE

The site shall be managed to avoid detrimental impact on the receiving environment external to the site as a result of emergency events associated with the works.

OBJECTIVE / TARGET

To avoid detrimental impact on the receiving environment external to the site as a result of unplanned or emergency events associated with the works.

TASKS / ACTIONS

The following tasks shall be actioned in the event of unplanned or emergency events occurring during the works.

Heavy or Prolonged Rainfall

Construction phase stormwater treatment and conveyance measures employed at the site are expected to be adequate for rainfall events up to a 1 in 3 month rainfall event. In the event that heavy or prolonged rainfall occurs beyond this event magnitude at the site during the works, the following actions shall be implemented.

1. The Contractor shall make an initial assessment of the possible impacts of the rain based on weather forecasts and current site conditions.
2. If the assessment concludes that the rainfall event will result in an increased risk of stormwater contamination, then the Contractor shall cease works at the site.
3. The Contractor shall take actions to ensure that erosion and sediment control measures in place over the site are performing adequately and that stormwater discharges from the site meet the release criteria specified in Element 5. Actions shall also be taken to ensure that all materials being stored at the site including fuels and lime are secure and there is no risk of accidental release or stormwater contamination.
4. If required, the Contractor shall make necessary repairs, alterations or additions to the erosion and sediment control devices and the storage sheds at the site.
5. The Contractor shall only recommence at the site only after the site has been assessed and it has been determined that the risk of erosion and sedimentation has returned to normal and all erosion and sediment control measures have been assessed and repaired / replaced as required.

Accidental Release of Material

In the event that accidental release of material occurs at the site during the works, the following actions shall be implemented.

1. The Contractor shall take appropriate steps to contain the released material. This shall include the use of accidental spill kits located adjacent to stored materials.
2. The Contractor shall make an initial assessment of the severity of the accidental release and the nature of the material.
3. The Contractor shall notify the DECC, the Principal and the Consultant of any accidental release of material.
4. The Contractor shall take steps in consultation with the DECC to treat, remove or otherwise manage the released material.

5. The Contractor, DECC, Principal and Consultant shall make an assessment of the area to confirm the success of the remediation works and whether additional works are required.
6. The Contractor shall assess the work procedures or cause of the failure and implement any changes deemed to be appropriate to prevent reoccurrence of a similar incident in the future.
7. Following completion of remedial actions the Contractor shall provide an incident report or CAR to the Principal detailing the nature of the incident and the corrective actions implemented.

Construction is Halted Due to Unforseen Circumstances

In the event that construction works are halted due to unforseen circumstances, to ensure that environmental deterioration does not occur over time the Contractor shall ensure that all erosion and sediment control devices are intact and operational.

Prior to vacating the site, the Contractor shall ensure that all stockpiles are adequately stabilised and the total disturbed area is minimised. In addition, any site conditions that could conceivably degrade over time and may result in environmental harm shall be attended to.

The Contractor shall monitor and maintain the erosion and sediment control devices on a continual basis until work re-commences at the site.

PERFORMANCE INDICATORS

No adverse environmental impacts associated with unplanned or emergency events of any type to be experienced on the site at any time during the works.

All CARs are to be actioned closed out within time frames agreed between the Principal and the Contractor.

All CARs raised in response to actual or imminent potential environmental harm to be actioned within a maximum of 24 hours.

REPORTING AND REVIEW

Monthly reports shall be prepared by the Contractor and submitted to the Principal on the monitoring undertaken during construction, including all corrective action taken to achieve environmental performance requirements.

CORRECTIVE ACTION

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance.
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor.
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

FIGURES

Figure 1 Protected Vegetation and Water Quality Monitoring Sites

N

LEGEND

- Site boundary
- Limit of construction works
- Surface water quality monitoring locations
- Ecologically important area
- Archaeological Site 4

75 0 75 150 225 300 375m
1:7500

Scale 1:7500 (A3)

FIGURE 1
PROTECTED VEGETATION AND WATER QUALITY MONITORING SITES

Rev: 2 Date: 18 March 2010

Project No.: 7135/01

St. Vincents Foundation Pty Ltd

CAD FILE: I:\7135-01\Acad\CEMP\Figure 1 - Protected Vegetation and Water Quality Monitoring Sites_v3.dwg
XREF's:

