

Application 07_0161 - Modification

Appendix A

Director-General's Requirements

Bombala Sawmill Project

25 November 2011



DONGWHA TIMBERS
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Planning & Infrastructure

Contact Emma Barnet
Phone: (02) 9228 6550
Fax: (02) 9228 6466
Email: emma.barnet@planning.nsw.gov.au

Ms Julia Beck
Projects Advisor
Fifth Estate
GPO Box 5494
SYDNEY NSW 2001

Dear Ms Beck

Proposed Modification to Bombala Sawmill Project (07_0161 Mod 1)

I refer to your correspondence dated 8 August 2011 concerning your application to modify the Bombala Sawmill Project. The Department has reviewed the application and is not satisfied with the level of detail contained in the assessment, and consequently is unable to accept the application at this time.

The Department does not consider the modification to be purely administrative in nature as the documentation suggests. The Fifth Estate has an obligation to assess any consequential environmental impacts associated with the revised staging being applied for.

To assist you with the preparation of this assessment, I have attached a copy of the Director-General's requirements for the modification. These requirements have been prepared based on the information you have provided to date. Under Section 75F(3) of the Act, the Director-General may alter these requirements at any time.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit the EA for the modification. This will enable the Department to advise you on the number of copies (hard-copy and/or CD-ROM) of the EA that will be required.

If you have any enquiries about these requirements, please contact Emma Barnet on 9228 6550.

Yours sincerely

DKitto 19/8/11

David Kitto
Director
Mining and Industry Projects
As delegate for the Director-General

Director-General's Requirements

Section 75W of the *Environmental Planning and Assessment Act 1979*

Application Number	07_0061 Mod 1 – revised construction staging
Modification	Modification to construction staging, project layout and chemicals used to treat timber
Location	Sandy Lane, Bombala
Proponent	Dongwha Timbers Pty Ltd
Date of Issue	August 2011
Expiry	August 2013
General Requirements	<p>The Environmental Assessment (EA) must include</p> <ul style="list-style-type: none"> • an executive summary; • a detailed description of the modification including the: <ul style="list-style-type: none"> – need for the modification – alternatives considered • consideration of any relevant statutory provisions; • a general overview of the environmental impacts of the project • a detailed assessment of how the modified staging and layout affects each of the key issues (and associated mitigation/management measures) specified below, and any other significant issues identified in the general overview of environmental impacts of the project (see above); • a revised Statement of Commitments, outlining environmental management, mitigation and monitoring measures; • a revised staging plan that explains the differences between what was approved and what is proposed; • a justification for each of the proposed changes to the approval conditions, • a plan of the approved Project layout overlaid by the proposed modified layout highlighting changes; and • a signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading.
Key Issues	<ul style="list-style-type: none"> • Soil and Water – including a revised Soil, Groundwater and Surface Water Management Plan that includes a revised timetable for the soil, groundwater and surface water management measures • Hazards and Risk <ul style="list-style-type: none"> – including a preliminary risk screening in accordance with State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DUAP, 1994). The screening must include information on the class, quantity and location of the dangerous goods and hazardous materials related to the project; – if the preliminary risk screening indicates that the project is potentially hazardous, carry out a Preliminary Hazard Analysis (PHA) in accordance with the Department's publications hazardous industry <i>Planning Advisory Paper No. 6 – Guidelines for Hazardous Analysis</i> (DUAP, 1997) and <i>Multi-Level Risk Assessment</i> (DUAP, 1997). The PHA must undertake assessment • Noise – including clarification as to how the modified staging affects construction of the acoustic barriers and berms

	<ul style="list-style-type: none"> • Transport – including clarification as to why the transport of ACQ in two parts would lead to a reduction in truck numbers • Air Quality • Waste Management • Visual
References	The Environmental Assessment should take into account relevant State government technical and policy guidelines. While not exhaustive, guidelines which may be relevant to the project are included in the attached list.
Consultation	<p>During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. The consultation process and the issues raised must be described in the Environmental Assessment.</p> <p>In particular you should consult with:</p> <ul style="list-style-type: none"> • The Office of Environment and Heritage • Bombala Council
Deemed Refusal Period	40 days

State Government Technical and Policy Guidelines - For Reference

Aspect	Policy /Methodology
Water Quality	
	<ul style="list-style-type: none"> • <i>National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2001);</i> • <i>National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000);</i> • <i>Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006);</i> • <i>Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC, 2004)</i>
Wastewater	
	<ul style="list-style-type: none"> • <i>National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC, 1997)</i> • <i>National Water Quality Management Strategy: Guidelines for Sewerage Systems - Use of Reclaimed Water (ARMCANZ/ANZECC, 2000)</i> • <i>Environmental Guidelines: Use of Effluent by Irrigation (DEC, 2004)</i> • <i>National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMMC & AHMC, 2006)</i>
Air Quality	
	<ul style="list-style-type: none"> • <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC, 2005);</i> • <i>Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC, 2007)</i> • <i>Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006)</i> • <i>Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006)</i> • <i>Protection of the Environment Operations (Clean Air) Regulation 2002</i>
Hazards and Risk	
	<ul style="list-style-type: none"> • <i>Criteria for Land Use Planning: Hazardous Industry Planning Advisory Paper No. 4 (DUAP, 1992);</i> • <i>The storage and handling of flammable and combustible liquids (Standards Australia, 2004, AS 1940-2004);</i> • <i>Bunding and Spill Management (DEC, 2001);</i> • <i>Applying SEPP 33: Hazardous And Offensive Development Application Guidelines (DUAP, 1997);</i> • <i>Multi-Level Risk Assessment (DUAP, 1997)</i> • <i>Hazardous Industry Planning Advisory Paper No. 3 – Environmental Risk Impact Assessment Guidelines (DUAP, 1996)</i>
Traffic and Transport	
	<ul style="list-style-type: none"> • <i>Guide to Traffic Generating Development (RTA, 2002)</i> • <i>RTAs Road Design Guide (RTA, 1996)</i>

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Appendix B

Proposed modifications – changes tracked

Bombala Sawmill Project

25 November 2011



DONGWHA TIMBERS
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ORIGINAL CONSENT – CHANGES TRACKED

Notes are omitted.

DEFINITIONS

Zone 1: the portion of the site west of the gas easement

Zone 2: the north-east portion of the site, bordered by the gas easement, Delegate Road, Sandy Lane, and the existing weighbridge

Zone 3: the current production zone of the site, bordered by the gas easement, the existing weighbridge, Sandy Lane, and the gully (Southern Pond)

Zone 4: the south-east portion of the site, east of the gas easement and south of and including the gully

Stage 1	Construction of the earth berm and pond 2; and Relocation of the wood residue stockpile.
Stage 2	Construction of acoustic barrier on Sandy Lane and along the southern boundary; Demolition of diesel tank and GI shed; Relocation of Offices, Workshop and Dispatch Building; and Earthworks associated with the septic tank system.
Stage 3	Connection to services; Installation of Dry Mill; Demolition of existing treatment plant; and Construction of a new treatment plant.
Stage 4	Construction of pond 1; Construction of green mill and materials handling building; Installation of 1 new boiler and 2 kilns; and Road works.
Stage 5	Construction of weighbridge; Demolition and installation of fuel feed system for boiler 3; Installation of a boiler, kiln and replacement of steamers; Demolition of existing sawline; and Construction of wetlands.
Stage 6	Installation of a boiler and 2 kilns; Construction of a kiln dried storage building; and Remediation of southern pond.
Stage 7	Installation of a kiln; and Construction of a storage building and tilt hoist.
Stage 8	Installation of 2 kilns; Construction of a new office; and Demolition of the existing office.

SCHEDULE 2: ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

- 1 The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Terms of Approval

- 2 The Proponent shall carry out the project generally in accordance with the following documents and plans and the recommendations made therein:
 - a. EA;
 - b. Response to Submissions;
 - c. statement of commitments; and
 - d. conditions of this approval.
- 3 If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
- 4 The Proponent shall comply with any reasonable requirements of the Director-General arising from the Department's assessment of:
 - a. any strategies, plans, programs, reviews, audits, or correspondence that are submitted in accordance with this approval; and
 - b. the implementation of any actions or measures contained in these documents.

Limits of Approval

- 5 The Proponent shall ensure that the quantity of sawlogs received and treated timber produced each year does not exceed ~~more than:~~
 - ~~a. 106,000 tonnes of sawlogs, and 31,800 tonnes (30,000 m²) of treated timber a year, during operation of stage 1, 2, and 3;~~
 - ~~b. 300,000 tonnes of sawlogs and 150,000 tonnes (140,000 m²) of treated timber a year, during operation of stage 4 and 5;~~
 - ~~c. 350,000 tonnes of sawlogs a year and 150,000 tonnes (140,000 m²) of treated timber a year, during operation of stage 6 and 7; and~~
 - ~~d. a. 400,000 tonnes of sawlogs a year and 150,000 tonnes (140,000 m²) of treated timber a year, upon completion of all construction, or as specified in the Environmental Protection Licence.~~

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Surrender of Consents

- 6 Within 12 months of the date of this approval, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents and building applications for the project, to the satisfaction of the Director-General.

Structural Adequacy

- 7 The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Demolition

- 8 The Proponent shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.

Protection of Public Infrastructure

- 9 The Proponent shall:
- a. repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
 - b. relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Operation of Plant and Equipment

- 10 The Proponent shall ensure that all plant and equipment used on site is:
- a. maintained in a proper and efficient condition; and
 - b. operated in a proper and efficient manner.

Management Plans / Monitoring Programs

- 11 With the approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

Pre-Operation Compliance Audit

- 12 Prior to ~~the commencement of operations of stage 8~~ issuing of the final occupation certificate, the Proponent shall submit work as executed plans to the Department for all the development associated with the project. These plans must be prepared by a suitably qualified and experienced expert, and include plans showing the work as executed plans laid over the approved plans to demonstrate that the development has been carried out in accordance with the approved plans.

Australian Standards

- 13 The Proponent shall ensure that the project is constructed and operated in accordance with the relevant Australian Standards, particularly AS/NZS 2843.1 :2006 Timber preservation plants - Timber preservation plant site design and AS/NZS 2843.2:2006 Timber preservation plants - Timber area operation, or their latest versions.

SCHEDULE 3: SPECIFIC ENVIRONMENTAL CONDITIONS

AIR QUALITY

Odour

- 1 The Proponent shall not cause or permit the emission of offensive odours from the site as defined under Section 129 of the POEO Act.

Dust

- 2 The Proponent shall implement all reasonable and feasible measures to minimise dust generated by the project (this must include ensuring that all trucks carrying woodchips or wood residue have their loads covered).
- 3 During construction, the Proponent shall ensure that:
- a. all trucks entering or leaving the site have their loads covered;
 - b. trucks associated with the project do not track dirt onto the public road network; and
 - c. public roads used by these trucks, in the vicinity of the site, are kept clean.
- 4 The Proponent must prepare and implement a Dust and Wood Residue Monitoring and Management Plan to the satisfaction of the Director-General. The plan must:
- a. be prepared in consultation with DECCW and approved by the Director-General prior to the commencement of construction of stage 1;
 - b. provide a detailed program for management of the existing wood residue stockpile:

- i. describing how the stockpile would be monitored and managed;
- ii. describing the disposal options and progress achieved to date;
- iii. setting out the disposal strategy to be implemented, with detailed staging, linking to the stages of the mill expansion, and timing for complete removal of the stockpile;
- iv. outlining the contingency measures that would be implemented should the management of the stockpile prove insufficient, or the disposal strategy be delayed;
- c. quantify the volumes of wood residue to be produced once operating at full capacity;
- d. demonstrate that these volumes can be appropriately stored and disposed of;
- e. provide a monitoring strategy to identify:
 - v. any potential or actual failings in the management of dust and wood residue;
 - vi. when excess wood residue is being produced and when milling is required to cease to avoid
 - vii. exceeding the capacity of the storage area; and
- f. outline the contingency measures that would be implemented should:
 - viii. the management measures prove insufficient;
 - ix. the disposal options change; or
 - x. the wood residue produced exceed the storage capacity on site.

Emission Limits

- 5 The Proponent shall ensure the emissions from the project do not exceed the emissions limits in Table 1, unless otherwise specified in the EPL.

[Table 1: Air Emissions Limits – no change]

Air Emissions Management Plans

- 6 The Proponent shall prepare and implement an Air Emissions Management Plan to the satisfaction of the Director-General. This plan must:
- a. be prepared in consultation with DECCW and approved by the Director-General prior to the commencement of ~~construction operation~~ of stage 3 equipment relating to the air emissions monitoring points specified in Table 1;
 - b. be prepared in accordance with the requirements of the "Approved methods for the sampling and analysis of air pollutants in NSW";
 - c. identify the air emission limits for the project;
 - d. demonstrate that the ground level concentration would comply with the requirements of the "Approved methods for the modelling and assessment of air pollutants in New South Wales";
 - e. describe the treatments, controls and operational practices to be implemented to manage air emissions, demonstrating best practice process design and emission control;
 - f. include a program for the ongoing monitoring and reporting of air emissions from the project, describing the location, frequency, method and pollutants to be monitored; and
 - g. outline the contingency measures that would be implemented should any air emission limits be exceeded.

Meteorological Monitoring

- 7 During the life of the project, the Proponent shall ensure that there is a suitable meteorological station in the vicinity of the site that complies with the requirements in the latest version of Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales guidelines.

NOISE**Construction and Operation Hours**

8 The Proponent shall comply with the construction and operation hours in Table 2.

[Table 2: Construction and Operation Hours – no change]

Noise Limits

9 The Proponent shall take all reasonable and feasible measures to ensure that noise generated by the project does not exceed the noise limits presented in Table 3 at any time.

[Table 3: Noise Limits (dB(A)) – no change]

Noise Barriers

10 The Proponent must ensure ~~the southern and Sandy Lane~~ that noise barriers ~~(as identified in the EA)~~ are installed in order to comply with Table 2 prior to the commencement of any building works ~~for Stage 3 on Zones 1 or 2.~~

Noise Validation Report

11 The Proponent shall prepare Noise Validation Reports, to the satisfaction of the Director-General. The reports must:

- a. be undertaken:
 - i. within 3 months of the commencement of construction, while working under normal construction and operational conditions (ie it is expected that the mill will still be operating during most stages of construction and the cumulative noise levels of all works on site must be measured);
 - ii. within 3 months of the completion of the expansion works (ie stage 8), while operating under normal conditions; and
 - iii. following the receipt of a complaint, if requested by the Director-General;
- b. be submitted to DECCW and the Director-General within 1 month of each time identified in (a) above;
- c. validate the predictions made in the EA;
- d. demonstrate compliance with the limits in this approval;
- e. demonstrate the noise controls are working effectively; and
- f. if any non-compliances are detected, describe the measures that are to be implemented and the timing for implementation of these measures, to ensure compliance.

SOIL, SURFACE AND GROUND WATER**Remediation**

12 The Proponent shall provide and implement a Remedial Action Plan for the site to the satisfaction of the Director-General. The plan must:

- a. be reviewed and endorsed by a suitably qualified independent expert (to be approved by DECCW) and approved by the Director-General, prior to the commencement of any earth or building works for stage 3 on contaminated areas of the site;
- b. identify the nature and extent of all contamination on the existing mill site (Lot 27 DP1061792), including any offsite impacts (for example on groundwater);
- c. justify the remediation criteria for the site;
- d. consider options for the remediation of each component of the contamination;

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- e. justify the remediation strategy proposed;
- f. set out the timing and staging of all remediation works to be undertaken;
- g. include a site validation plan; and
- h. demonstrate compliance with the Contaminated Land Management Act 1997.

13 Prior to the commencement of building works ~~on contaminated areas of the site for stage 3~~, the Proponent must provide a Validation Report and Site Audit Report and Statement covering the areas ~~which have been remediated extending to the northern pond to the north, Sandy Lane to the east, the southern wetland to the south and the gas easement to the west~~. The:

- a. Validation Report and Site Audit Report and Statement must be provided to the Department, DECCW and Council, certifying the appropriateness of the validation report; and
- b. Validation Report must also:
 - i. be prepared in accordance with the guidelines made or approved by DECCW under section 105 of the Contaminated Land Management Act 1997;
 - ii. be subject to a Site Audit in accordance with the Contaminated Land Management Act 1997 to confirm the appropriateness of the Validation Report; and
 - iii. include the results of surface and groundwater monitoring.

14 ~~Prior to receipt of final occupation certificate~~ ~~Prior to the commencement of operation of stage 6, or within 3 years of the date of this approval (whichever is sooner)~~, the Proponent must provide to the Department, DECCW and Council:

- a. a Validation Report, for the whole site, including the results of groundwater monitoring, which has been subject to a site audit in accordance with the Contaminated Land Management Act 1997, to confirm the appropriateness of the Validation Report. The Validation Report must be prepared in accordance with guidelines made or approved by DECCW under Section 105 of the Contaminated Land Management Act 1997; and
- b. copies of the Site Audit Report and Statement, for the whole site, certifying the appropriateness of the Validation Report(s).

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Water Pollution

15 The Proponent shall not cause or permit any waters to be polluted, as defined under Section 120 of the POEO Act.

Bunding

16 All chemicals shall be stored in:

- a. appropriately bunded areas, with impervious flooring and sufficient capacity to contain 110% (or 120%, where required by the Australian Standards) of the largest container stored within the bund. The bund(s) shall be:
 - i. designed in accordance with: the requirements of all relevant Australian Standards; and the DECCW's Storing and Handling Liquids: Environmental Protection - Participants Manual;
- b. accordance with Australian Standard AS1940-2004 The storage and handling of flammable and combustible liquids; and
- c. areas above the 1% AEP flood level so as not to cause pollution or hazards during any flood.