PRINT DATE: 18 March, 2010 - 4:08pm

APPENDIX A

Corrective Action Request Form

CORRECTIVE ACTION REQUEST

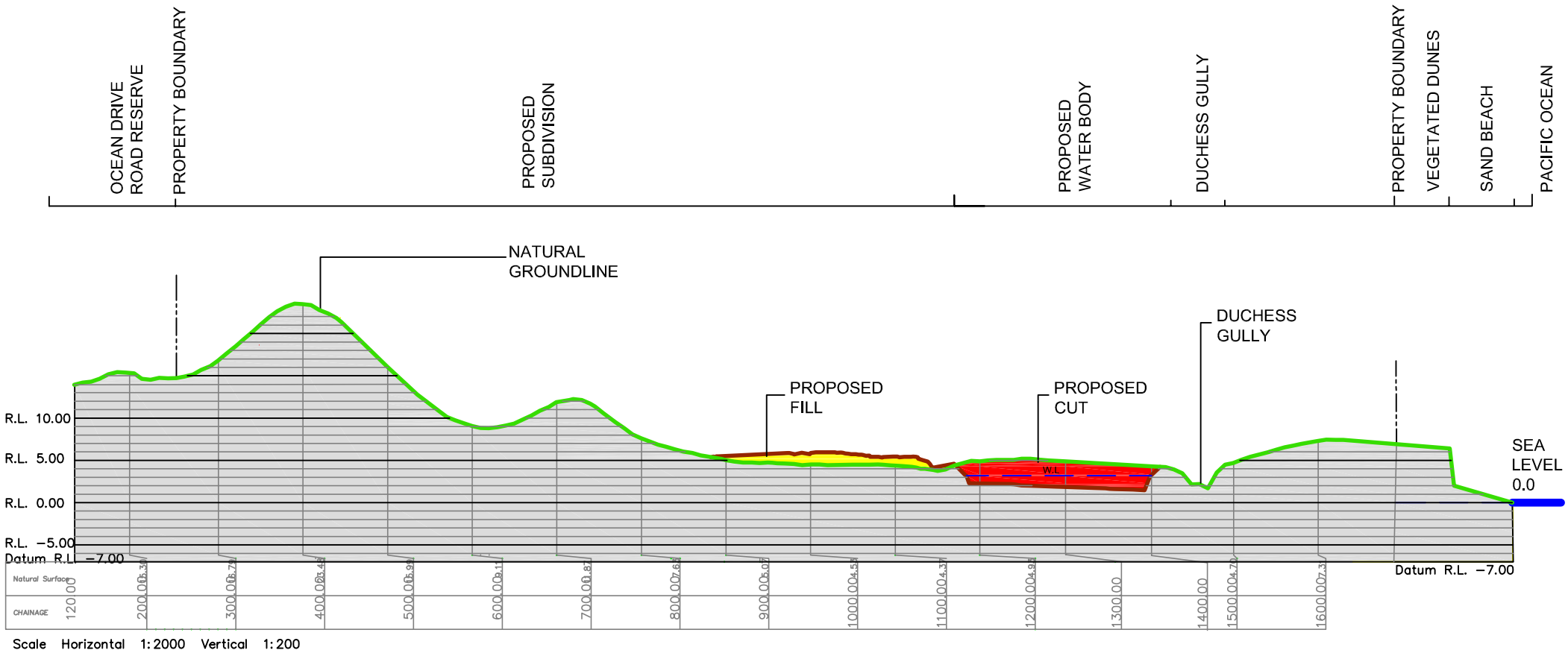
Report No: _____

Date: _____

DETAILS OF NON-CONFORMANCE: Inspected by:
DETAILS OF PROPOSED ACTION Passed to Principal (as applicable):y/n Date: Reply required by:
CONSULTANT/ PRINCIPAL ADVICE (as required): Date action required by (if applicable): Signed (by Principal or Principal's representative): Date:
AUTHORITY TO PROCEED Sign: Date:
ACTION CARRIED OUT Sign: Date:
ELEMENT RE-INSPECTED BY Sign: Date:
COPY ISSUED TO PRINCIPAL Date: Sign:

APPENDIX B

Acid Sulfate Soils Line



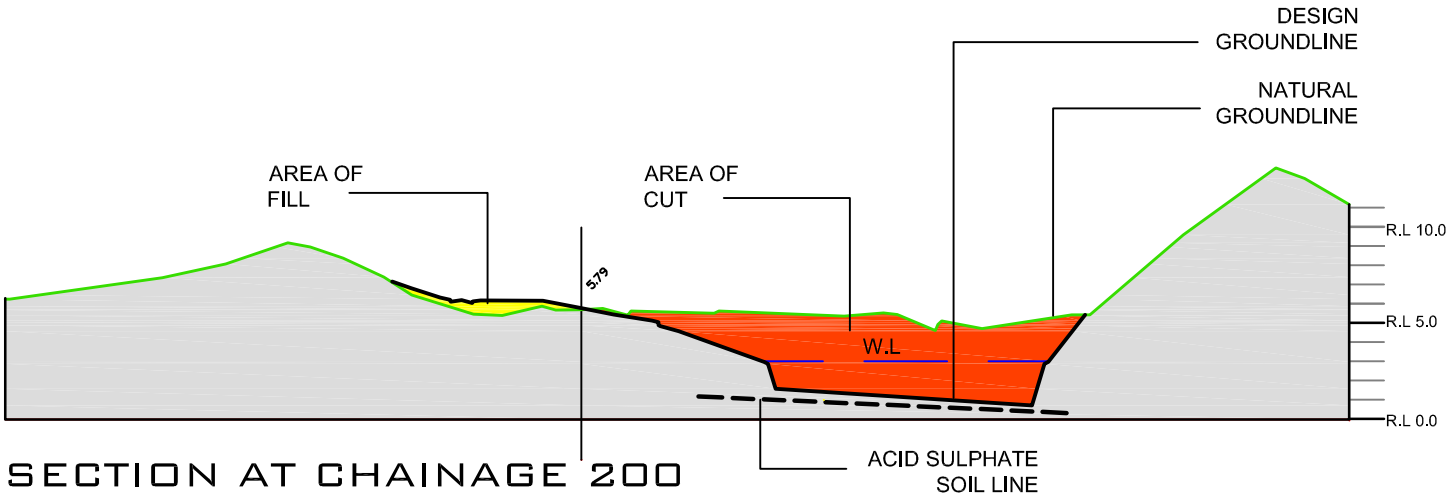
SITE CROSS SECTION - BB

REFER TO REFERENCE PLAN
FOR BB SITE CROSS SECTION
DIAGRAM ??? PAGE???

RAINBOW BEACH ESTATE

LUKE AND COMPANY PTY LTD
TEL: 02 65 832677

REVISED 2007 DWG NO. 4509



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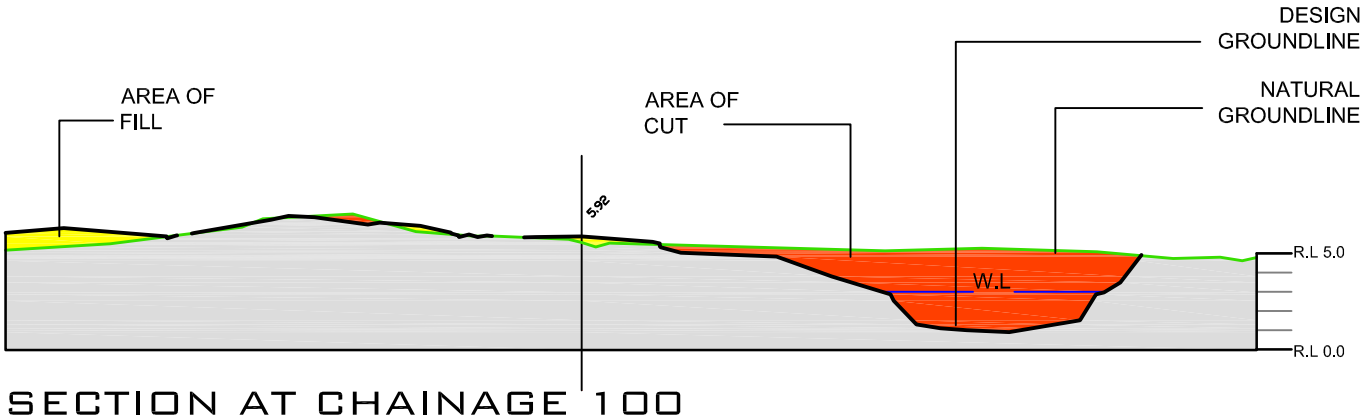