17 The Proponent must implement suitable measures to ensure: the integrity of the bunds is maintained, and to prevent and manage spills on site. These measures must include:

- a. an inventory system to accurately measure and report on production losses;
- b. an early warning leak detection and prevention system, certified by an accredited site auditor;
- c. a bund, tank and pipeline integrity assessment program; and
- d. a spill prevention and management system, including:
 - i. a Spill Response and Prevention Plan;
 - ii. a Monitoring Program; and
 - iii. staff training.

- 18 From the commencement of operations of ~~stage 3~~ the new treatment plant onwards, the Proponent must ensure that:
- a. all treated timber is managed in accordance with Australian Standard AS/NZS 2843.1:2006 Timber preservation plants - Timber preservation plant site design, or its latest version; and
 - b. all treated timber undergoing CCA-fixation is stored on an impermeable surface and any runoff collected from these areas is separated from runoff that is not contaminated with CCA.

Fill

- 19 Any fill material brought to site must be Virgin Excavated Natural Material or material subject to a Resource Recovery Exemption that is permitted to be used as a fill material, in accordance with the provisions of the Protection of the Environment (Waste) Regulation 2005.

Management

- 20 The Proponent shall prepare and implement a Soil and Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
- a. be approved by the Director-General prior to the commencement of any works on site;
 - b. be prepared in consultation with Council and DECCW (including the Office of Water);
 - c. include :
 - i. a Site Water Balance;
 - ii. a Sediment and Erosion Control Plan;
 - iii. a Stormwater Management Scheme; and
 - iv. a Soil and Water Monitoring Program.
- 21 The Site Water Balance for the project must:
- a. identify and quantify all water uses on site;
 - b. include a detailed description of the water management and reuse on site;
 - c. demonstrate 100% reuse of CCA condensate would be achieved in the treatment plant;
 - d. quantify the wastewater quality and flows, for each wastewater stream and describe the reuse or disposal method for these wastewater streams;
 - e. describe the reporting procedures and contingency measures that would be implemented in the event of any issues with the water management and or reuse infrastructure;
 - f. include detailed consideration of all available options to reduce the water use of the project; and
 - g. demonstrate that all reasonable and feasible measures to minimise water use would be implemented.
- 22 The Sediment and Erosion Controls for the project must:
- a. be endorsed by an Accredited Site Auditor;

- b. be consistent with the requirements of Landcom's (2004) Managing Urban Stormwater: Soils and Construction manual;
 - c. manage activities that could cause soil erosion and generate sediment;
 - d. minimise soil erosion and the potential for the transport of sediment to downstream waters;
 - e. describe the location, function and capacity of erosion and sediment control structures;
 - f. describe the measures to be implemented to maintain these structures overtime; and
 - g. be implemented prior to the commencement of any construction, demolition or remediation and be
 - h. maintained for as long as necessary to control erosion and sediment on site.
- 23 The Stormwater Management Scheme must:
- a. be prepared in accordance with the DECCW's Managing Urban Stormwater: Council Handbook;
 - b. include details of;
 - i. pre and post development flows;
 - ii. water quality;
 - iii. the rainwater harvesting and reuse infrastructure to be installed;
 - iv. the stormwater treatment, drainage and retention infrastructure, ensuring there is sufficient
 - v. capacity to handle the 4 % AEP, 144 hour rainfall depth storm event;
 - vi. the measures to manage flow during a 1 % AEP event; and
 - vii. the measures to be implemented to monitor and manage the stormwater quality and quantity
 - viii. and maintain the stormwater infrastructure over time.
- 24 The Soil and Water Monitoring Program must:
- a. include detailed data on the existing soil, surface and groundwater quality;
 - b. identify the potential pollutants from the project;
 - c. identify the soil, surface water, groundwater and wastewater impact assessment criteria;
 - d. describe the monitoring strategy to be implemented, including details of the;
 - i. monitoring locations;
 - ii. sampling frequency;
 - iii. sampling methods;
 - e. include justification for the proposed monitoring strategy;
 - f. describe how the monitoring results will be assessed and reported;
 - g. outline the contingency measures that would be implemented should monitoring identify any exceedance of the impact assessment criteria;
- 25 Prior to undertaking any irrigation, the Proponent must prepare and implement an Irrigation Management and Monitoring Plan to the satisfaction of the Director-General. The plan must:
- a. be prepared in consultation with DECCW and approved by the Director-General prior to the commencement of any irrigation on site;
 - b. be prepared in accordance with DECCW's "Environmental Guidelines: Use of Effluent by Irrigation";
 - c. describe the quantity and quality of the water to be irrigated;
 - d. identify the irrigation area and irrigation rate;
 - e. include detailed baseline data, and benchmark the existing soil and water conditions;
 - f. identify the impact assessment criteria; and

- g. include a program to monitor and report on the:
 - i. irrigation water quality;
 - ii. soil and groundwater;
- h. describe how the results of the monitoring will be used to refine the irrigation system to minimise impacts; and
- i. outline the reporting and contingency measures that would be implemented should the impact assessment criteria be exceeded.

WASTE

- 26 ~~Within 2 years of the date of this approval and prior to the commencement of operations of stage 6, whichever is sooner. In accordance with the Dust and Wood Residue Monitoring and Management Plan, the Proponent shall ensure the entire wood residue stockpile is removed from the site and appropriately reused or disposed of.~~
- 27 ~~The Proponent must demonstrate, to the satisfaction of the Principle Certifying Authority, that the entire wood residue stockpile has been removed from the site and appropriately disposed of, prior to the issue of any occupation certificates for buildings or plant built as part of stage 6. Note: Condition 27 was inconsistent with 26~~
- 28 The Proponent must prepare and implement a Product Management Plan, to the satisfaction of the Director-General. The Plan must:
 - a. be prepared in consultation with the DECCW and approved by the Director-General prior to operating new equipment on Zone 3 prior to the commencement of operations of stage 3;
 - b. identify the types and sources of materials and resources used in the production process, including a procurement plan demonstrating that options to reuse and recycle materials, (particularly waste products) are maximised;
 - c. identify potential environmental impacts and liabilities at each stage of the products life cycle;
 - d. detail the measure to be implemented to improve the design and reduce the liabilities identified in (c) above, including:
 - i. the material intensity of the product; and
 - ii. hazardous materials contained in the product;
 - e. describe, classify and quantify the waste produced in the production process and include measures to maximise the reduction, reuse and recycling of this waste;
 - f. describe how the effectiveness of the plan would be monitored and reported; and
 - g. be revised and updated every 5 years to the satisfaction of the Director-General.
- 29 Any on site sewage management must be undertaken in accordance with the Environment and Health Protection Guidelines: On-site Sewage Management for Single Households (DLG 1998) and Environmental Guidelines: Use of Effluent by Irrigation (DEC 2004).

TRAFFIC AND ACCESS

- 30 The Proponent shall ensure that:
 - a. the internal road network and parking on site complies with Australian Standards AS 2890.1:2004 and AS 2890.2:2002;
 - b. all geometric road design is in accordance with RTA Road Design Guide;
 - c. all pavement design is in accordance with the AUSTROADS Pavement Design Guide;
 - d. all parking generated by the project is accommodated on site; and

e. bicycle parking and shower facilities are provided on site.

31 Prior to the commencement of any works on site the Proponent shall prepare and implement a signs and markings plan to safely manage movements across Parsonage Creek Bridge, on Delegate Road (MR93) to the satisfaction of Council and the RTA.

32 Prior to ~~June 2012~~the commencement of operations of ~~stage 4,~~ the Proponent must ensure that the following road upgrades are completed to the satisfaction of the RTA:

- a. the Sandy Lane and Delegate Bombala Road intersection shall be upgraded to a sealed BAL left turn together with a sealed Type BAR right turn configuration as per section 6 of the AUSTRROADS Guide to Traffic Engineering Practice -Part 5 Intersections at Grade; and
- b. the Monaro Highway and Delegate Bombala Road intersection shall be upgraded to provide for the swept path of heavy vehicles turning left onto Delegate Bombala Road.

ENERGY

33 The Proponent shall ensure the project is energy and water efficient, in accordance with industry best practice, to the satisfaction of the Director-General.

34 The Proponent shall prepare and implement an Energy Efficiency Plan for the project, to the satisfaction of the Director-General. The program must:

- a. be approved by the Director-General prior to the commencement of operation of ~~stage 3~~ new equipment on Zone 3;
- b. investigate options to reduce the energy consumption of the project, including the use of solar kilns;
- c. describe the energy efficiency measures that would be implemented onsite, quantify the savings made and demonstrating the use of best available technology;
- d. demonstrate all reasonable and feasible measures to minimise greenhouse gas emissions would be implemented; and
- e. include a program to monitor and report on the effectiveness of the measures implemented and a protocol for periodic review of the plan to ensure the project would continue to operate efficiently.

HERITAGE

Aboriginal Cultural Heritage Management Plan

35 The Proponent shall prepare and implement an Aboriginal Cultural Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:

- a. be prepared by a suitably experienced and accredited Aboriginal Heritage Consultant;
- b. be prepared in consultation with DECCW and the Aboriginal community, and be approved by the Director-General prior to the commencement of any works onsite;
- c. describe the survey findings and identify all known artefacts onsite;
- d. describe the procedures to be implemented:
 - i. to salvage excavate, or record any artefacts on site;
 - ii. to ensure appropriate Aboriginal groups are given the opportunity to be present on site during all earthworks; and
 - iii. should additional artefacts or human remains be uncovered onsite.

Historical Heritage

36 The Proponent must ensure that the Wool Pack Inn and Well are:

- a. fenced in accordance with the recommendations in the EA, prior to the commencement of construction; and
- b. protected for the life of the project.

HAZARDS

Safety Management System

- 37 ~~Prior to receipt of final occupation certificate~~~~Prior to the commencement of commissioning of stage 3, and within 12 months of the date of this approval,~~ the Proponent shall develop a comprehensive Safety Management System, covering all onsite operations. The Safety Management System must be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 9 'Safety Management' and must be kept up-to-date for the life of the project.

VISUAL IMPACT

Landscaping

- 38 The Proponent must prepare and implement a landscape management plan for the project. The plan must:
- a. be prepared in consultation with Council and approved by the Director-General prior to the commencement of ~~construction building works on Zone 3 of stage 3;~~
 - b. illustrate the location, species and mature heights of plants to be established on site;
 - c. illustrate how the landscaping would minimise views of the site;
 - d. use endemic species only in the landscaping, ensuring seed and propagule sources ,are from local botanical provenance;
 - e. provide a timetable for the implementation of the plan; and
 - f. provide for the maintenance of the landscaping.

Lighting

- 39 The Proponent shall ensure that all lighting associated with the project:
- a. complies with the latest version of Australian Standard AS 4282(IN7)-Control of Obtrusive Effects of Outdoor Lighting; and
 - b. is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties, conservation areas or the public road network.

Signage and Fencing

- 40 The Proponent shall not install any signage or fencing on site without the written approval of the Director-General. In seeking this approval the Proponent shall:
- a. submit detailed plans of the proposed signage or fencing, which have been prepared in consultation with Council; and
 - b. demonstrate that the proposed signage or fencing is consistent with the relevant requirements in any relevant Council Development Control Plan.
- 41 Any proposed landscaping, fencing or signage is not to impede the desired sight lines of all road users including pedestrians and cyclists.

SCHEDULE 4: ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

Environmental Management Strategy

- 1 The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
 - a. be submitted within 2 months of the date of this approval and approved by the Director-General prior to carrying out any construction;
 - b. be revised and approved by the Director-General, prior to the commencement of operations of ~~the new treatment plant, each of the following Stages: Stage 3 the dry mill, and the kiln dried storage building~~ Stage 6 and Stage 8;
 - c. provide the strategic context for environmental management of the project;
 - d. identify the statutory requirements that apply to the project;
 - e. describe in general how the environmental performance of the project would be monitored and managed;
 - f. describe the procedures that would be implemented to:
 - i. keep the local community and relevant agencies informed about the operation and environmental performance of the project;
 - ii. receive, handle, respond to, and record complaints;
 - iii. resolve any disputes that may arise during the course of the project;
 - iv. respond to any non-compliance;
 - v. manage cumulative impacts; and
 - vi. respond to emergencies; and
 - g. describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project.

Annual Review

- 2 Within ~~12 months after commencement of bulk earthworks in Zone 1, and annually thereafter~~ 12 months of this approval, and annually thereafter, the Proponent shall submit a review of the environmental performance of the project to the Director-General and relevant agencies. This report must:
 - a. identify the standards and performance measures that apply to the project;
 - b. describe the works and operations carried out in the past year;
 - c. describe the works and operations that will be carried out in the next year;
 - d. include a summary on the monthly production levels over the year;
 - e. include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
 - f. analyse the monitoring results and the complaints received against the:
 - i. relevant statutory requirements, limits or performance measures/criteria;
 - ii. monitoring results from previous years; and
 - iii. predictions in the EA;
 - g. identify any trends in the monitoring results over the life of the project;
 - h. identify any non-compliance during the previous year; and
 - i. describe what actions were, or are being, taken to ensure compliance.

Revision of Plans and Programs

- 3 Within 3 months of the submission of an:
 - a. Audit under condition 5 of schedule 4;

- b. Incident report under condition 4 of schedule 4; and
 - c. Annual Review under condition 2 of schedule 4,
- the Proponent shall review, and if necessary revise, the strategies, plans and programs required under this approval, to the satisfaction of the Director-General.

Incident Reporting

- 4 The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

Independent Environmental Audit

- 5 ~~Within 2 years of this approval, and every 3 years thereafter,~~ Within 2 years of submitting the review of the environmental performance of the project, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
- a. be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
 - b. include consultation with the relevant agencies;
 - c. assess the environmental performance of the project and assess whether it is complying with the relevant requirements in this approval and any relevant EPL (including any assessment, plan or program required under these approvals):
 - d. review the adequacy of strategies, plans or programs required under these approvals: and, if appropriate,
 - e. recommend measures or actions to improve the environmental performance of the project, and/or
 - f. any assessment, plan or program required under these approvals.
- 6 Within 6 weeks of the completing of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

Application 07_0161 - Modification

Appendix C

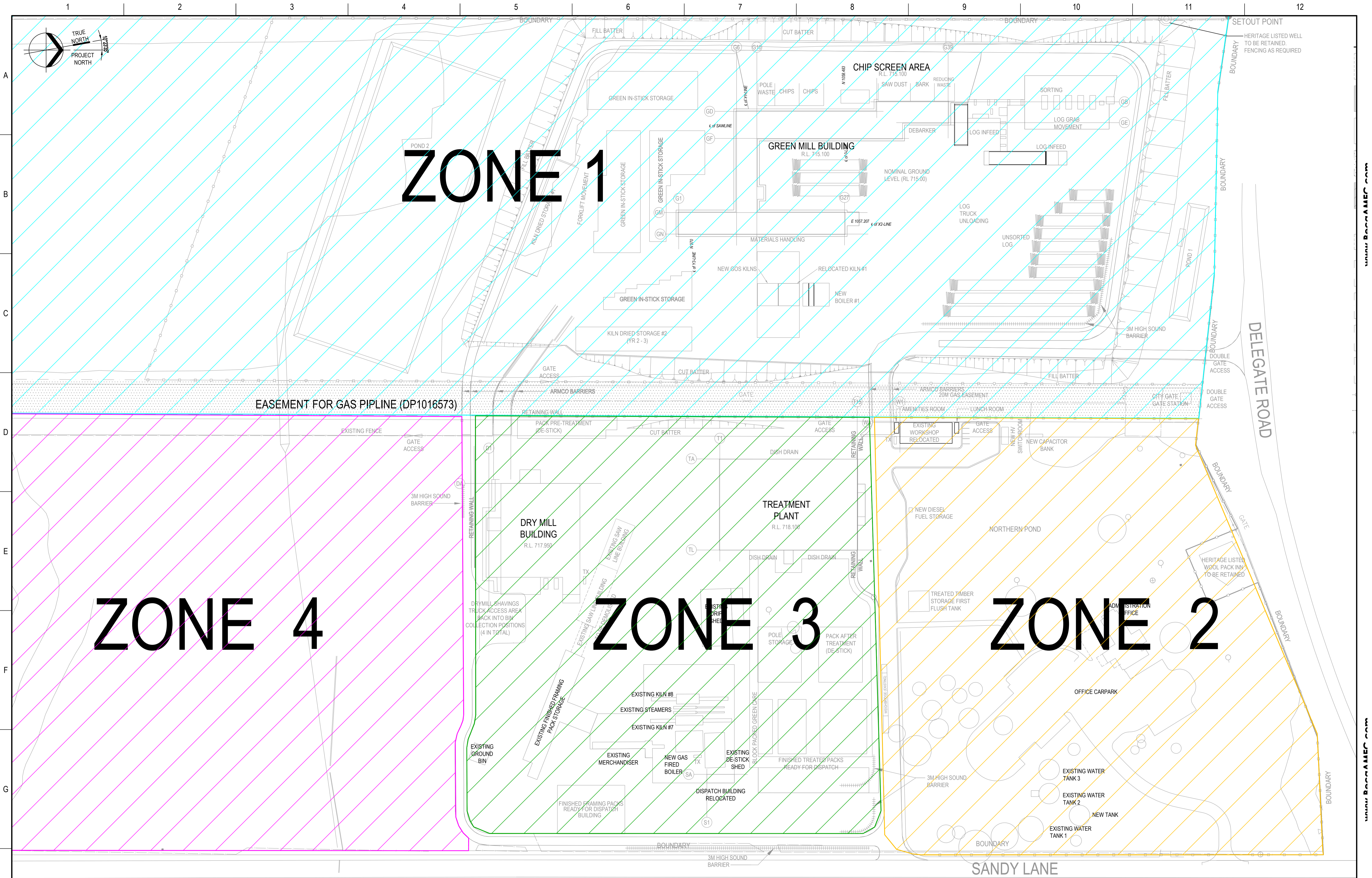
Zoning Plan

Bombala Sawmill Project

25 November 2011



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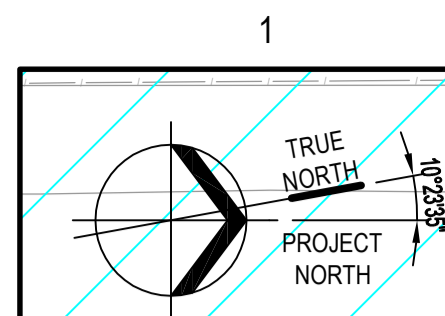
ZONE 1

ZONE 4

ZONE 3

ZONE 2

EASEMENT FOR GAS PIPELINE (DP1016573)



REV	DESCRIPTION	BO	IF	RWD	DATE
A	ISSUED FOR APPROVAL				21.11.11

SCALE	APPROVAL FOR CONSTRUCTION
1:1000 AT A1	APP B AMEC APP CLIENT

NAME (PRINTED)	SIGN	DATE
DESIGNED S. CARNEY		08.04.11
DRAWN B. QUINN		21.11.11
DRAWING CHECK S. ENGLAND		21.11.11
DESIGN CHECK D. CHIN		21.11.11



Beca AMEC PROJECT No.	2470241
PROJECT:	TASCO, BOMBALA NSW - PROJECT NAMU

TITLE: SITE LAYOUT ZONE AREAS	
Beca AMEC DRAWING No.	2470241-A-1101
CAD FILE:	P:\2472470241\CAD\2470241-GA-0120.dwg
REV	A

DIMENSIONS IN MILLIMETRES

DO NOT SCALE

PLEASE CHECK CURRENT REVISION

www.BECAAMC.com

www.BECAAMC.com

DATE: 22 November 2011 13:06

Application 07_0161 - Modification

Appendix D

Environmental Management Strategy

Bombala Sawmill Project

25 November 2011

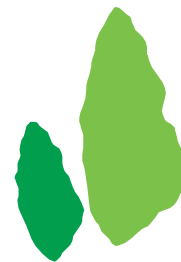


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Application 07_0161

Environmental Management Strategy

Bombala Sawmill Project



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24 November 2011

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LIST OF APPENDICES

Appendix	Plan Title	Status (as at submission of this Strategy)
APPENDIX A	Dust And Wood Residue Monitoring and Management Plan	Submitted
APPENDIX B	Soil and Water Management Plan	Submitted
APPENDIX C	Aboriginal Cultural Management Plan	Submitted
APPENDIX D	Signs and Marking Plan	Implemented
APPENDIX E	Landscape Management Plan	To be prepared
APPENDIX F	Air Emissions Management Plan	To be prepared
APPENDIX G	Remediation Action Plan	To be prepared
APPENDIX H	Contamination Validation and Site Audit Report And Statement	To be prepared
APPENDIX I	Product Management Plan	To be prepared
APPENDIX J	Energy Efficiency Plan	To be prepared
APPENDIX K	Safety Management Plan	To be prepared
APPENDIX L	Validation Report for the Whole Site	To be prepared
APPENDIX M	Irrigation Management and Monitoring Plan	To be prepared
APPENDIX N	Operational Monitoring Checklist	To be prepared

1 BACKGROUND

1.1 INTRODUCTION

Dongwha Timbers Pty Ltd (trading as Tasco) operates a sawmill and pole production facility at Sandy Lane, Bombala. Operations began on the site in 1979, and the mill has had a number of owners over the past 30 years. During that period over 20 development consents/building permits had accumulated for the various upgrades and expansions on the site.

The mill produces pine timber products predominantly for landscaping applications. Products include treated pine sleepers, fencing and poles. In 2010 Tasco (with its joint venture partner at the time, Willmott Forests) proposed to expand the mill, to increase its softwood log input capacity from 106,000 to 400,000 tonnes a year. The proposal involved relocating and/or replacing most of the mill's existing infrastructure over a transition period of about four years. The existing structures will continue to be used in the interim and will be progressively demolished or relocated once new infrastructure is installed. The proposal constitutes construction of a new green mill and timber treatment plant and associated infrastructure such as additional boilers and kilns, a new wastewater management system, a new site access and a new office and car park.

The proposal was declared a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and consequently the Minister for Planning was the approval authority for the project. The Department of Planning assessed the merits of the project and identified the key issues to be soil and water, air quality, traffic and noise. On balance, the Department considered the project to be in the public interest, and therefore it was approved subject to conditions.

The conditions require the mill to be carried out in accordance with:

- *Conditions of Approval*, prepared by the Department of Planning, September 2010 (COA);
- Statement of Commitments (SOC);
- Preferred Project Report; and
- *Environmental Assessment: Willmott Sawmill Project, Bombala* (Environmental Assessment).

1.1.1 FACILITY LOCATION

The site is located approximately 2 km south-west of the township of Bombala, between Sandy Lane, Delegate Bombala Road (also known as Bonang Highway) and Wedmore Road. The site is surrounded by farmland.

The entrance to the site is approximately 700 m from the intersection of the Monaro Highway and Delegate Bombala Road. The Bombala River is approximately 1 km to the north-east, and two of its tributaries – Parsonage Creek and Saucy Creek – are located 120 m to the north and 650 m to the west respectively.

The site is shown on the following figure.

1.2 PURPOSE OF ENVIRONMENTAL MANAGEMENT STRATEGY

Condition 1 of Schedule 4 requires the preparation of an Environmental Management Strategy. The purpose of this strategy is to describe:

- The strategic context for environmental management of projects (Section 1.3)
- Roles, responsibilities, authority and accountability of all key personnel involved in the environmental management of the project (section 2.2);
- Statutory requirements that apply to the project (section 2.3);
- Procedures to keep the local community and relevant agencies informed about the operation and environmental performance of the project (section 3.1);
- Procedures to receive, handle, respond to and record complaints (section 3.2);
- Procedures to resolve any disputes that may arise during the course of the project (section 3.3);
- Procedures to respond to any non-compliance (section 3.4);
- Procedures to manage cumulative impacts (section 3.5);
- Procedures to respond to emergencies (section 3.6);
- How the environmental performance of the project would generally be monitored (section 4.1);

This strategy applies to operational management of the mill. Construction of the new mill shall be managed in accordance with the Construction Environmental Management Plan prepared by the Beca AMEC (Head Construction Contractor).

1.3 STRATEGIC CONTEXT OF ENVIRONMENTAL MANAGEMENT STRATEGY

This Environmental Management Strategy outlines how Tasco will not only comply with current environmental and legal requirements, but how it will continue to meet those requirements in the future. The strategy is to:

- Prepare environmental management plans, in consultation with relevant government agencies, incorporating all conditions of approval, licence and legal requirements.
- Implement the plans during the construction and operation phases of the development;
- Validate the effectiveness of implementing management plans for key environmental issues (soil, water, noise and air quality);
- Undertake annual management reviews, establish environmental objectives and targets for Bombala Sawmill and implement a program of continually improving its environmental management and performance.



2 ENVIRONMENTAL MANAGEMENT

2.1 OBJECTIVES, TARGETS AND PROGRAMMES

As part of Tasco's continual improvement program the Bombala Sawmill management team shall recommend to Tasco's Executive Directors objectives and targets for the higher risk environmental activities of the Facility (refer to table 57 of the Willmott Timbers Environmental Assessment 2009). To achieve these objectives and targets, programmes would be devised for each activity prior to receipt of final occupation certificate.

Tasco management will review these programmes annually to identify:

- If objectives and targets are being met;
- Consider whether all community concerns, significant environmental aspects, technological options and operational requirements are current and relevant; and
- How these programmes can be improved upon.

The Managing Director is responsible for ensuring the environmental programmes are implemented and reviews are undertaken annually, including feedback and lessons learnt in the workplace to ensure satisfactory progress towards all environmental objectives and targets.

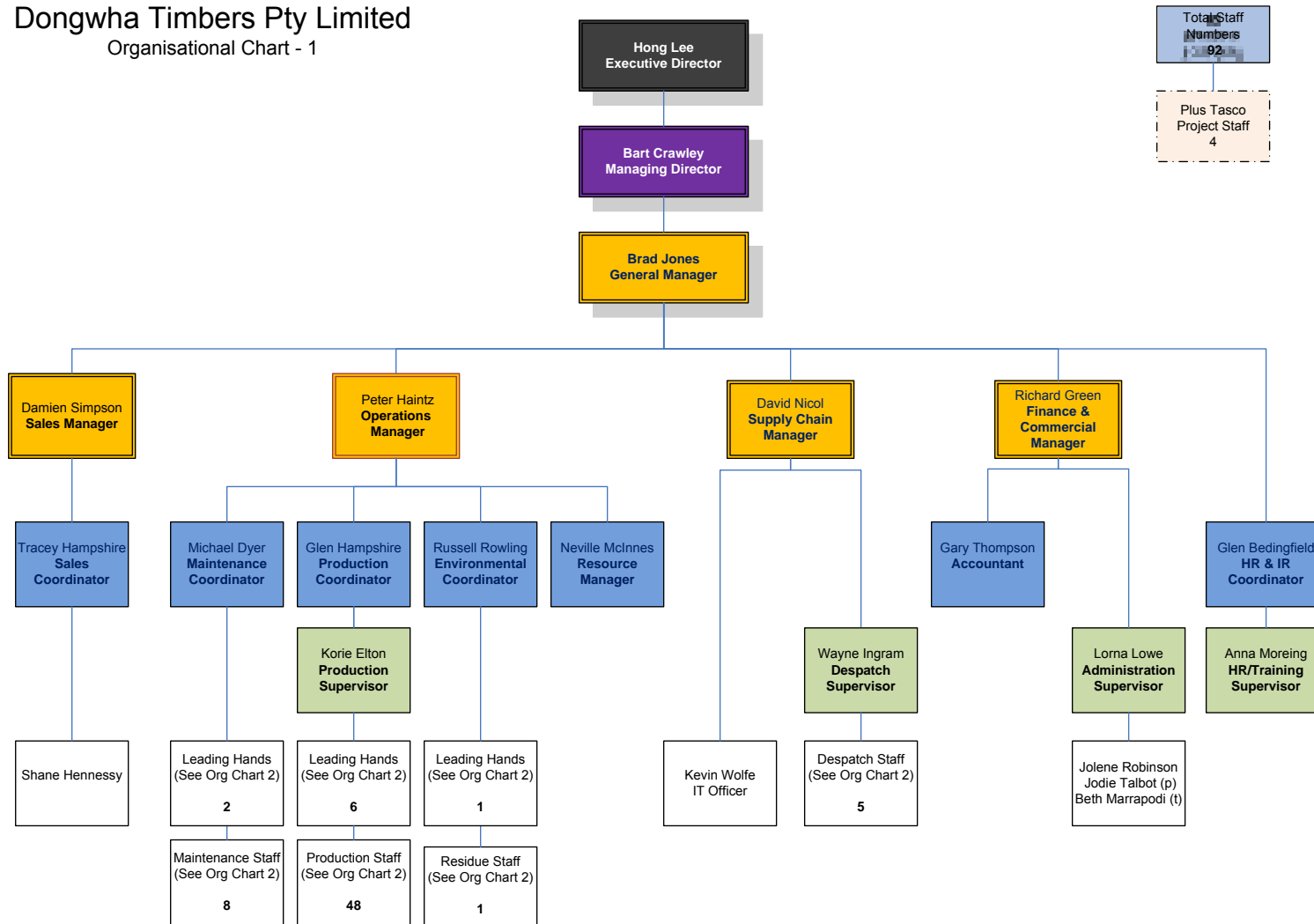
2.2 ROLES, RESPONSIBILITY, AUTHORITY AND ACCOUNTABILITY

The organisational chart below describes the current senior roles and hierarchy of accountability for Bombala Sawmill. Responsibilities and authorities are described further underneath for key personnel involved in the environmental management of Bombala Sawmill.

Executive Directors' and **Senior Executive's** responsibilities include:

- Providing leadership and governance in the overall environmental management of Bombala Sawmill, including endorsement of environmental objectives and targets;
- Ensuring adequate resources and funding is available for the proper management of the Sawmill.

Dongwha Timbers Pty Limited Organisational Chart - 1



Total Staff Numbers 92
Plus Tasco Project Staff 4

The **Managing Director** has overall responsibility for the implementation of this strategy and reports to Tasco's Senior Executive. Specific environmental tasks include:

- Being responsible for all environmental related communication, with interested external parties and regulatory parties.
- Ensuring the environmental programmes are implemented and reviews are undertaken annually, including feedback and lessons learnt in the workplace to ensure satisfactory progress towards all environmental objectives and targets.
- Recommending to Tasco's Executive Directors objectives and targets for the higher risk environmental activities of the Facility.
- Notifying Tasco Senior Executive and if necessary government authorities and agencies of any incident.
- Being familiar with the relevant regulatory requirements and operational requirements and their effect on all work-in-progress.
- Ensuring compliance of activities with the relevant management plans.
- Complying with requirements of the licence issued by the Office of Environment and Heritage (EPA).
- Stopping work if unacceptable impact on the environment is identified.

The **Operations Manager** tasks include:

- Being familiar with the relevant regulatory requirements and operational requirements and their effect on all work-in-progress.
- Ensuring compliance of activities with the relevant management plans.
- Be responsible for ensuring the adequacy of the strategies, plans and programs.
- Ensuring a Hazard Incident Investigation occurs following any incident and that the Managing Director is informed.
- Complying with requirements of the licence issued by the Office of Environment and Heritage (EPA).
- Ensuring that all employees and contractors are informed of environmental management requirements prior to commencing work.
- Monitoring and taking action to ensure that all requirements are implemented throughout the life of the workplace.
- Reviewing corrective and preventative actions to monitor the implementation of recommendations made from audits / site inspections.
- Stopping work if unacceptable impact on the environment is identified.

The **Finance and Administration Manager** tasks include:

- Ensuring proper records of waste receipts are maintained; and

- Ensuring the environmental training and awareness needs of sawmill employees are recorded and properly funded.

The **Environmental Coordinator's** tasks include:

- Complying with the relevant regulatory requirements identified in the management plans.
- Exercising an appropriate level of due diligence in enforcing work practices that minimise adverse environmental impacts.
- Ensuring the environmental training and awareness needs of sawmill employees are identified and undertaken.
- Complying with requirements of the licence issued by the Office of Environment and Heritage (EPA).
- Providing direction and guidance to leading hands to implement the management plans.
- Ensuring that all environmental incidents are reported and investigated in accordance with the Incident Response Plan.
- Stopping work if unacceptable impact on the environment is identified.

The **Leading Hands'** tasks include:

- Complying with the relevant regulatory requirements identified in the management plans.
- Complying with requirements of the licence issued by the Office of Environment and Heritage (EPA).
- Exercising an appropriate level of due diligence in enforcing work practices that minimise adverse environmental impacts.
- Supervising all employees and contractors in the environmental standards required in their work.
- Ensuring the development of Environmental Controls for the work activity.
- Ensuring that all employees and contractors in the workplace comply with environmental requirements.
- Requiring all employees and contractors to report environmental risks or hazards.
- Liaising with employees trades, sub lessees, contractors and subcontractors so that prompt responses are given when environmental issues are raised.
- Periodically monitoring activities to evaluate compliance with the management plans. Periodic monitoring must involve site inspections of active work sites.
- Raising any non-compliance with the management plans observed or identified.
- Stopping work if unacceptable impact on the environment is identified.

In addition, **all employees, trades, contractors and subcontractors** have an obligation to protect the environment through carrying out their own work with due diligence. In particular, they must:

- Comply with statutory and operational requirements, as identified at the time of induction, as they apply to the type of work the employee is involved in.
- Report any incident that may result in environmental harm that arises in the course of, or in connection with, their work.
- Implement practical ways to control environmental risk.

2.3 APPROVAL, LICENSING AND REPORTING REQUIREMENTS

2.3.1 LEGISLATION

The following legislation is relevant to the environmental management of the Sawmill:

- Protection of the Environment Operations Act 1997. The facility is a scheduled activated under Schedule 1 of the Act (wood or timber milling or processing works and wood preservation) and therefore an Environment Protection Licence is required. Requirements of the licence are described in Table 2 of section 2.3.3).
- Protection of the Environment Operations (Clean Air) Regulation 2002. The existing facility is required to comply with Group 4 emission limits under Schedule 4 and the new mill will be required to comply with Group 6 emissions.
- Protection of the Environment Operations (Underground Petroleum Storage Facilities) Regulation 2008. Removal and validation reporting of diesel and petrol underground storage tanks on site will need to be undertaken in accordance with this regulation.
- National Parks and Wildlife Act 1974. Section 90 requires a permit for works that potentially disturb Indigenous heritage items. A permit may be required if any artefacts are found as a result of construction activities on site.
- Contaminated Land Management Act 1997. The Act establishes processes for investigating and remediating contaminated land, which applies to remediation works for this site.
- Environmental Planning and Assessment Act 1979. Approval with conditions of consent for the new mill was given under Part 3A of the Act. Whilst, Part 3A of the Act was repealed on the 27th June 2011, the consent remains valid. The requirements of the consent are described in Table 2 of section 2.3.3.