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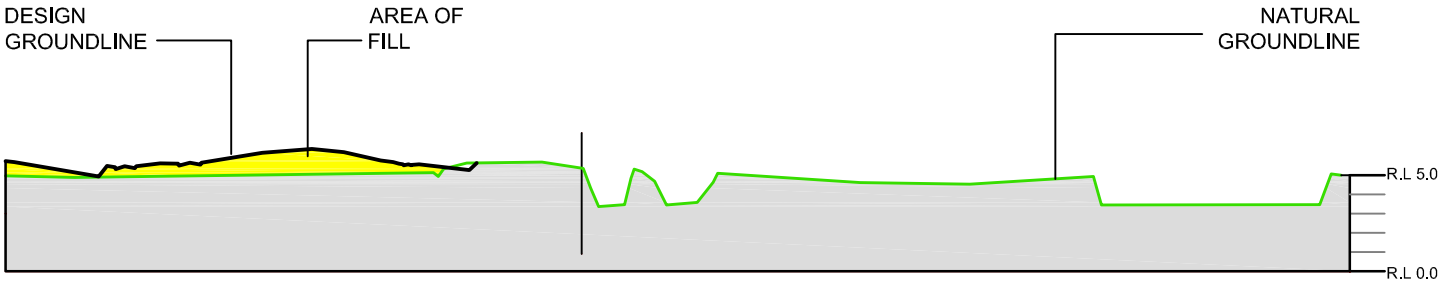

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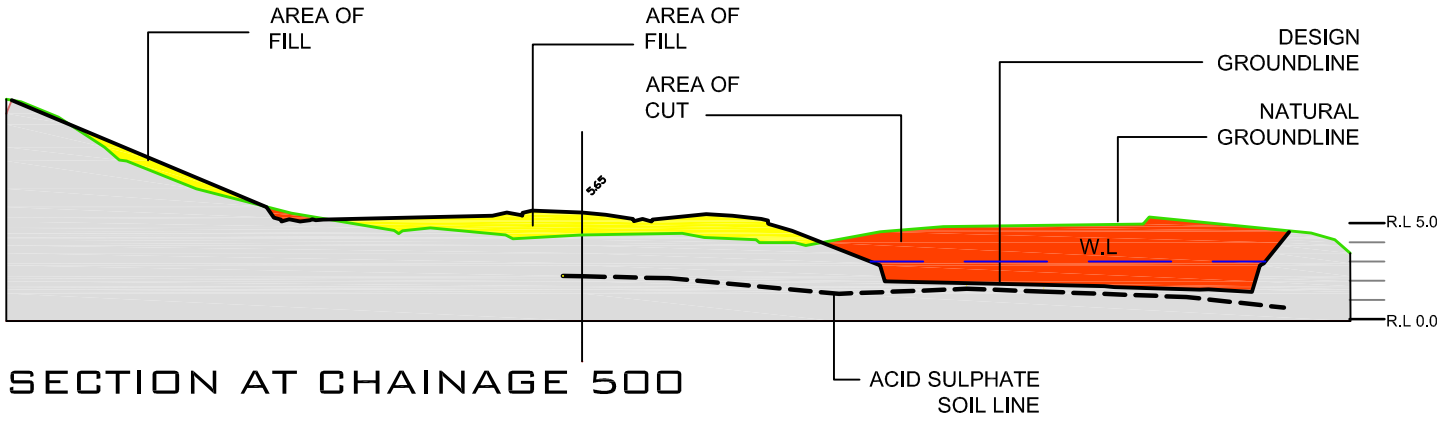
VE
HORIZONTAL 1:2000@A4
VERTICAL 1:100@A4

REFER TO REFERENCE PLAN FOR
AA BASELINE - DIAGRAM?? PAGE??