2.3.2 GUIDELINES AND AUSTRALIAN STANDARDS

The following guidelines and Australian Standards are relevant to the management of the Sawmill:

- Storing and Handling Liquids: Environmental Protection – Participants Manual
- AS 1940-2004 the storage and handling of flammable and combustible liquids
- AS/NZS 2843.1:2006 timber preservation plants – Timber preservation plant site design
- AS/NZS 2843.2:2006 Timber preservation plants – Timber area operations
- AS 2890.1:2004: Parking Facilities – Off-Street Parking

- AS 2890.2:2002: Parking facilities - Off-street commercial vehicle facilities
- AS 4282(INT) – Control of Obtrusive Effects of Outdoor Lighting
- Austroads Pavement Design Guide
- NSW Industrial Noise Policy
- Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales DECCW)
- Environmental Guidelines: Use of Effluent by Irrigation (DECCW)
- Environment and Health Protection Guidelines: On-site Sewage Management for Single Households
- Hazardous Industry Planning Advisory Paper No.9 'Safety management' (Department of Planning)

2.3.3 LICENCE AND CONSENT CONDITIONS

All approval and licensing requirements for operation of the mill are listed in the table below. This table provides the relevant reference document, what the requirement is, and whom it is to be actioned by.

Table 2: Approval and reporting requirements

Reference Document	Requirement	Action by	Completion Date
Conditions of Approval			
Schedule 2, Condition 6	Surrender all existing development consents and building applications for the project, to the satisfaction of the Director-General.	Tasco	Prior to receipt of final occupation certificate.
Schedule 2, Condition 12	Submit work as executed plans to the Department for all the development associated with the project. These plans must be prepared by a suitably qualified and experienced expert, and include plans showing the work as executed plans laid over the approved plans to demonstrate that the development has been carried out in accordance with the approved plans.	Tasco	Prior to receipt of final occupation certificate.
Schedule 3, Condition 4	Prepare a Dust and Wood Residue Monitoring and Management Plan in consultation with Office of Environment and Heritage.	Peter J Ramsay & Associates	Plan already submitted.
Schedule 3, Condition 6	Prepare an Air Emissions Management Plan in consultation with Office of Environment and Heritage.	Peter J Ramsay & Associates	Prior to operation of equipment relating to of the air emission monitoring points identified in Table 1 of the conditions of approval.

Reference Document	Requirement	Action by	Completion Date
Schedule 3, Condition 11	Prepare Noise validation Reports to the satisfaction of the Director-General.	Peter J Ramsay & Associates	Within 3 months of the commencement of construction, within 3 months of receipt of final occupation certificate and following a compliant if requested by Director-General.
Schedule 3, Condition 12	Prepare Remediation Action Plan (subject to Office of Environment and Heritage approval of Peter J Ramsay & Associates as suitable experts).	Peter J Ramsay & Associates	Prior to commencement of earth or building works on contaminated areas of Zone 3.
Schedule 3, Condition 13	Prepare a Validation Report and Site Audit Report and Statement covering the areas extending to the northern pond to the north, Sandy Lane to the east, the southern wetland to the south and the gas easement to the west.	Peter J Ramsay & Associates	Prior to commencement of building works on contaminated areas of Zone 3.
Schedule 3, Condition 14	Prepare a validation report for the whole site including the results of groundwater monitoring.	Peter J Ramsay & Associates	Prior to receipt of final occupation certificate.
Schedule 3, Condition 17	Prepare a Spill Prevention and Management System.	Tasco	Prior to receipt of final occupation certificate.
Schedule 3, Condition 20	Prepare a Soil and Water Management Plan in consultation with Council and the Office of Water. The Soil and Water Management Plan shall consist of Site Water Balance, Sediment and Erosion Plan, Stormwater Scheme and Soil and Water Monitoring Program. Sediment and Erosions Controls are to be endorsed by an accredited site auditor.	Peter J Ramsay & Associates	Plan already submitted
Schedule 3, Condition 25	Prepare an Irrigation Management and Monitoring Plan in consultation with Office of Environment and Heritage and approved by the Director-General of Planning.	To be determined	Prior to any irrigating.
Schedule 3, Condition 28	Prepare a Product Management Plan in consultation with Office of Environment and Heritage.	Tasco	Prior to operating new equipment on Zone 3.
Schedule 3, Condition 31	Prepare a Signs and Marking Plan to the satisfaction of Council and RTA.	To be determined	Plan already implemented.
Schedule 3, Condition 34	Prepare an Energy Efficiency Plan.	Urban Perspectives	Prior to commencement of operation new equipment in zone 3.

Reference Document	Requirement	Action by	Completion Date
Schedule 3, Condition 35	Prepare Aboriginal Cultural Management Plan in consultation with Office of Environment and Heritage and the Aboriginal community.	Navin Officer Heritage Consultants	Prior to commencement of any works on site.
Schedule 3, Condition 37	Review and update the Safety Management Plan to comply with the Department's Hazardous Industry Planning Advisory Paper No.9 'Safety Management'.	Tasco	Prior to receipt of final occupation certificate.
Schedule 3, Condition 38	Prepare a Landscape Management Plan in consultation with Council.	To be determined	Prior to commencement of building works in Zone 3.
Schedule 3, Condition 40	Separate approval from Director-General required for signage or fencing.	Tasco	Ongoing
Schedule 4, Condition 2	Submit a review of the environmental performance of the project to the Director_General relevant agencies.	Tasco	12 months after commencement of bulk earthworks, in Zone 1, and annually thereafter.
Schedule 4, Condition 5	Commission an Independent Environmental Audit of the Project.	To be determined	Within 2 years of submitting the review of the environmental performance of the project and every 3 years thereafter, unless the Director-General directs otherwise
Environment Protection Licence Requirements (EPL 11205)			
R1.1	Complete and supply to the EPA an Annual Return in the approved form.	Tasco	Not later than 60 days after 3rd May of Each year
R3.1	Where an event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.	Tasco	As required.
R4.1	Supply with the Annual Return a report, which provides: (a) an analysis and interpretation of monitoring results and (b) actions to correct identified adverse trends.	Tasco	Submit with Annual Return.

The above management plans shall be appended to this strategy as they are prepared.

3 PROCEDURES

3.1 PROJECT UPDATES AND CONSULTATION PROCEDURE

The following procedures shall be followed where construction works result in any significant disruption to the community (such as noisy works, delivery of equipment that disrupt traffic etc):

- The Managing Director of Tasco and/or Construction Project Manager shall liaise with local Council prior to commencing those works;
- If the disruption could affect the broad community (eg traffic disruption) Tasco shall inform the community by advertisement in the local paper; and
- Tasco shall undertake letterbox drops of any residents directly affected (eg noisy works, road blockage etc).

Office of Environment and Heritage shall be provided with updates of the project through the Annual Returns, Annual Reviews (section 4.3.2) and independent audits (section 4.2.2). Tasco shall also provide additional updates to Office of Environment and Heritage if requested. Department of Planning shall also be updated of the project through the Annual Reviews (section 4.3.2), independent audits (section 4.2.2) and additional updates if requested by the Department.

From time to time Tasco may issue media releases to the local media informing the community when a project milestone has been achieved.

3.2 COMPLAINTS HANDLING PROCEDURE

The Managing Director shall be responsible for all compliant related communication with external parties and regulatory parties.

The complaints management system includes a telephone number (02.6297 3199) that community complaints may be registered on, and a postal address (1 Sandy Lane, BOMBALA, NSW, 2632) to which written complaints may be sent. The contact details shall be advertised at the site entrance. Details of all complaints received will be recorded in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to:

- The date and time, where relevant, of the complaint;
- The means by which the complaint was made (telephone or mail);
- Any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
- The nature of the complaint;
- Any action(s) taken by management in relation to the complaint, including any follow- up contact with the complainant; and
- If no action was taken by the management in relation to the complainant, the reason(s) why no action was taken.

The Managing Director shall refer the complaint to the appropriate party and acknowledge receipt of the complaint within 24 hours.

The Managing Director shall make the Complaints Register available to Council and the Director-General of the Department of Planning (DoP) for inspection upon request. Information on all complaints received, including the means by which they were addressed and whether resolution was reached will be included in the Annual Review Report (refer to section 4.3.2)

3.3 DISPUTE RESOLUTION PROCEDURE

Overtime disputes can arise either internally within the organisation, with the community or with regulatory authorities. In all circumstances, Tasco Management shall generally adopt the following hierarchy of dispute resolution:

- Negotiation. In most cases Tasco shall first try to resolve the dispute amicably with the other party.
- Mediation. If negotiation is unsuccessful Tasco shall consider mediation assisted by an independent third party.
- Arbitration / Adjudication. Where negotiation or mediation has failed or on highly technical issues Tasco may seek arbitration. The court would adjudicate where there has been a breach of the law.

3.4 NON-COMPLIANCE PROCEDURE

A non-compliance is defined as a failure to comply with environmental legislation or with management plan requirements.

All employees have the authority to raise a non-compliance or preventive action should they occur. The non-compliance report should identify root cause and preventative or corrective action. Non-compliance are forwarded to the responsible manager to determine appropriate actions and dates. On completion of agreed actions, the nominated manager signs-off the non-conformance.

Where appropriate, work on non-complying activities may be stopped by the Managing Director, Operations Manager, Maintenance / Production and Procurement Co-ordinator or Leading Hand. This stoppage remains in force until corrective action is implemented or authority is given to continue.

3.5 CUMULATIVE IMPACT MANAGEMENT PROCEDURE

Implementation of the management plans required by conditions of approval will ensure cumulative impacts of the project are adequately management. There is also an opportunity to progressively reduce impacts from operation of the sawmill and upstream and downstream impacts of the sawmilling process through establishment and review of environmental objectives and targets (Refer to Section 2.1)

3.6 EMERGENCY RESPONSE PROCEDURE

Bombala Sawmill Fire Management and Emergency Plan include procedures for:

- Chemical Spills;
- Medical Emergencies;

- Fire Emergency; and
- Bomb Threats.

These procedures shall be reviewed and updated by the Safety and Risk Supervisor to ensure they comply with the Department's Hazardous Industry Planning Advisory Paper No.9 'Safety Management' prior to the receipt of the final occupation certificate. The Plan shall also incorporate procedures of the Spill Management System required by Schedule 3, Condition 17 of the consent.

These procedures, including emergency procedures and contact details, shall be prominently displayed in various locations on Site. Operations Manager shall also enlist local emergency response crews to carry out mock drills to test these procedures and the preparedness of site and emergency personnel.

Operations Manager shall be notified of all environmental incidents and shall ensure a Hazard Incident Investigation has occurred. The General Manager is responsible for notifying Tasco Managing Director and if necessary government authorities and agencies of any incident.

Office of Environment and Heritage and the Director-General of DoP shall be notified of any incident with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable upon becoming aware of the incident. Tasco shall provide full written details of the incident to Council and the Director-General within 7 days of the date on which the incident occurred (COA Schedule 4, 4).

4 MONITORING AND REVIEW

This section provides detail the environmental monitoring and review of the mill's operations.

4.1 ENVIRONMENTAL MONITORING

4.1.1 ROUTINE MONITORING

The Leading Hands shall undertake weekly inspections of the site ensuring compliance with relevant environmental requirements and management plans. A weekly checklist shall be developed following completion of the management plans and prior to the receipt of the final occupation certificate. The checklist shall be included in later revisions of this Environmental Management Strategy and retained on site as a record of the inspection.

4.1.2 NOISE MONITORING

The Operations Manager shall ensure a suitable noise consultant is engaged to validate predicted construction and operation noise levels. The assessment shall occur within 3 months of the commencement of construction and within 3 months of the completion of expansion works (Stage 8), while operating under normal conditions.

The Noise Validation Report shall:

- Validate the predictions made in the Environmental Assessment;
- Demonstrate compliance with the limits specified in the Conditions of Approval;
- Demonstrate the noise controls are working effectively; and
- If any non-compliances are detected, describe the measures that are to be implemented and the timing for implementation of these measures, to ensure compliance

The Validation Report shall be submitted to the Director-General of Planning and Office of Environment and Heritage (EPA) one month after the commencement of the validation assessment.

4.1.3 AIR QUALITY MONITORING

The Operations Manager shall ensure, based on advice from Peter J Ramsay & Associates, that there is a suitable meteorological station in the vicinity of the site that complies with the requirements of Approval Methods for Sampling and Analysis of Air Pollutants in NSW guidelines.

The Air Emissions Management Plan shall describe a program for the ongoing monitoring and reporting of air emissions from the project, describing the location, frequency, method and pollutants to be monitored.

4.1.4 CHEMICAL STORAGE

The Maintenance Co-ordinator shall maintain an inventory system that accurately measures and reports on production loss of chemical stored on site. The Operations Manager shall ensure an early warning leak detection and prevention system is installed and maintained and that the integrity of the bunds, tanks and

pipelines are regularly assessed. These measures shall be described in the Spill Prevention and Management System.

4.1.5 ENERGY

The Energy Efficiency Plan shall include a program to monitor and report on the effectiveness of the measures implemented and a protocol for periodic review of the plan to ensure the project would continue to operate efficiently.

4.1.6 SOIL AND WATER MONITORING

The Operations Manager shall engage an appropriate environmental scientist to implement a soil and water monitoring program that:

- Establishes existing soil, surface and groundwater quality;
- Identifies potential pollutants from the project;
- Identifies the soil, surface water, groundwater and wastewater impact assessment criteria;
- Identifies and justifies monitoring locations, sampling frequencies and methods;
- Establishes procedures for assessment and reporting of monitoring results; and
- Outlines contingency measures if exceedances are identified.

4.2 ENVIRONMENTAL AUDITING

4.2.1 INTERNAL

Internal Environmental Management Plan Audits shall be carried out September every year. If auditing identifies any non-compliance Tasco shall complete a Non-Compliance Report and shall ensure additional measures would be implemented to achieve compliance as required (Section 3.4). The results of audits shall be reported to the Managing Director.

4.2.2 INDEPENDENT ENVIRONMENTAL AUDIT

Within 2 years of submitting the review of the environmental performance of the project and every 3 years thereafter, unless the Director-General directs otherwise, the Managing Director shall commission an independent Environmental Audit of the project. Appointment of the independent auditor must be endorsed by the Director-General of Planning.

The audit must:

- Include consultation with Office of Environment and Heritage (EPA), Council and Department of Planning;
- Assess the environmental performance of the project and assess whether it is complying with the relevant requirements in the conditions approval and the Environment Protection Licence;

- Review the adequacy of strategies, plans or programs required under these approvals, and if appropriate;
- Recommend measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program.

4.3 REVIEWS

4.3.1 REVIEW OF PLANS AND PROGRAMS

The Operations Manager shall be responsible for ensuring the adequacy of the strategies, plans and programs following:

- The recommendations of an audit or corrective action;
- An environmental incident;
- Receipt of a community complaint; and/or
- Instruction from a Regulatory Authority.

This review will enable a continual improvement process to ensure the continuing suitability, adequacy and effectiveness of the management plan and its implementation.

The Operations Manager shall ensure the Product Management Plan is revised and reviewed every 5 years to the satisfaction of the Director-General of Department of Planning.

4.3.2 ANNUAL REVIEW

The Managing Director is responsible for ensuring that a review of the environmental performance of the project occurs annually. The review shall include the 12 months commencement of bulk earthworks, Zone 1 and annually thereafter. The review must:

- Identify the standards and performance measures that apply to the project;
- Describe the works and operations carried out in the past year;
- Describe the works and operations that will be carried out in the next year;
- Include a summary on the monthly production levels over the year;
- Include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
- Analyse the monitoring results and the complaints received against the:
 - Relevant statutory requirements, limits or performance measures/ criteria;
 - Monitoring results from the previous years; and
 - Predictions in the EA.

- Identify any trends in the monitoring results over the life of the project;
- Identify any non-compliance during the previous year; and
- Describe what actions were, or are being, taken to ensure compliance.

The Annual Review shall be submitted to the Director-General of Planning and Office of Environment and Heritage (EPA).

A supplementary report shall be submitted to Tasco's Executive Directors that will:

- report on the performance of achieving agreed environmental objectives and targets;
- report on the progress of programmes implemented to achieve the objectives and targets and whether they can be improved;
- recommend whether any new environmental objectives should be considered or targets revised based on a review of community concerns, significant environmental aspects, technological options and operational requirements; and
- cost of any recommended objectives and/or targets.

5 CONTACT DETAILS

Julia Beck

Telephone 0 2 9232 8282
Fax 02 9232 8275
Email Julia@fifthestate.com.au
Skype julia.l.beck

The Fifth Estate Consultancy Pty Ltd 2011
ABN 51 069 838 222
Suite 203 ▪ Level 2 ▪ 23 Hunter Street
Sydney NSW 2000
GPO Box 5494
Sydney NSW 2001

Stuart Wilmot

Telephone 02 8071 4587
Fax 02 9252 4516
Email stuart@urbanperspectives.com.au

Urban Perspectives Environmental Solutions Pty Ltd
ABN 13 095 904 224
Suit 23 ▪ Level 6 ▪ 58 Pitt St
Sydney NSW 2000
GPO Box 4507
Sydney NSW 2001

Application 07_0161 - Modification

Appendix E

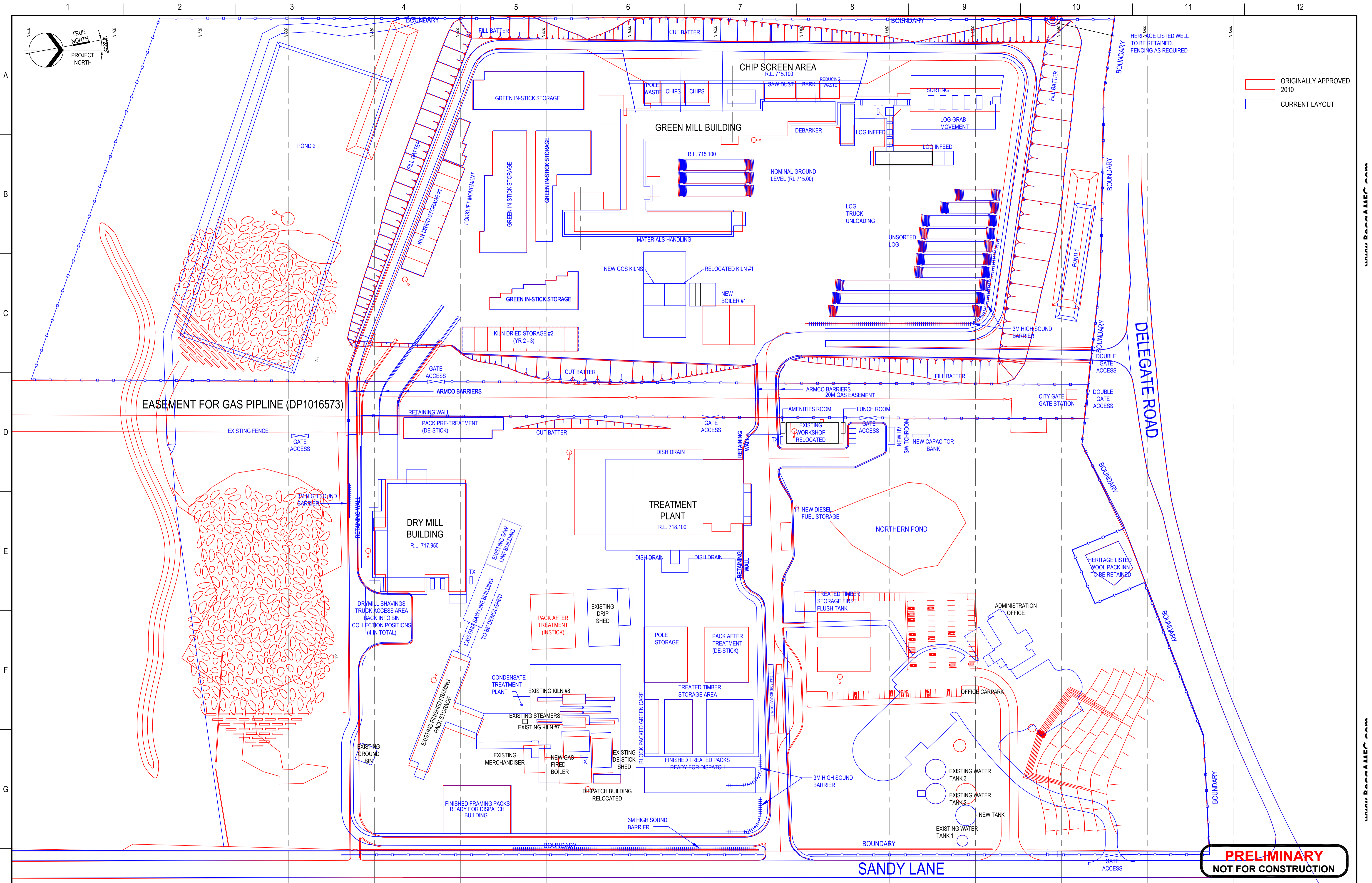
**A plan of the approved Project layout overlaid by the proposed modified layout
highlighting changes**

Bombala Sawmill Project

25 November 2011



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PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED: S. CARNEY (24.08.11) DRAWN: S. ENGLAND (24.08.11) DRAWING CHECK: DESIGN CHECK: SCALE: 1:1000 AT A1 APPROVAL FOR CONSTRUCTION: APP B AMEC / APP CLIENT		NAME (PRINTED): SIGN: DATE: CLIENT:		Beca AMEC Limited Australia New Zealand	TITLE: MASTER SITE PLAN APPROVED 2010 VS CURRENT OPTION
REFERENCE DRAWINGS:		CLIENT DRAWING No.:	Beca AMEC PROJECT No.: 2470241	Beca AMEC DRAWING No.: 2470241-GA-0150	REV: C
DIMENSIONS IN MILLIMETRES		PROJECT: TASCO, BOMBALA NSW - PROJECT NAMU		CAD FILE: P:1256125600002470241 TASCO\DWG\Site Overlays\2470241-GA-0150.dwg PLEASE CHECK CURRENT REVISION	

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DATE: 23 November 2011 11:51

Application 07_0161 - Modification

Appendix F

Soil and Water Management Plan

Bombala Sawmill Project

25 November 2011



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SOIL AND WATER MANAGEMENT PLAN FOR EXPANSION OF INTEGRATED SAWMILLING AND VALUE-ADDING FACILITY

1 Sandy Lane, Bombala, New South Wales

November 2011

Environmental Engineering
Science & Management
Consultants



**PETER J RAMSAY
& ASSOCIATES**

Melbourne
222 Kings Way
South Melbourne VIC 3205
Telephone +61 3 9690 0522
Facsimile +61 3 9690 0585

Sydney
3/538 Gardeners Road
Alexandria NSW 2015
Telephone +61 2 8338 1655
Facsimile +61 2 8338 1755



18 November 2011

Mr Bart Crawley
Dongwha Timbers Pty Ltd
PO Box 146
BOMBALA NSW 2632

Melbourne
222 Kings Way
South Melbourne VIC 3205
Telephone +61 3 9690 0522
Facsimile +61 3 9690 0585

Sydney
3/538 Gardeners Road
Alexandria NSW 2015
Telephone +61 2 8338 1655
Facsimile +61 2 8338 1755

Dear Mr Crawley,

Re: Soil and Water Management Plan for the Expansion of the Integrated Sawmilling and Value-Adding Facility, Sandy Lane, Bombala, New South Wales

I am pleased to submit this soil and water management plan for the expansion of Dongwha Timbers Pty Ltd's (Dongwha's) integrated sawmilling and value-adding facility at Sandy Lane, Bombala, New South Wales. The management plan has been developed to satisfy Conditions 20 to 24 of the Project Approval issued by the Department of Planning pursuant to Section 75J of the *Environmental Planning and Assessment Act 1979*.

This management plan describes the existing environmental condition of the site and the strategies that will be implemented for the expansion of the site including sediment and erosion control, a stormwater management scheme and soil and water monitoring program. A site water balance is also included in the management plan. The management strategies have been developed to manage existing legacy contamination issues and to ensure that impacts to the environment are managed in accordance with industry best practice.

Should you wish to discuss any matters concerning this management plan please contact Dr Darren Bennetts on 03 9690 0522.

Yours sincerely,

Peter J Ramsay & Associates

Peter J Ramsay & Associates

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USE OF REPORT

The preparation of this document has been undertaken for the purpose of providing a soil, and water management plan for the expansion of Dongwha Timbers Pty Ltd's integrated sawmilling and value-adding facility at Sandy Lane, Bombala, Victoria. It is not intended that this document should be used for any other purpose.

This document has been prepared solely for the benefit of Dongwha Timbers Pty Ltd. This document is provided on the condition that it or any part of it, will not be made available to, or relied upon by any other party for any purpose except with the prior written consent of Peter J Ramsay & Associates Pty Ltd (which consent may or may not be given at its discretion). Consent is given to Dongwha Timbers Pty Ltd to make copies of the document for its own internal use.

DISCLAIMER

This document is provided on the condition that Peter J Ramsay & Associates Pty Ltd disclaims all liability to any person other than Dongwha Timbers Pty Ltd in respect to anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, upon the whole or any part of the contents of the document.

LIMITATIONS

Peter J Ramsay & Associates Pty Ltd has prepared this soil and water management plan in accordance with Office of Environment and Heritage, and National guidelines. The nature of the investigation on which this management plan is based is influenced by factors such as professional judgement, selective testing of representative samples from the site and the reliability of the information relating to the site which was obtained by the methodology described in this report. Reasonable care has been taken to verify the accuracy of the data and information available to Peter J Ramsay & Associates Pty Ltd.

Our findings presented in this report are based on the information available to us during the preparation of this soil and water management plan, and some of those findings could vary if the information upon which they are based is determined to be false, inaccurate, or incomplete. Peter J Ramsay & Associates Pty Ltd should be advised if the conditions on the site are found to vary from the information on which this soil and water management plan is based so that the procedures in this soil and water management plan can be evaluated in light of any changed conditions.

EXECUTIVE SUMMARY

This Soil and Water Management Plan has been prepared for the expansion of Dongwha Timbers Pty Ltd's (Dongwha's) integrated sawmilling and value-adding facility at Sandy Lane, Bombala, New South Wales. The management plan has been developed to satisfy Conditions 20 to 24 of the Project Approval issued by the Department of Planning pursuant to Section 75J of the *Environmental Planning and Assessment Act 1979*.

The site comprises an existing sawmilling and value adding facility on a large rural block which has an area of approximately 37 ha. The site has been used as a sawmilling and value adding facility since 1978, including timber treatment using copper chrome arsenate.

The proposed redevelopment of the site involves upgrading the timber production capacity and to also improve the efficiency and environmental performance of the processes. The project will utilise some components of the existing mill, with others being decommissioned and replaced with new items. In particular, the existing timber treatment plant will be decommissioned and a new environmental best practice timber treatment plant commissioned.

This management plan describes the existing environmental condition of the site and the strategies that will be implemented for the expansion of the site. The management strategies have been developed to manage existing legacy contamination issues and to ensure that impacts to the environment are managed in accordance with industry best practice.

In particular, sediment and erosion control measures including procedural controls, the construction of temporary sedimentation ponds and rock check dams, and installation of sedimentation fencing will be implemented. These measures will be implemented prior to the commencement of earthworks and will remain in place until the development has been fully completed.

In addition, a comprehensive stormwater and wastewater management scheme has been developed for the site. The scheme involves the capture of stormwater generated at the site in three purpose designed water storage ponds. Ponds 1 and 2 will be constructed in the north-western and south-western portions of the site respectively and will capture stormwater for reuse at the site. In addition, the existing Northern Pond will be upgraded and will capture runoff solely from the treated timber storage areas for reuse in the treatment plant.

The new ponds have been designed to capture surface runoff under average rainfall conditions, as well as during extreme flood events in order to minimise the potential for off-site discharge of water. Notably, the Northern Pond which captures stormwater from the treated timber storage areas, has been designed to capture a one-in-one-hundred rainfall event. In addition, the proposed water storages will be able to satisfy the water demands of the treatment plant with only very minimal need for mains water in summer. Stormwater generated off-site to the east of the site will be diverted across the site and into the natural watercourse downstream of the site to the west as it is surplus to the plants requirements and will not be contaminated.

A key aspect of the stormwater and wastewater management scheme is the reuse and/or on-site management of all wastewater generated at the site. In particular, the major wastewater stream at the site, which is condensate from the re-dry kilns/boilers and steamers, will be treated on site using a purpose designed activated carbon water treatment plant prior to 100% reuse.

The legacy environmental issues at the site, which include CCA impacted soil and groundwater, and residue stockpiles, will be remediated. The existing stormwater pond in the southern portion of the site known as the Southern Pond, which is also heavily contaminated, will be also remediated and rehabilitated to a natural watercourse.

A comprehensive range of soil and water monitoring, reporting and contingency procedures have also been developed to ensure that the management procedures continue to be effective in the future, thereby ensuring that environmental impacts are minimised. Dongwha has advised that it will work with EPA to update the Environment Protection Licence to reflect the soil and water monitoring program outlined in this management plan.

The soil and water management procedures will ensure that the environmental performance of the redevelopment is consistent with environmental best practice. In addition, the procedures will improve the environmental condition of the existing site and ensure that environmental impacts are minimised in the future.

LIST OF ABBREVIATIONS

CCA	Copper Chrome Arsenate
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DO	Dissolved Oxygen
EC	Electrical Conductivity
NEPM	National Environment Protection (Assessment of Site Contamination) Measure
OEH	Office of Environment and Heritage
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
UPSS	Underground Petroleum Storage System



1. INTRODUCTION

The land subject to this Soil and Water Management Plan (SWMP) is located at Dongwha Timbers Pty Ltd's (Dongwha's) integrated sawmilling and value-adding facility at 1 Sandy Lane, Bombala, New South Wales ('the site'). The location of the site is shown in Figure 1. A figure showing the site and surrounding land uses is presented in Figure 2.

The SWMP has been developed to satisfy Conditions 20 to 24 of the Project Approval issued by the Department of Planning on 7 September 2010 pursuant to Section 75J of the *Environmental Planning and Assessment Act 1979*. Table 1 summarises the relevant Conditions of the Project Approval for the development and where those items are addressed in this report.

The SWMP describes the existing environmental condition of the site and includes the following components:

- Site water balance;
- Sediment and erosion control plan;
- Stormwater management scheme; and
- Soil and water monitoring program.

This soil and water management plan has been developed based on the results of a soil and groundwater assessment recently undertaken at the site and our review of the previous soil and groundwater investigations undertaken at the site

Table 1 Location of Project Approval Conditions which are Addressed in this Report

Condition Number	Approval Condition	Location in this Report
20	Prepared and Implement a Soil and Water Management Plan	Entire document
(c)	The Soil and Water Management Plan must include:	
i.	Site Water Balance	Section 6
ii.	Sediment and Erosion Control Plan	Section 7
iii.	Stormwater Management Scheme	Section 5
iv.	Soil and Water Monitoring Program	Section 8
21	The Site Water Balance must:	
(a)	Identify and quantify all water uses on site	Section 6.3.2
(b)	Include a detailed description of the water management and reuse at the site	Sections 5.1, 5.2 and 5.3
(c)	Demonstrate 100% reuse of CCA condensate would be achieved in the treatment plant	Section 5.2 and 6.3.3
(d)	Quantify the wastewater quality and flows and describe the reuse or disposal methodology	Section 5.2
(e)	Describe the reporting procedures and contingency measures in the event of issues with water management or reuse infrastructure	Section 5.6
(f)	Consideration of all available options to reduce the water use of the project	Section 5.3
(g)	Demonstrate that all reasonable and feasible measures to minimise water usage will be implemented	Section 5.3
22	The Sediment and Erosion Controls must:	
(a)	Be endorsed by an Accredited Site Auditor	Appendix A
(b)	Be consistent with the requirements of Landcom's (2004) <i>Managing Urban Stormwater: Soils and Construction</i> manual	Section 7
(c)	Manage activities that could cause soil erosion and generate sediment	Section 7.1
(d)	Minimise soil erosion and the potential for the transport of sediment to downstream waters	Section 7.2
(e)	Describe the location, function and capacity of erosion and sediment control structures	Section 7.2
(f)	Describe the measures to be implemented to maintain these structures overtime	Section 7.3
(g)	Be implemented prior to the commencement of any construction, demolition or remediation and be maintained for as long as necessary to control erosion and sediment on site	Section 7

Condition Number	Approval Condition	Location in this Report
23	The Stormwater Management Scheme must:	
(a)	Be prepared in accordance with the DECCW's Managing Urban Stormwater: Council Handbook	Section 5
(b)	Include details of:	
i.	Pre and post development flows;	Section 5.4
ii.	Water quality	Section 5.5
iii.	The rainwater harvesting and reuse infrastructure to be installed	Section 5.1
iv.	The stormwater treatment, drainage and retention infrastructure, ensuring there is sufficient capacity to handle the 4 % AEP, 144 hour rainfall depth storm event	Sections 5.1 and 5.6
v.	The measures to manage flow during a 1 % AEP event	Section 5.1
vi.	The measures to be implemented to monitor and manage the stormwater quality and quantity and maintain the stormwater infrastructure over time	Section 5.6
24	The Soil and Water Monitoring Program must	
(a)	Include detailed data on the existing soil, surface and groundwater quality	Section 3
(b)	Identify the potential pollutants from the project	Section 8.1
(c)	Identify the soil, surface water, groundwater and wastewater impact assessment criteria	Section 8.2
(d)	Describe the monitoring strategy to be implemented, including details of the:	
i.	Monitoring locations	Section 8.2
ii.	Sampling frequency	Section 8.2
iii.	Sampling methods	Section 8.3
(e)	Include justification for the proposed monitoring strategy	Section 8
(f)	Describe how the monitoring results will be assessed and reported	Section 8.6
(g)	Outline the contingency measures that would be implemented should monitoring identify any exceedance of the impact assessment criteria	Sections 8.7 and 8.8

2. SITE DESCRIPTION

The site is approximately 37 hectares and is located approximately 2 km from the small town of Bombala in the south-east of New South Wales. The site is bound by Delegate Road to the north, Sandy Lane to the east and Wedmore Road to the south. The location of the site is shown in Figure 1. A figure showing the site and surrounding land uses is presented in Figure 2.

The existing land use at the site is a softwood sawmilling and value-adding processing plant. The current mill operations are on the eastern portion of the site. The expanded operations are proposed to be developed on the adjacent undeveloped western portion of the site and on the current mill site. The surrounding land uses is mixed rural comprising grazing, cultivation and plantation forestry.

2.1 Geology and Hydrogeology

The Geological Survey of Australia 1:250 000 Bega-Mallacoota Geological Series Map (Sheet SJ/55-5 and part of Sheet SJ/55-8) indicates that the site is located on Tertiary Age fluvial sands, grits and lacustrine clays, apart from the northern portion of the site which is located on late Silurian Aged Bukalong Suite Granite, which comprises biotite granite and adamellite. The soil at the site comprises various sands, silts and clay consistent with river and lake sediments.

The results of a groundwater investigation currently being undertaken at the site indicates that the depth to groundwater varies between approximately 3 m and 9.7 m. This is consistent with the results of the previous investigations undertaken at the site by Coffey Geosciences Pty Ltd (Coffey) between July 2002 and September 2003. The groundwater is inferred to be flowing in both northerly and southerly directions from the ridge where the existing copper chrome arsenate (CCA) treatment facility is located. This groundwater flow regime is consistent with the surface topography.

2.2 Surface Drainage and Hydrology

Stormwater run-off from the site is separated into two catchments. Stormwater from the northern portion of the site would naturally drain into Parsonage Creek, which is located approximately 120 m to the north of the site. Stormwater from the southern portion of the site would naturally collect in a drainage line that ultimately flows into Saucy Creek, which is located approximately 650 m west of the site.