BASELINE AA CROSS SECTIONS CHAINAGES 0 - 200

RAINBOW BEACH ESTATE



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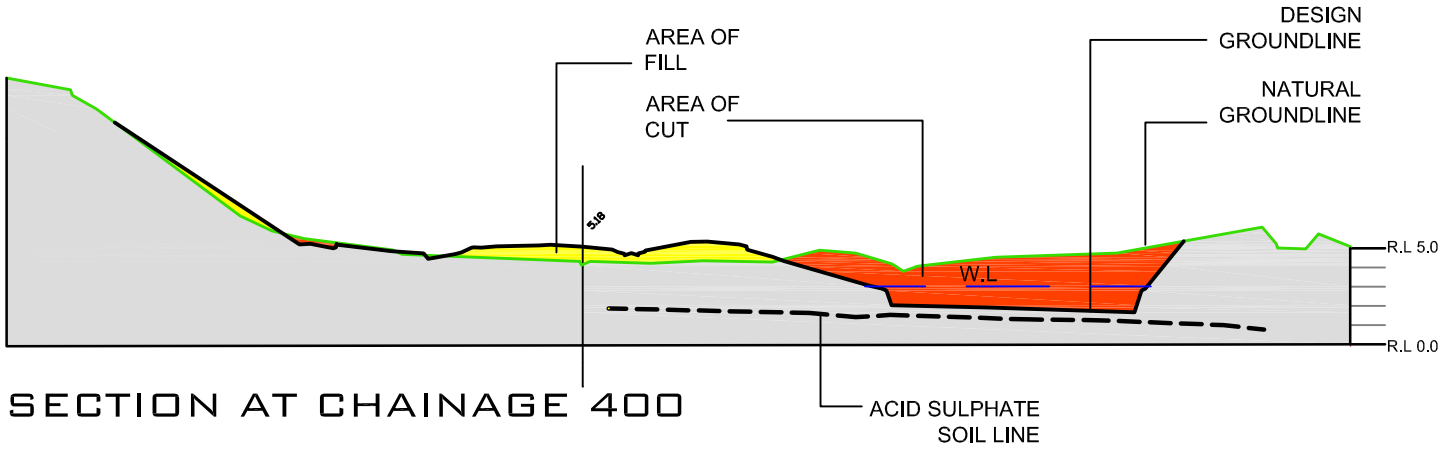

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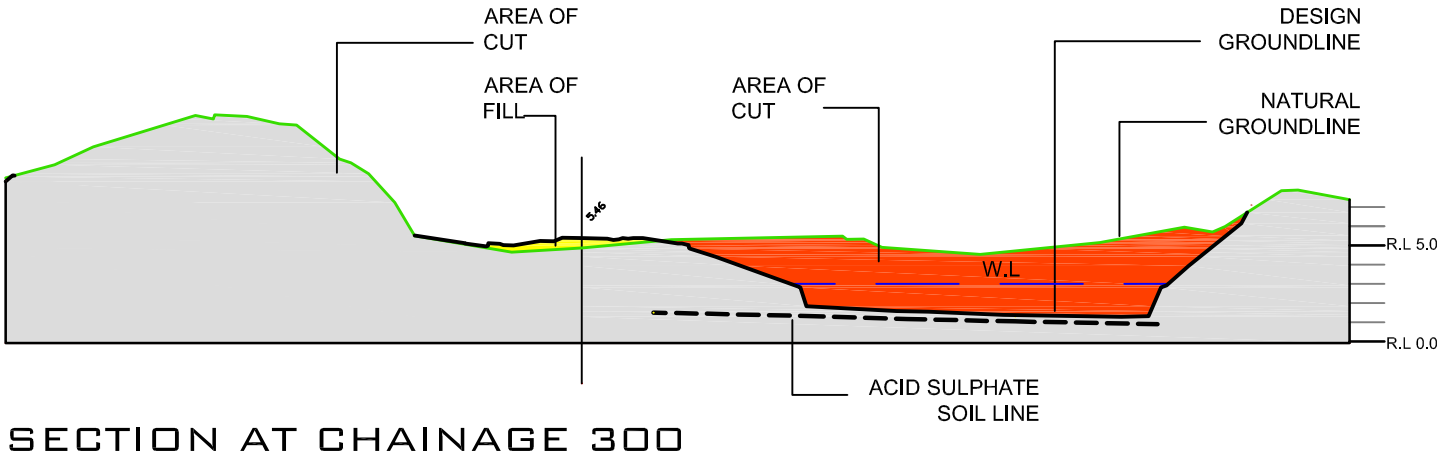