Under the existing hydrogeological regime stormwater from the southern portion of the existing mill site drains into a large pond, which is known as the Southern Pond. Surface water run-off from the northern portion of the existing mill site is collected in a pond known as the Northern pond.

3. ENVIRONMENTAL CONDITION OF THE SITE

3.1 Previous Environmental Assessments

A number of previous environmental assessments have been undertaken at the site. These include:

- *Groundwater Monitoring January 2003 Prime Pine Treatment Facility, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 14 March 2003;
- *Groundwater Monitoring October 2002 Prime Pine Treatment Facility, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 18 December 2002;
- *Environmental Site Assessment, Prime Pine Treatment Facility – Sandy Lane, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 1 November 2001;
- *Supplementary Environmental Site Assessment Prime Pine Treatment Facility, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 31 July 2002;
- *Limited Environmental Site Assessment, Dongwha Forests Pty Ltd Treatment Facility, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 22 September 2003;
- *Final Compliance Audit Report, Prime Pine Pty Limited, Sandy Lane, Bombala, NSW*, prepared by Environment Protection Authority, January 2003;
- *NSW Environmental Protection Authority, Annual Return for EPL 11205 – Dongwha Timbers, Bombala*, prepared by Coffey Geosciences Pty Ltd, 1 June 2004;
- *NSW Department of Environment and Conservation, Annual Return for Environmental Protection Licence No.11205 – Dongwha Timbers Pty Ltd, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 1 June 2005;
- *NSW Department of Environment and Conservation, Annual Return for Environmental Protection Licence No.11205 – Dongwha Timbers Pty Ltd, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 14 June 2006;
- *NSW Department of Environment and Conservation, Annual Return for Environmental Protection Licence No.11205 – Dongwha Timbers Pty Ltd, Bombala NSW*, prepared by Coffey Geosciences Pty Ltd, 5 June 2007; and
- *Results of Surface Water Monitoring, Integrated Sawmilling and Value Adding Facility, Sandy Lane, Bombala, New South Wales*, prepared by Peter J Ramsay & Associates, 28 July 2009.

The results of the previous investigations identified elevated arsenic concentrations above the relevant health-based guidelines for an industrial land use in the near surface soil in the vicinity of the CCA treatment area in the central portion of the site. The contaminant concentrations across the remaining areas of the site were low and below the guidelines applicable for an industrial land use.

In addition, groundwater monitoring performed at the site on an annual basis since 2002 identified elevated arsenic, chromium (VI), chromium (III) and copper concentrations in the groundwater monitoring wells located in the vicinity of the CCA treatment area. The groundwater monitoring results show that the arsenic, chromium and copper impacted groundwater was migrating from the central portion of the site toward both the north and the south. The chromium (VI) contamination appeared to be localised to the general vicinity of the CCA treatment area in the central portion of the site. The chromium (VI) concentrations had generally shown a decrease in concentration overtime, although elevated levels were measured during the July 2006 monitoring episode. The contaminant trends in the groundwater overtime were considered to indicate that the contamination is likely to have been caused by historical leakages of CCA from the treatment area.

The analytical results for the down-gradient monitoring wells indicated that the plume had reached the northern boundary of the site at levels above the guideline values for the protection of aquatic ecosystems, however, it is noted that these guidelines apply at the point of discharge into the nearest receiving environment. It was also noted that chromium (VI) was not detected in the down-gradient wells, which indicates that the chromium (VI) was being reduced in the natural environment to the less toxic chromium (III).

The results of surface water monitoring performed on a quarterly basis from the Northern Pond showed that variably elevated arsenic, chromium and copper concentrations above the guidelines for the protection of aquatic ecosystems were present in all of the surface samples. Chromium (VI) was also detected on several occasions in the sedimentation pond, which proceeds the Northern Pond.

During the May 2009 surface water monitoring episode performed by Peter J Ramsay & Associates, surface water samples were retrieved from four locations in the Southern Pond, three locations in the Northern Pond, and one sample of steamer/kiln condensate. All of the surface water samples were impacted by CCA contamination. The presence of CCA in the Northern and Southern Ponds was attributed to surface water runoff from existing areas of CCA contamination.

The steamer/kiln condensate, which ultimately is discharged into the Southern Pond, was characterised by elevated total dissolved solids (TDS) and organic carbon concentrations, and a slightly acidic pH. The steamer/kiln condensate also contains elevated arsenic, chromium and copper concentrations, however, this is not due to CCA contamination but is instead attributed to corrosion of the boiler. This boiler will be removed for the redevelopment of the site. Therefore, the steamer/kiln condensate generated post-development will not be impacted by arsenic, chromium and copper.

The surface water from the Southern Pond was also characterised by a high organic carbon content, which was attributed to the inflow of organic laden steamer/kiln condensate and surface water runoff from the stockpiles of wood chips. The Southern Pond was also characterised by high iron, ammonia and methane concentrations, which are a function of the strongly reducing conditions in the pond. Apart from elevated CCA concentrations, the northern pond was indicated to be uncontaminated with organic carbon.

3.2 2011 Soil and Groundwater Sampling Program

Peter J Ramsay & Associates performed a soil and groundwater sampling and analytical program at the site between July and August 2011. The objective of the soil and groundwater assessment was to verify the previous soil assessment results and delineate the areas of significant contamination.

The soil sampling program involved sampling from 24 grid-based sample locations in the vicinity of the existing treatment plant and treated timber storage area. The soil sampling locations are shown in in Figure 3 and 4. In addition, sampling was undertaken from 25 targeted sampling locations in the vicinity of the treatment plant and storage areas, former waste storage area and in the vicinity of the existing underground petroleum storage systems (UPSSs).

The groundwater investigation involved the installation of seven (7) groundwater monitoring wells, and sampling of the 10 existing and 7 newly installed wells using low-flow minimum drawdown techniques in accordance with OEH requirements. This was to determine the magnitude and extent of the impacted groundwater at the site. The location of the groundwater monitoring wells are shown on Figures 3 and 4.

The results of the 2011 soil and groundwater sampling and analytical program are outlined following.

3.2.1 Soil

The analytical results for the soil samples identified elevated arsenic concentrations in the near surface soil in the vicinity of the existing CCA treatment plant, and in the treated timber storage yard, above the health investigation level (HIL) for a commercial/industrial land use (HIL F). Significant arsenic contamination was also identified at approximately 2 m depth in the vicinity of the sump adjacent to the former treated timber fixation slab.

Elevated total petroleum hydrocarbon (TPH) (C₁₅-C₂₈) aromatic concentrations were measured above the HIL for this analyte in the near surface samples retrieved from the vicinity of the existing diesel UPSSs. This is likely to be due to the near surface spillage of diesel fuel. There was no evidence of hydrocarbon leakages from the diesel UPSSs themselves.

Arsenic, chromium (III), chromium (VI) and copper were measured at concentrations above the ecological investigation levels (EILs) but below the HILs in the near surface soil at a number of the sample locations. However, this would only be significant should the soil be utilised as a growing medium for plants. Since the impacted areas will be sealed for the proposed development, the arsenic, chromium and copper concentrations in the soil above the EILs would not be significant for the proposed re-development of the site.

In view of the elevated arsenic concentrations in the vicinity of the existing CCA treatment plant, sump and in the treated timber storage yard, above the HIL F, remediation is considered necessary for the proposed ongoing commercial/industrial use of the site. In addition, the petroleum hydrocarbon impacted soil in the vicinity of the diesel UPSSs should be remediated. The proposed extent of soil remediation at the site is shown in Figure 5.

Based on the results of the soil sampling program, approximately 310 m³ of arsenic contaminated soil located in the vicinity of the existing CCA treatment plant and sump is necessary. Approximately 50 m³ is proposed to be remediated in each of the treated timber storage yard and in the vicinity of the diesel UPSSs. A remedial action plan (RAP) is currently being prepared for the remediation of the contaminated soil at the site.

3.2.2 Groundwater

The results of the groundwater monitoring undertaken from the existing and newly installed groundwater monitoring wells at the site indicate that the groundwater in the vicinity of the existing treatment plant is contaminated with chromium (VI), arsenic and manganese. In particular, the concentrations of these analytes are above the guideline values for the protection of aquatic ecosystems (which apply at the point of groundwater discharge into the receiving water environment) and the Australian drinking water guidelines.

Arsenic was also detected in one down-gradient well at a concentration of 0.007 mg/L, marginally above the criterion for the protection of aquatic ecosystems of 0.013 mg/L. Elevated manganese concentrations above the Australian drinking water criterion were also identified in the groundwater in the vicinity of the Southern Pond. The chromium and manganese concentrations in the groundwater elsewhere at the site were either very low or not detected.

Cobalt, copper, nickel and zinc were identified in the majority of the wells installed at the site at concentrations above guideline values for the protection of aquatic ecosystems. The nickel concentrations are also variably above the Australian drinking water guidelines. The presence of these analytes in the majority of the wells at similar concentrations indicates that these analytes are naturally occurring.

Beryllium and mercury were measured in only one well each, above the guideline values for aquatic ecosystems. Lead and mercury were also measured above the guideline values for drinking water. The beryllium concentration is only marginally above the guideline value for this analyte and is not considered to be significant. The elevated lead and mercury concentrations are anomalous as they were only measured in one well each and mercury and lead were not measured in significant quantities in the soil at the site. Further groundwater monitoring would be necessary to determine the significance of these results.

Nitrate was also measured at concentrations above the criteria for the protection of aquatic ecosystems and the Australian drinking water criterion in the wells located in the former waste disposal area and the well located in the vicinity of the former UPSSs. Petroleum hydrocarbon impacts were not identified in the groundwater at these locations. These nitrate concentrations are within natural background ranges and given the absence of significant soil contamination at both locations, the elevated nitrate is considered to be naturally occurring.

Overall the results of the groundwater monitoring demonstrate that the groundwater in the vicinity of the existing treatment plant is polluted with chromium (VI), manganese and arsenic. The groundwater is also characterised by naturally elevated cobalt, copper, nickel, zinc and nitrate concentrations. The chromium, manganese and arsenic pollution has not migrated to the down-gradient wells, which are located approximately 60 m down-gradient of the treatment plant and therefore has not migrated off-site. This suggests that the extent of the plume has contracted since Coffey's groundwater monitoring was performed between 2002 and 2006.

In view of the inferred extent of the groundwater pollution, it is considered unlikely that aquatic ecosystems would be impacted by the impacted groundwater. However, the use of the groundwater as a drinking water resource at the site would be impacted. In view of this, groundwater remediation is recommended to restore the groundwater to natural background concentrations to the extent practicable. The remediation of groundwater should therefore be considered in the RAP that is currently being prepared for the site.

4. PROPOSED REDEVELOPMENT WORKS

The existing facility, which includes milling operations; processing, refinement and treatment to produce value-added softwood timber products, is proposed to be upgraded to increase the timber production capacity and to also improve the efficiency and environmental performance of the processes. The expanded mill will comprise a primary sawing plant, timber dry mill, processing and treatment facilities and associated site infrastructure. A site plan showing the proposed redeveloped site is shown in Figure 6.

The project will utilise some components of the existing mill, with others being decommissioned and replaced with new items on the expansion site. In particular, the existing timber treatment plant will be decommissioned and a new treatment plant commissioned.

The existing water storage known as the Northern Pond will be upgraded and new water storages also constructed (Ponds 1 and 2). The existing Southern Pond will be remediated and decommissioned. The area currently occupied by the Southern Pond will be restored to its natural state as a drainage line which will ultimately feed into Pond 2.

Initially civil work will be undertaken on the undeveloped western portion of the site and shortly thereafter on the eastern portion of the site. A new treatment plant, drymill and greenmill will be constructed simultaneously. The new treatment plant will be constructed on the eastern portion of the site, prior to the decommissioning of the existing treatment plant. The soil and groundwater remediation is scheduled to be undertaken following the removal of the existing treatment plant.

As part of the redevelopment works, the existing woodchips stockpiles located in the south-eastern corner of the site are being removed from the site in accordance with the Dust and Wood Residue Management and Monitoring Plan. The woodchips are expected to be completely removed prior to commissioning of the new plants. A summary of the scheduling for the soil and water management strategies outlined in this management plan is provided in Table 2.

Table 2 Summary of Scheduling for Soil and Groundwater Management Strategies

Management Measure	Implementation Timeframe	Section of Report Containing Further Detail
Sediment and Erosion Controls	Prior to the commencement of construction works at the site (late 2011)	Section 7
Construction of Pond 1	To be installed after bulk earthworks on the western site are complete (early 2012)	Section 5.1
Diversion of off-site runoff across the site	Currently being developed (late 2011)	Section 5.1
Construction of Pond 2	Currently being developed (late 2011)	Section 5.1
Remediation of Southern Pond	To be initiated once the wood residue stockpiles are removed (mid-2013)	Section 5.1
Activated Carbon Water Treatment	To be installed prior to the commissioning of the new treatment plant (mid-2012)	Section 5.1
Soil Remediation	Late 2011 to early 2012	Refer to Remedial Action Plan
Groundwater Remediation	Mid-2012 ongoing	Refer to Remedial Action Plan

5. STORMWATER AND WASTEWATER MANAGEMENT

Beca AMEC Limited and Tasman Engineering in consultation with Tasco, Fifth Estate and Peter J Ramsay & Associates has prepared a comprehensive stormwater and wastewater management system for the site. The stormwater management scheme has been prepared in accordance with OEH's *Managing Urban Stormwater: Council Handbook*.

The key objectives of the stormwater and wastewater management system designed for the site are to:

- Provide sufficient stormwater retention capacity to retain a 4%, average annual probability (AEP), 144 hour rainfall event;
- Minimise and manage off-site discharge as far as practicable, including in the event of a 1% AEP rainfall event; and
- Minimise mains water consumption and maximise the potential for water to be reused at the plant.

The proposed stormwater and wastewater management system is shown in Figure 7 and is described following.

5.1 Stormwater Management

The stormwater retention infrastructure to be installed at the site is summarised in Table 3. Stormwater will be managed by capturing all of the stormwater generated at the site in three ponds known as the Northern Pond, Pond 1 and Pond 2. The Northern Pond and Pond 2 will be used as the main water storages for 'contaminated' and 'uncontaminated' water respectively. In particular, the Northern Pond will capture stormwater from the areas of the site used to treat and store treated timber, and the Pond 2 will capture water from elsewhere on the site. The catchment areas for each of the ponds are shown in Figure 8.

Ponds 1 will be located down-stream of the Northern Pond. This will be operated as a dry pond. That is, Pond 1 will capture water from its own surface water catchment but the water captured will be immediately transferred to Pond 2 for storage. Therefore, Pond 1 will offer additional storage capacity in the event of an extreme flood event in order to minimise the potential for off-site discharge.

Table 3 Summary of Water Storages to be Constructed at the Site

Storage	Maximum Capacity	Working Capacity	Footprint	Catchment Area	Basis for Design	Facilities Within Catchment Area
Northern Pond	11,774 m ³	Negligible	61 m x 95 m	4.9 Ha	Capture average rainfall plus a 1% AEP, 72 hour rainfall event.	Treatment plant, treated timber storage areas.
Pond 1	1 441 m ³	Negligible	16 m x 69 m	3.4 Ha	Capture a 4% AEP, 144 hour rainfall event.	Offices, carpark, roadways.
Pond 2	24,000 m ³	16,000 m ³	180 m x 70 m	18.3 Ha	Capture average rainfall from its own catchment, and from the catchment of Ponds 1, plus a 4% AEP, 144 hour rainfall event from own catchment.	Dry mill, woodchip stockpiles (to be removed prior to commissioning of the new plants), finished product storage, green mill, GOS boilers and kilns, materials handling, green storage.

Ponds 1 and Pond 2, which will contain 'uncontaminated' water, will have sufficient storage capacity to contain a 4% AEP, 144 hour rainfall event. By comparison, the Northern Pond, which has the potential to capture contamination stormwater, will have sufficient storage capacity to capture a 1 in 100, 72 hour storm event, which is a very rare event (1% chance of the event occurring in any given year).

The water that is generated to the east of the site and naturally flows through the site is considered to be surplus to the plants requirements. In view of this, any stormwater generated off-site to the east will be diverted from the site. This will be achieved by connecting a sub-surface pipeline to an existing culvert located in Sandy Lane and piping the water across the eastern half of the site where there is the potential for contamination to occur. The water will be released at the surface in the natural drainage line in the western half of the site where the catchment is undeveloped and therefore there is negligible potential for contamination to occur.

Should an event greater than a 1 in 100, 72 hour rainfall event occur at the site, there is the potential for off-site discharge to occur from the Northern Pond. In this event, the very significant volume of freshwater runoff is likely to dilute any contaminant concentrations in the runoff. Therefore, there is considered to be a very low risk of off-site impacts occurring during a rare storm event as a result of this dilution effect. In addition, the water balance indicates that the Northern Pond will be dry for a significant time, which indicates means there will be no contamination present in the Northern Pond to be mobilised in an extreme rainfall event.

In order to control the surface water levels in each pond, float switches will be installed in each pond. These will automatically activate the pumps in order to transfer water from Pond 1 to Pond 2, and transfer water from the Northern Pond and Pond 2 to the treatment plant. The Northern Pond will be the primary source of water to the treatment plant. However, when the Northern Pond reaches its minimum level, the pump will switch off and the pump in Pond 1 will be activated. The system has been designed so that only one pump at a time can pump to the treatment plant.

5.2 Wastewater Management

The following wastewater streams will be present at the site following redevelopment:

- Condensate generated from the redry kilns/boilers and steamers;
- Sewerage generated at the site;
- Surplus CCA generated within the treatment plant or during the fixation of the timber on the fixation slab.