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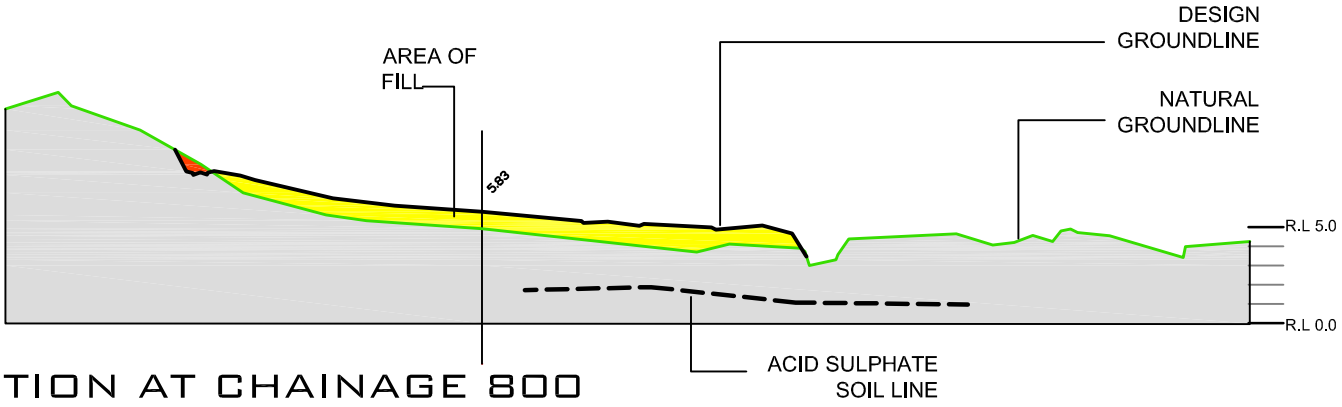
VERTICAL 1:100@A4

REFER TO REFERENCE PLAN FOR
AA BASELINE - DIAGRAM?? PAGE??

BASELINE AA CROSS SECTIONS CHAINAGES 300 - 500

RAINBOW BEACH ESTATE



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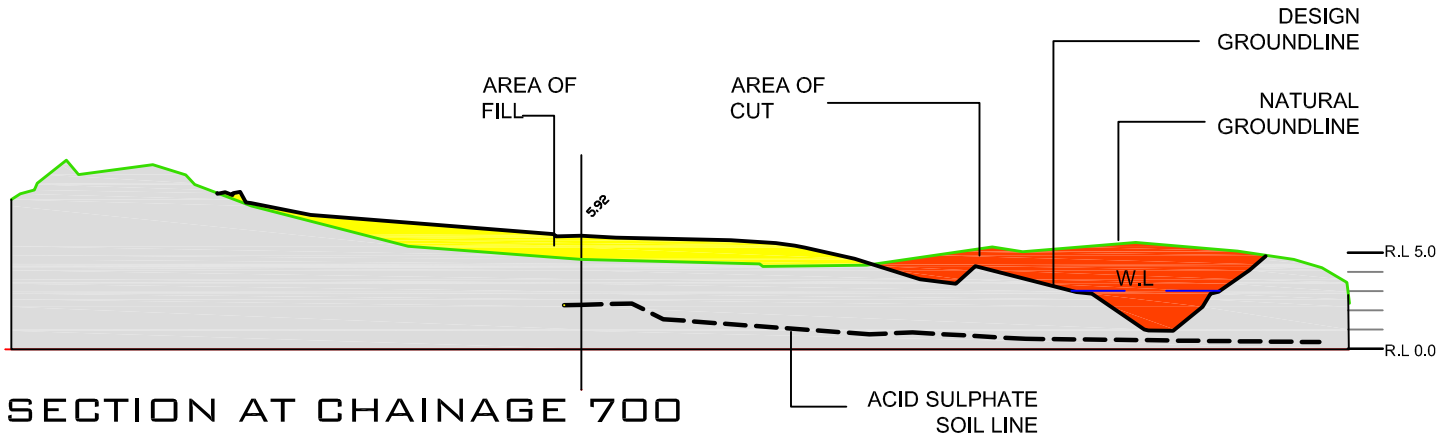