The proposed wastewater management measures for the redevelopment of the site are summarised in Table 4. In particular, it is noted that all of the condensate from the re-dry kiln/boilers and steamers which may contain trace amounts of CCA contamination, together with organics and ammonia from the wood product, will be subject to treatment which is expected to remove the organics and ammonia prior to 100% reuse within the treatment plant. Any surplus CCA generated within the treatment plant or during the fixation of timber will be collected in a sump. The residue will be directly pumped back into the CCA make up water tanks. These management strategies will ensure that all waste water streams from the timber milling and treatment are reused at the site.

Table 4 Summary of Wastewater Streams and Management Strategies

Wastewater Source	Volume	Expected Wastewater Quality	Management Strategy
Condensate from re-dry kilns/boilers and steamers	76.6 m ³ /day	Organics, heavy metals and ammonia	Treatment by cooling, pre-filter and activated carbon prior to 100% reuse in the treatment plant.
Sewerage	15.3 m ³ /day	Organics, bacterial and faecal contamination	Septic tank and black water collection.
Surplus CCA	Negligible	Heavy metals and ammonia	Capture in sump within treatment plant and recirculate directly into CCA make up water tank.

It is also noted that water from the Northern Pond, which may contain trace amounts of CCA, will be the primary source of water to the treatment plant. Based on the water balance, all of the water that accumulates in the Northern Pond can be reused in the treatment plant.

The activated carbon used to treat the condensate from the redry kilns/boilers and steamers will periodically need to be replaced. The waste activated carbon will be disposed of responsibly and in accordance with the manufacturers specifications.

5.3 Water Minimisation Strategies

In order to minimise water usage at the site a number of water reuse strategies have been developed. These include:

- As outlined above, any surplus CCA will be directly reused in the treatment plant;
- Condensate from the re-dry kilns/boilers and steamers will be treated and then reused in the treatment plant;

- Stormwater collected at the site firstly in the Northern Pond and secondly in Pond 2 will be used to feed the treatment plant. The water balance indicates that the storage in the Northern Pond and Pond 2 will be greater than the demand for the treatment plant and therefore there will be no need to use mains water for the treatment plant; and
- Water from Pond 2 will also be used in preference to mains water supply for dust suppression (approximately 16.4 m³/day).

There is also the potential to use water from Pond 2 as feed water for the boilers (approximately 17.3 m³/day). The water quality requirements for the boilers to be installed at the site are provided in Table 5. There is no data to determine if the water quality in Pond 2 will be appropriate for reuse in the boilers. In view of this, the water quality of Pond 2 will be tested and compared to these criteria prior to reuse in the boilers at the site.

Table 5 Water Quality Requirements for Boilers

Characteristic	Unit	Pressure < 15 bar	Pressure < 25 bar
pH	-	7 - 9.5	7 - 9.5
Total Hardness	mg/L (as CaCO ₃)	10	5
Alkalinity	mg/L (as CaCO ₃)	1 000	750
Oxygen	mg/L	0.1	0.05
Free Carbon Dioxide	mg/L	0.2	0.2
Iron	mg/L	0.1	0.1
Copper	mg/L	0.1	0.1
Silica	mg/L	150	100
Conductivity	µS/cm	8 000	7 000
TDS	mg/L	3 500	3 000
Oily substances	mg/L	1	1
Aspect	-	Clear, limpid, no persistent foam	

In view of the water minimisation strategies outlined above, mains water will only be used for potable services, the GOS kilns/boilers (a once only fill of mains water is required as the water is recirculated in the kiln/boiler) and potentially the redry kilns/boilers. It is noted that as outlined above, water from Pond 2 will be used in the redry kilns/boilers in preference to mains water provided it is of sufficient quality for that purpose.

5.4 Pre and Post Development Flows

The stormwater management strategies at the site will increase the volume of environmental flows which ultimately flow into Saucy Creek. Currently all of the water that is captured on the land located to the east of the site flows onto the site and is captured in the Southern Dam which has a capacity of approximately 7 000 m³, or causes flooding in Sandy Lane. Under the post development surface water regime, the water collected up-stream of the site will be diverted across the site. The volume of runoff that is generated from the land to the east of the site in an average year amounts to approximately 12,000 m³/year. Only the stormwater generated at the site will be captured and reused.

5.5 Water Quality

Water quality is expected to be considerably improved at the site post development. In particular, all CCA treated timber will be contained within the treatment plant area or surrounding sealed areas. Runoff from these areas will be captured in the Northern Pond, which will be the primary source of water for the treatment plant. In view of this, CCA contamination should not occur elsewhere at the site.

In addition, the existing stockpiles of woodchips located in the south-eastern portion of the site are currently being removed and should be removed in the next 12 months in accordance with the Dust and Wood Residue Management and Monitoring Plan. Once these stockpiles have been removed, the water quality in the Southern portion of the site should improve considerably. In addition, there is the potential for coarse organic fragments to be flushed into the ponds constructed at the site. A coarse filter will be placed at the inlet of each pond to capture this material prior to flowing into the ponds. The filters will also be subject to routine maintenance to ensure they operate efficiently and effectively.

5.6 Ongoing Monitoring, Maintenance and Reporting

The water storages will be subject to regular water quality monitoring in accordance with the monitoring program outlined in Section 8. In addition, routine inspections will be carried out on a quarterly basis to ensure that all infrastructure is in sound working condition. In addition, daily inspections will be undertaken following periods of rainfall that generate rainfall (events greater than 10 mm) to ensure that the stormwater management system is in sound working order. The results of the inspections will be documented on an inspection checklist to be prepared by the Site Manager or Environmental Manager.

Any repairs or maintenance will be initiated immediately should an issue be identified. In addition, routine maintenance will include routinely cleaning drains and filters will be undertaken on a quarterly basis. Table 6 outlines the reporting and contingency measures that will be implemented in the event that issues are identified with the water management or reuse infrastructure.

Table 6 Reporting and Contingency Measures for Water Management Issues

Potential Issue	Response
Activated carbon overload	Cease using kilns/boilers. Source extra water for treatment plant from Northern Pond or Pond 2. Contact waste water specialist to replenish activated carbon. Commence using kilns/boilers once activated carbon has been replenished.
Emergency release from Pond 2 during events greater than a 4% AEP, 144 hour rainfall event.	<p data-bbox="625 539 1406 824">Notify down-gradient landholder and OEH within 24 hours. Provide emergency water supply to replace water usually taken from neighbours stock dam. Test the stock dam to confirm there is no off-site impact. Provide written report to landholder and OEH on the results of the testing. Notify landholder that they can commence using the dam if no issue confirmed. In the event of an issue, develop a rectification strategy in consultation with OEH.</p> <p data-bbox="625 880 1406 1032">It is noted that Pond 2 will contain 'uncontaminated water', and therefore the risk of any off-site impact occurring due to an emergency release in an extreme rainfall event is considered to be extremely low.</p>
Overflow from Northern Pond during an event greater than a 1% AEP.	<p data-bbox="625 1050 1406 1249">Cease pumping water from Pond 1 into Pond 2 immediately (automated response). Notify EPA and down stream landholders. Commence water monitoring in Saucy Creek in accordance with Section 8. Develop remediation strategy (if necessary) in consultation with OEH.</p> <p data-bbox="625 1305 1406 1547">It is noted that although Pond 2 will contain 'uncontaminated water', the risk of any off-site impact occurring due to an emergency release 1 in 100 rainfall event is considered to be extremely low in view of the effects of dilution and given that the Northern Pond will typically be dry or have only a small volume of contaminated water.</p>
Pump failure	An emergency pump located at the site will be relocated to temporarily replace the failed pump. The failed pump will be repaired/replaced as required.
Water quality exceedence during routine monitoring	Refer to Section 8

6. SITE WATER BALANCE

A site water balance has been prepared in order to:

- Quantify all water sources and water uses on the site;
- Demonstrate that of the CCA condensate will be reused in the treatment plant and that water reuse at the site will be maximised;
- Quantify all wastewater flows; and
- Demonstrate that there is sufficient capacity in the proposed stormwater ponds to contain a 4% AEP, 144 hour rainfall event and manage flows during a 1% AEP.

6.1 Methodology

A time series analysis water balance methodology as outlined in the NSW Department of Land and Water Conservation *The Constructed Wetlands Manual*, 1998, has been adopted. The volume in each water storage has been calculated on a monthly basis for several years of operation so that the long-term performance of the storages can be assessed. The monthly storage in each water storage is added to the water balance for the subsequent months to give cumulative storage.

For the purpose of the water balance, the site has been divided into four separate catchment areas based on the topography and future land use of the site. These are shown in Figure 8 and are:

- Area 1 – north-eastern and central-northern portions of the site, which will drain into Pond 1 (to be constructed);
- Area 2 – western portion of the site, which will drain into Pond 2 (to be constructed);
- Area 3 – south-eastern portion of the site, which will also drain into Pond 2; and
- Area 4 – north-eastern portion of the site occupied by the treatment plant and treated timber storage areas, which will drain into the existing Northern Pond (to be upgraded).

The volume of water captured in each of the ponds during average rainfall conditions and also a 4% AEP, 144 hour rainfall depth event has been calculated. These rainfall conditions are simulated both during construction and post-redevelopment.

The water balance has been developed based on the proposed stormwater management scheme. In particular, Pond 2 will collect average rainfall from its own catchment (Areas 2 and 3) and plus from the catchment of Ponds 1, plus a 4% AEP 144 hour rainfall depth event. Any stormwater that accumulates in Pond 1 will be pumped into Pond 2 so that it is kept dry. This will ensure that Pond 1 has sufficient capacity to capture the 4% AEP, 144 hour rainfall depth event. The Northern Pond, which has the potential to capture contamination stormwater, will have sufficient storage capacity to capture a 1 in 100, 72 hour storm event.

The results of the water balance have also been used to calculate a 'working capacity' for Pond 2 and the Northern Pond, which is the volume that should not be exceeded in an average year. By keeping the volume in these ponds below the working capacity volume will ensure there is sufficient room in these Ponds to capture a high rainfall event as specified by Condition 23 (b) iv. of the Project Approval of 7 September 2010. In particular, Pond 2 and the Northern Pond will have capacity to capture the 4% AEP, 144 hour rainfall depth event and 1 in 100, 72 hour storm event respectively.

For the water balance, the 4% AEP, 144 hour rainfall depth event is conservatively simulated to occur when the ponds are at capacity from an average rainfall event, which would normally occur in July. For an average year, only the rainfall that falls in the winter months is considered in the water balance as runoff typically only occurs during periods when rainfall exceeds evaporation (i.e. winter or spring) when the soil has a high moisture content due to winter rainfall.

The following water balance methodology was used to calculate the storage capacity required to accommodate average rainfall conditions and a 4% AEP, 144 hour rainfall depth event for each of the ponds. The water balance for the site is determined by the following equation:

$$\text{Storage} = \text{Inputs} - \text{Outputs} \quad (\text{Equation 1})$$

Inputs of water to the site include:

- Rainfall directly into the ponds;
- Runoff from both on-site and off-site areas; and
- Discharge of waste steamer condensate.

Outputs of water from the site include:

- Evaporation; and
- Usage at the site including in the treatment plant

Substituting each of the inputs and outputs above into Equation 1 gives the following equation, which is calculated on a monthly basis for each Pond:

$$\text{Storage} = [\text{Rainfall (direct)} + \text{Runoff}] - [\text{Evaporation} + \text{usage}] \quad (\text{Equation 2})$$

A description of each of the inputs and outputs variables in the water balance Equation 2 are discussed below.

6.2 Inputs

6.2.1 Rainfall and Runoff

Monthly rainfall data was sourced from the Bureau of Meteorology for the Therry Street, Bombala meteorological station, which is located approximately 3 km north-east of the site. This station was chosen as it is the closest meteorological station to the site with an extensive dataset that is considered most likely to be representative of the long-term rainfall conditions at the site. Monthly rainfall data for Therry Street, Bombala is available from 1885 to 2011.

The magnitude of a 4% AEP, 144 hour rainfall depth event was taken from data from the Cooma weather station, which is outlined in *Managing Urban Stormwater, Soils and Construction, Volume 1*, March 2004. The Cooma weather station is located approximately 75 km north of the site but within a similar climatic zone. The 4% AEP, 144 hour rainfall depth event represents a rainfall event that as a 4% chance of occurring in any given year. This equates to approximately 40 mm over a 6 day period.

The volume of rainfall that falls on the site and generates runoff that will flow into each of the ponds is determined by the following equation:

$$\text{Rainfall} \times \text{Area} \times \text{Runoff Ratio (Equation 3)}$$

The runoff ratio in Equation 3 represents the proportion of rainfall that actually ends up as runoff that will enter the ponds, rather than infiltrating into the ground for example. The site has been segregated into separate areas depending on their varying runoff characteristics. These include unsealed areas (bare ground or grass), sealed areas (asphalt, concrete or stabilised crushed rock), woodchip stockpiles and the ponds themselves.

Any rainfall that falls directly onto the ponds will obviously be captured in the dam. Therefore, the runoff ratio for the ponds is 100%. Conversely, based on our observations during high rainfall events, in view of the high organic content and porosity of the woodchip stockpiles, the stockpiles are likely to absorb the majority of rainfall that falls directly on them. Therefore, the runoff ratio from the stockpiles has been assumed to be approximately 10%. It is noted that the stockpiles will be removed in accordance with the Dust and Wood Residue Management and Monitoring Plan, which will increase the runoff that is generated from this portion of the site. The treatment plant is fully sealed and covered in a roof. Therefore, runoff from this area will be negligible. Runoff ratios of 58% and 84% have been adopted for unsealed areas and sealed areas respectively.

The runoff ratios for the unsealed and sealed portions of the site have been determined based on runoff ratios summarised for different soil types and land uses as outlined in *Soil Conservation Service, Hydrology-Section 4, National Engineering Handbook* (prepared by Victor Mockus) Hydrology Branch, SCS, U.S. Department of Agriculture, Washington, D.C. 1972.

6.3 Outputs

6.3.1 Evaporation

Water loss will predominantly occur from the ponds as a result of evaporation. Evaporation will also occur from the soil surface, however, it is not necessary to consider evaporation loss from the soil surface as the runoff ratio outlined above takes into account the effects of evaporation from the soil surface, amongst other variables.

The nearest meteorological station that measures evaporation is Orbost, which is located approximately 110 km south-west of the site. Class A pan evaporation is an overestimate of actual evaporation due to the effect of heating of the metal pan that is used for the measurements. Class A pan evaporation can be converted to actual evaporation from a surface water body using the following equation:

$$\text{Evaporation} = \text{Class A Pan Evaporation} \times \text{pan coefficient (Equation 5)}$$

Pan coefficients typically range between 0.8 to 0.9. A pan coefficient of 0.8 indicates that only 80% of the measured Class A Pan Evaporation will end up being actual evaporation, whereas a coefficient of 0.9 indicates that 90% will end up being actual evaporation. That is, the higher the coefficient, the greater the estimate of actual evaporation. We have conservatively used a pan coefficient of 0.8 as this would result on a lower amount of water loss than a higher coefficient.

6.3.2 Water Usage at the Plant

Current water usage at the plant was provided by Dongwha and is provided in Appendix C. This has been adopted in the water balance for the period October 2011 (current) until January 2012 when the water usage is anticipated by Dongwha to increase to 50% of the maximum capacity, which will occur in 2014. Dongwha's predicted water usage is based on predicted timber volumes that will require treatment. The annual water usage in the treatment plant has been converted to daily water usage based on a 235 days of operation per year. In addition, condensate generation from the redry kilns/boilers is based on 336 days/year of operation.

There is the potential that the water from Pond 2 will also be used to feed the redry kilns and boilers. In particular, these boilers have a daily water demand of approximately 17.3 m³/day. The water balance does not take this into account as the potential to use stormwater from Pond 2 in the boilers will depend on the ultimate water quality in the Southern Pond post development.

6.3.3 Steamer Condensate

Condensate from the redry kilns/boilers will be treated prior to reuse in the treatment plant. It is proposed that this water be held in a holding tank rather than discharged directly into the Northern Pond. Therefore, the condensate has been deducted from the treatment plant demand rather included as an input. Table 7 shows the treatment plant demand and condensate generated. This shows that the treatment plant demand is well in excess of the condensate generation. Therefore, 100% reuse of condensate can be achieved from a quantity perspective. Treatment prior to reuse will also ensure that the quality of the condensate is appropriate for reuse in the treatment plant (refer to Section 5.2).

Table 7 Treatment Plant Demand and Condensate Generation

	2011	2012*	2013	2014
Treatment Plant Demand (kL/year)	11,385	19,736	37,127	39,473
Condensate Generation (kL/year)	2 649	8 995	16,035	17,990
Treatment Plant Demand (kL/month) ¹	949	1 646	3 094	3 289
Condensate Generation (kL/month) ²	221	750	1 336	1 499
Treatment Plant Demand Less Condensate Reuse (kL/month) ¹	728	896	1 758	1 790

Notes: ¹ Based on 235 days of operation per year, or 19.6 days per month.

² Based on 336 days of operation per year, or 28 days per month.

*Expected to be 50% of maximum capacity during first year of operation.

6.4 Results and Discussion

The results of the water balance are shown in Appendix D. In addition, Figure 9 shows the predicted water levels in Pond 2 and the Northern Pond overtime based on the results of the water balance. The results indicate that Pond 1 will only fill in June and July under average rainfall conditions. The water that will be captured in Pond1 will immediately and automatically be pumped to the Pond 2, which has been designed to have sufficient capacity to accept the water from Pond 1 in addition to water from its own catchment area.