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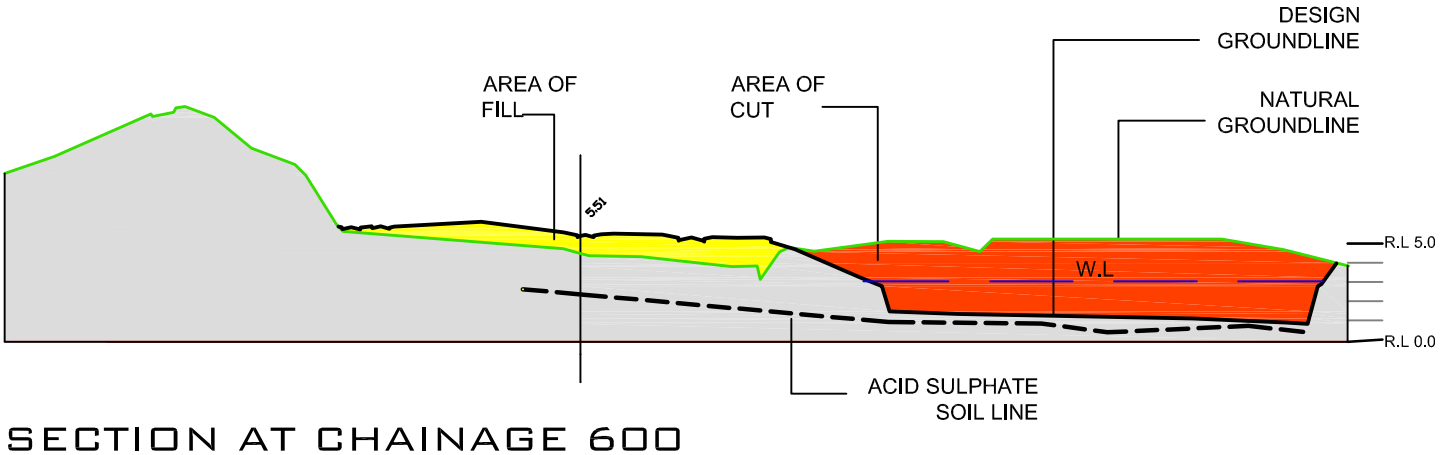

SECTION AT CHAINAGE 600

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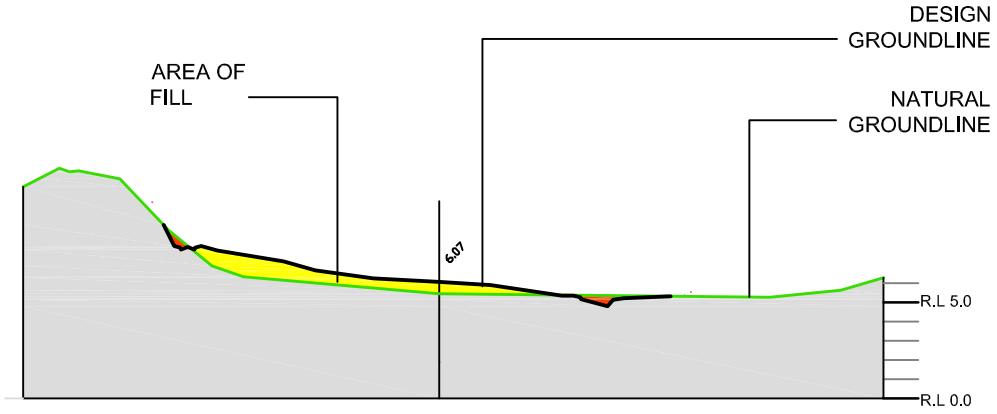
VERTICAL 1: 100@A4

REFER TO REFERENCE PLAN FOR
AA BASELINE - DIAGRAM?? PAGE??

BASELINE AA CROSS SECTIONS CHAINAGES 600 - 800

RAINBOW BEACH ESTATE



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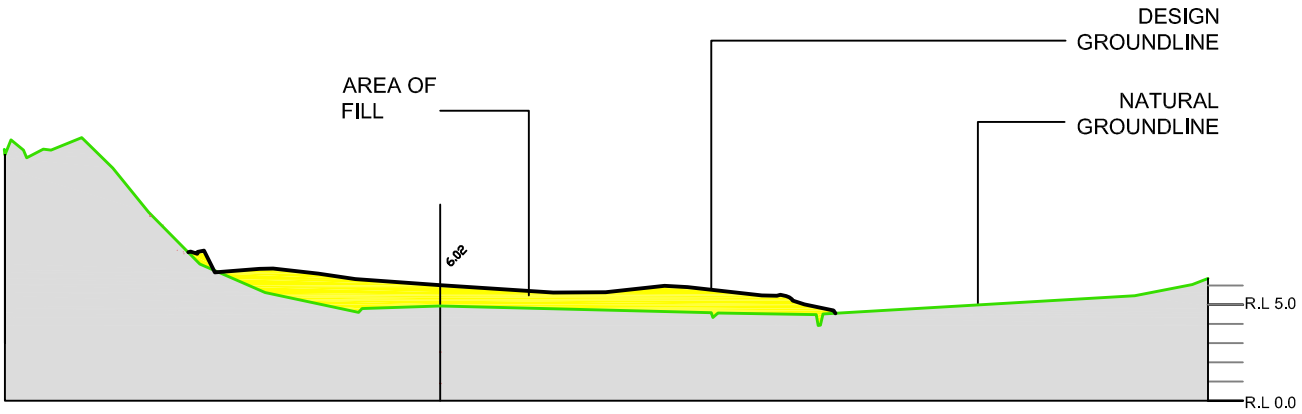

SECTION AT CHAINAGE 900

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VERTICAL 1:100@A4

REFER TO REFERENCE PLAN FOR
AA BASELINE - DIAGRAM?? PAGE??

BASELINE AA CROSS SECTIONS CHAINAGES 900 - 1000

RAINBOW BEACH ESTATE

APPENDIX C

Management of Archaeological Site 4

14th May, 2008

Jacqueline Collins
Consultant Archaeologist
11 Camden Head Road
DUNBOGAN NSW 2445

Dear Jacquie,

Re: ABORIGINAL ARCHAEOLOGICAL SITE 4
RAINBOW BEACH, BONNY HILLS

Reference is made to the site inspection of Part Lot 123 DP1106943, Ocean Drive, Bonny Hills between yourself, Lindsay Moran, Phil Luke and James Dunn, on 20th March 2008.

At the site meeting, it was agreed that the edge of earthworks for the proposed constructed wetland, adjacent to archaeological site 4, would be as shown on the attached plan (Ref: Plan P15 Rev B 22.4.08)

It was also agreed that the existing road cutting would be reinstated as follows:

1. Geofabric placed on site to maintain separation from the existing ground;
2. Material from the nearby excavation to be used to reinstate the site; and
3. The above works to be carried out under the supervision of an appropriately qualified person.

The amendment to the wetland in this location will form part of the plans submitted with the Part 3A application to the Department of Planning. We are seeking a written response from you to confirm that the amendment shown on the attached plan is acceptable, as per the site meeting discussions.

Therefore, could you please provide a written response confirming that the attached plan (referenced Aboriginal Archaeological Site 4 Detail – Plan P15, Revision B 22.4.08) provides a suitable treatment of the Aboriginal Archaeological Site 4.

Regards,

Yours sincerely,

Michelle Hollis
encl. Plan P15 Ver. B attached

Luke & Company
NSW Pty Ltd
ABN 48 003 536 856
Consultants in
the development of
land and property

Philip A Luke MIS Aust
Dip Urb Reg plan MPIA
Principal

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Web: www.lukeandcompany.com.au

ABORIGINAL ARCHAEOLOGICAL SITE 4 DETAIL

PLAN P15

SUBJECT LAND

Area to be reinstated

The existing road cutting in the area shown hatched , is to be reinstated as follows:-
1. Geofabric placed on site to maintain separation from the existing ground;
2. Material from the nearby excavation to be used to reinstate the site; and
3. The above works to be carried out under the supervision of an appropriately qualified person.

REVISIONS:
A 15.4.08
B 22.4.08 MH comments 18.4.08

Rainbow Beach Estate
Property Management Plan Series

Job. No. 4509:ND Dwn: CM

Luke and Company Pty Ltd

APPENDIX D

Waste Register Forms

Waste Register: Site Preparation

Site Material		Destination		
		Reuse and Recycling		Disposal
Type of material	Estimated Volume (m^3)	On-site (Specify proposed reuse or on-site recycling methods)	Off-site (Specify contractor and recycling outlet)	Specify disposal facility
Excavation Material (eg sand/soil)		Retain & re-use. Store on-site		
Vegetation Waste		Retain & re-use. Store on-site		
Paper and Cardboard				
Plastics				
Concrete				
Timber (provide details)				
Metals (provide details)				
Asbestos containing Material				
Other(Provides details)				
Domestic wastes				

Waste Register: Construction

Site Material		Destination		
		Reuse and Recycling		Disposal
Type of material	Estimated Volume (m^3)	On-site (Specify proposed reuse or on-site recycling methods)	Off-site (Specify contractor and recycling outlet)	Specify disposal facility
Plastics				
Concrete				
Timber (provide details)				
Metals (provide details)				
Cables and Wire				
Other(provide details)				
Domestic wastes				