Pond 2 will commence filling in June each year and will have sufficient capacity to provide water to the treatment plant until February when the pond is likely to dry out. The maximum level in the pond in an average year will be approximately 16,000 m³. Following a 4% AEP, 144 hour rainfall event, the capacity would increase to approximately 23,000 m³. In view of this, Pond 2 will have a capacity of 24,000 m³, which includes 0.5m freeboard.

The water balance also indicates that the Northern Pond will be predominantly dry, apart from between June and August when winter rainfall will be captured in the pond. This water will be rapidly used in the treatment plant. The maximum volume predicted to be present in the Northern Pond following a 4% AEP, 144 hour rainfall event is approximately 2 000 m³. Keeping the Northern Pond predominantly dry will minimise the potential for contaminated water to overflow from the pond in an extreme rainfall event and ensure the pond has sufficient capacity to capture a 1% AEP, 72 hour rainfall event.

In addition, the results of the water balance indicate that the treatment plant will be able to reuse all of the steamer/kiln condensate and that Pond 2 will be able to satisfy the water demands of the treatment plant with only very minimal need for mains water in summer. This demonstrates that the proposed water management strategy will minimise mains water usage.

7. SEDIMENT AND EROSION CONTROL PLAN

Due to the sensitive nature of the area of disturbance, a comprehensive Sediment and Erosion Control Plan (SECP) has been developed in order to:

- Manage activities that could cause soil erosion and generate sediment; and
- Minimise soil erosion and the potential for the transport of sediment to downstream waters.

The objective of the erosion and sediment control plan is to minimise the impact of construction activities on erosion and the sedimentation of the land, water watercourses and water bodies. The sediment and erosion controls will be implemented prior to the commencement of any earthworks at the site (including construction, demolition and/or remediation). In addition, these controls will remain in place until the development works have been fully completed.

A range of sediment and erosion controls have been developed by Tasman Engineering Consultants and Hewatt Earthworks Pty Ltd (Hewatt Earthworks) on behalf of Dongwha for the redevelopment of the site. These are described in Hewatt Earthworks' *Project Environmental Management Plan* [PEMP] dated 2 September 2011, which is provided in Appendix A. The sediment and erosion controls for the redevelopment of the site have been developed in accordance with *Managing Urban Stormwater, Soils and Construction, Volume 1*, March 2004.

This SECP summarises the key procedural controls and management strategies that are discussed in detail in the PEMP. The PEMP has been specifically developed for the earthworks contractors at the site, whereas this document has been developed to satisfy planning and administrative requirements associated with the project.

In addition to sediment and erosion, the PEMP also includes environmental control systems, environmental planning and controls, incident management and emergency response, soil and water management, noise and vibration management, flora and fauna management, resource and waste management, traffic control, dust and air quality, indigenous heritage, on-indigenous heritage, ground vibration and air blast, fire precautions and community liaison.

7.1 Potential Erosion Impacts

The redevelopment of the site will result in large areas of land disturbance and may result in alteration of the existing surface water flow. Potential impacts from the redevelopment may include:

- Increased runoff volumes and velocities from the removal of vegetation, land disturbance and the introduction of impervious surfaces;

- Increased movement of sediments resulting in an increased pollutant load entering the natural water system; and
- Decline in water quality and degradation of local amenities through increased and potential for transfer of sediment and dust to nearby watercourses.

7.2 Sediment and Erosion Controls

7.2.1 Procedural Controls

In order to minimise erosion and the generation of sediment laden runoff, the following general procedures are to be implemented prior to the commencement of the construction works:

- Implementation of a PEMP to be prepared by the earthworks contractor;
- Install all sediment and erosion controls specified in this SECP and the PEMP to ensure that they operate as intended by implementing and monitoring and reporting program, as described in Section 7.3;
- Prioritise works at areas with a high potential for erosion to occur;
- Minimise areas of disturbance to workable sizes;
- Restrict vehicle and pedestrian access where possible; and
- Strip topsoil and conserve for site rehabilitation.

In addition, during the works all bare soil surfaces should be watered, particularly in dry conditions to reduce wind erosion, and rehabilitation should be performed quickly once works in a particular area have been completed.

The procedures are to be implemented by Hewatt Earthworks. The Principal, Dongwha, will also perform independent routine checks to ensure that the procedures are being implemented.

7.2.2 Sediment Fencing

Sediment fencing is to be utilised extensively at various locations at the site during the construction works. These are shown on the site plan in Appendix A and include:

- Along earthen roads to prevent sediment migration off the active road surface;
- Around temporary stockpiles of soil generated as a results of the construction works; and
- On the downward side of the fill batters to ensure that any sediment is contained.

7.2.3 Temporary Sediment Ponds and Rock Check Dams

Three temporary sediment ponds are to be constructed in the western half of the site. The ponds will be constructed in low lying part of the site to collect surface water runoff from the active work areas. Rock check dams will be installed at the inlet to the ponds in order to slow the velocity of concentrated water flows, which helps to reduce erosion. In addition, the rock check dam helps to filter sediment as water flows into the ponds.

The ponds have been designed to have sufficient capacity to capture the runoff during an 80th percentile, 5 day rainfall event, which equates to approximately 15.8 mm based on data from Cooma. This design requirement is in accordance with *Managing Urban Stormwater: Soils and Construction Manual*, which specifies that the 80th percentile storm depth is recommended for use if the duration of disturbance is likely to be six months or less, which is the case here. The proposed sizes of the temporary sedimentation ponds are summarised in Table 9. The location of the ponds are shown in Hewatt's PEMP.

Table 8 Summary of Temporary Sedimentation Ponds

Storage	Capacity	Catchment Area	Basis for Design
Temp Pond 1	246 m ³	35,966 m ²	Capture 80 th percentile, 5 day rainfall event.
Temp Pond 2	237 m ³		Capture 80 th percentile, 5 day rainfall event.
Temp Pond 3	280 m ³	30,600 m ²	Capture 80 th percentile, 5 day rainfall event.

7.2.4 Slope Stabilisation

In order to minimise erosion from occurring, all earth banks will be stabilised with suitable vegetation cover or geotextile. Grass will be sewn using a fast-growing seed mix. Should seed germination be delayed, for example by low rainfall conditions, watering and/or hydro-mulching will be performed.

7.3 Monitoring and Reporting

7.3.1 Monitoring and Maintenance Requirements

The monitoring will involve systematically walking around the site and recording the condition of each erosion or sediment control measures. Maintenance requirements will be noted and initiated following the monitoring. Particular attention will be paid to inspecting areas where vehicles enter and leave the site, all installed erosion and sediment control measures, and off-site discharge points. Checklists to be utilised during the development works are listed in Section 17 of the PEMP.

The monitoring will be performed by the site manager at the following frequency:

- Each day during periods of rainfall that generate runoff (considered in the PEMP to be events greater than 10 mm); and
- Weekly during dry periods.

Any repairs or maintenance will be initiated immediately should an issue be identified. In addition, maintenance will include routinely cleaning drains, sediment fencing, ponds and filters. The frequency of cleaning will vary depending on the site conditions and climate. In addition, excessive vegetation will be removed routinely by mowing, slashing or use of herbicides so that it does not impede water flow. Any herbicides will be used in accordance with the manufactures specifications and applied so as to prevent ingress into watercourses. The site manager will specify when routine maintenance is necessary based on the results of the routine monitoring.

7.3.2 Responsibilities and Reporting

Hewatt Earthworks will be responsible for ensuring that monitoring is undertaken and providing the completed checklist to the project manager for their information.

8. SOIL AND WATER MONITORING PROGRAM

A soil and water monitoring program will be implemented in order to monitor the performance of the facility and confirm that environmental impacts do not occur. This will include soil, groundwater and surface water monitoring. Dongwha has advised that it will work with EPA to update the Environment Protection Licence to reflect the soil and water monitoring program outlined following.

8.1 Potential Contamination Sources and Contaminants of Concern

Following the redevelopment of the site, the following potential sources of contamination will be present at the site:

- CCA treatment plant;
- Treated timber storage yard;
- Northern Pond which will capture stormwater from the treated timber storage yard; and
- AGST for the storage of fuel.

The CCA treatment plant will be covered with a roof, fully sealed and bunded and therefore the potential for contamination to occur beneath the treatment plant is considered to be low. In addition, the treated timber storage area (where the treated timber is stored following fixation) has been designed with an impermeable pavement and first flush stormwater collection system to minimise contamination. That is, there is a low potential for contamination to occur within the treated timber storage area. Although the treatment plant will be bunded, there is some potential for soil contamination to occur on the unsealed area beyond the treatment plant. Monitoring of the soil will therefore be undertaken on the unsealed surface for the contaminants associated with the CCA which are arsenic, copper, chromium (total) and chromium (VI).

The AGST will be bunded and therefore there is very low risk of contamination to occur. In view of this, there is considered to be no need for soil monitoring in this area. Routine inspections to verify the integrity of the bunding are considered to be appropriate to ensure that contamination does not occur.

In view of the groundwater contamination identified in the vicinity of the existing treatment plant, ongoing groundwater monitoring will be necessary at the site. The contaminants of concern in the groundwater include arsenic, copper, chromium (total), chromium (VI), total organic carbon (TOC) and ammonia. The measurement of TOC and ammonia, as well as other water quality indicators such as TDS, DO, EC, pH and redox are to identify any impacts associated with leakages from the surface water storages. Cobalt, nickel and zinc are not contaminants of concern in the groundwater as they are not present in the soil and are indicated to be naturally occurring in the groundwater. Therefore, they will not be analysed for.

The water that accumulates in Ponds 1 and 2 will be largely uncontaminated, apart from trace amounts of organics. The organic concentrations in the Ponds will be reduced by installing filters on the inlet to the ponds and only retaining woodchips in controlled areas rather than the current situation where stockpiles are stored directly adjacent to the Southern Pond. These ponds will be monitored for indicators of organic contamination including TOC, lignin/tanins, ammonia and nitrate, as well as arsenic, chromium and copper.

8.2 Monitoring Locations and Frequency

Soil

Soil sampling will be undertaken in the vicinity of the proposed new CCA treatment facility and in the CCA timber storage areas on a biannual basis post development. This is to verify that soil impacts are not occurring in the treatment and post-treatment storage areas, although it is noted that the new design of the plant will minimise the potential for soil contamination to occur. The monitoring locations are shown in Figure 10. The monitoring program is summarised in Table 9.

Groundwater

Groundwater monitoring will be undertaken on a biannual basis from the existing groundwater monitoring wells located at the site. Should additional wells, be installed at the site, then these would also be incorporated into the groundwater monitoring program. The locations of the groundwater monitoring wells are shown in Figure 10. The monitoring program is summarised in Table 9.

Surface Water

Surface water samples will be retrieved on a biannual basis from each of the water storage bodies and on a quarterly basis from the outlet of the activated carbon treatment vessel which will be installed to treat the steamer/kiln condensate. The sample from the outlet of the activated carbon treatment vessel is to confirm that the treatment method is satisfactorily removing all of the organic carbon from the steamer/kiln condensate prior to reuse in the treatment plant. The locations of the surface water monitoring points are shown in Figure 10 and the monitoring program is summarised in Table 9.

Table 9 Proposed Ongoing Environmental Monitoring Program

Location Number	Location Description	Monitoring Frequency	Analytical Program
Soil			
BH01 – BH04	Refer to Figure 10	Biannual	Arsenic, copper, chromium (total), chromium (VI)
Surface Water			
SW1	Pond 1	Biannual	Arsenic, copper, chromium (total), chromium (VI), TOC, pH, DO, EC, redox and hardness
SW2	Pond 2	Biannual	Arsenic, copper, chromium (total), chromium (VI), TOC, pH, DO, EC, redox and hardness
SW3	Northern Pond	Biannual	Arsenic, copper, chromium (total), chromium (VI), TOC, pH, DO, EC, redox and hardness
SW4	Outlet from Activated Carbon Vessel	Quarterly	Arsenic, copper, chromium (total), chromium (VI), iron, ammonia, TOC, lignin/tannin, pH, DO, EC, redox and hardness
Groundwater			
MW1, MW3, MW3-1, MW3-4, MW3-5, MW4 to MW6, and GW10 to GW14.	Refer to Figure 10	Biannual	Arsenic, copper, chromium (total), chromium (VI), zinc, iron, TOC, TDS, pH, DO, EC, redox and hardness
MW2, MW7, GW8, GW9, GW11 and GW14	Refer to Figure 10	Every two years	Arsenic, copper, chromium (total), chromium (VI), zinc, iron, TOC, TDS, pH, DO, EC, redox and hardness

Note: EC = Electrical Conductivity
DO = Dissolved Oxygen
TDS = Total Dissolved Solids
TOC = Total Organic Carbon

8.3 Monitoring Procedures

Soil

Soil samples will be retrieved in accordance with *Australian Standard 4482.1-2005: Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil – Part 1: Non-volatile and Semi-volatile Compounds*, 2 November 2005, Standards Australia.

Groundwater

The groundwater monitoring wells must be sampled in accordance with OEH's *Guidelines for the Assessment and Management of Groundwater Contamination*, March 2007 (DECC 2007), or any subsequent superseding document. In particular, 'low flow' purging techniques should be used. Care must be taken to ensure that drawdown in the monitoring well does not exceed 0.1 m during 'low flow' purging. In addition, water samples for heavy metal analysis should be field filtered to 0.1 µm prior to acid preservation. These procedures are necessary to ensure that the groundwater samples are not affected by high suspended solids, which can result in false positives, particularly for heavy metals. Groundwater standing water levels should be recorded at the time of sampling and be related to the Australian Height Datum.

Surface Water

Surface water samples should be collected in accordance with OEH's *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*, March 2004 (DEC 2004), or any subsequent superseding document. In addition, surface water samples should be taken from 0.1 m below the water surface to avoid the influence of near surface evaporation. Samples to be analysed for heavy metals should be filtered to 0.1 µm prior to acid preservation.

8.4 Analytical Program

The analytical program for the soil, groundwater and surface water samples is outlined in Table 9. In addition, the following procedures should be implemented:

- Laboratory detection limits should be set below the relevant guideline levels; and
- Samples must be analysed by a National Association of Testing Authorities (NATA) accredited laboratory using NATA accredited methods.

8.5 Quality Assurance Procedures

Quality assurance procedures should be implemented in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (NEPM). In particular:

- Rinsate and tip blanks should be collected for each day of sampling. The rinsate blank should be analysed for the contaminants of concern;
- A split duplicate sample should be collected and analysed by a secondary laboratory for the contaminants of concern at a rate of 5% of the total number of primary samples analysed;
- A blind replicate sample should be collected and analysed by the primary laboratory for the contaminants of concern at a rate of 5% of the total number of primary samples analysed;

- Chain of custody documentation should be completed and accompany the samples to the laboratories; and
- Internal QA/QC procedures should be conducted by the laboratories, including method blanks, matrix spikes and sample duplicates in accordance with their NATA registration.

8.6 Reporting Requirements

A review of the water monitoring data should be performed immediately after each round of water quality monitoring by a suitably qualified environmental consultant. Any significant changes in contaminant levels should be checked and the implications considered by the consultant. Water quality data should be compared to the results of previous monitoring episodes and the relevant water quality guidelines.

A brief report should be prepared following each monitoring episode. This should include a comparison of soils data to the HIL F criteria and the groundwater and surface water data to the guideline values specified in ANZECC 2000 and the Australian Drinking Water Guidelines for the relevant environmental values of ecosystem protection and drinking water.

An annual report monitoring report should be prepared at the end of each year. The annual monitoring report should include a review of the results of the monitoring and quality control data, and provide conclusions and recommendations for the site. NATA endorsed laboratory reports, chain of custody documentation and well purge sheets should also be included.

8.7 Monitoring Assessment Criteria and Management Responses

The criteria to be adopted for the soil, groundwater and surface water sample are summarised in Table 10. The rationale for the selection of the criteria is discussed following.

Soil

The NEPM Health Investigation Level's for a commercial/industrial land use (HIL F) will be used as screening criteria. Should these criteria be exceeded, then further investigation will be undertaken to determine the significance of the contamination and the most appropriate remedial response. This is in accordance with the NEPM. Should significant contamination be identified that would impact on the ongoing use of the site for a commercial/industrial land use, remediation will be undertaken. The efficacy of the existing environmental management procedures should also be reviewed and improved where necessary.

Groundwater

Groundwater assessment criteria have been adopted for both ecosystem protection (which apply at the point of groundwater discharge to the nearest receiving environment) and for drinking water supply. The management responses outlined in Table 11 should be adopted when the contaminant concentrations in the groundwater are identified above the assessment criteria outlined in Table 10.

Surface Water

Trigger values for the surface water samples are provided for the contaminants of concern at the site in Table 10. The trigger values have been set to primarily ensure that no off-site impacts occur, and also to ensure that the waste water treatment systems are operating optimally. It is noted that there are no guideline values available for TOC nor lignins/tanins. These contaminants are an issue when they are present in concentrations that cause the water to become discoloured or odorous. In view of this, aesthetic observations are to be used as the indicator of unacceptable TOC and lignin/tannin concentrations.

Table 10 Soil, Groundwater and Surface Water Assessment Criteria

Potential Contaminant	Adopted Assessment Criteria			
	Soil ¹ (mg/kg)	Groundwater (mg/L)		Surface Water (mg/L)
		Ecosystem Protection ²	Drinking Water ³	
Arsenic	500	0.013 (a)	0.007	0.013 (a)
Beryllium	-	0.2 (b)	-	-
Chromium (III)	60,000	0.0033 (b)	-	0.0033 (b)
Chromium (VI)	500	0.001	0.05	0.001
Copper	5 000	0.0014	2.0	0.0014
Lead	-	0.0034	0.010	-
Manganese	-	1.9 (b)	0.5	-
Mercury	-	0.011	0.020	-
pH	-	6.5 - 8.0	-	6.5 - 8.0
TOC	-	-	-	-
Lignins/tanins	-	-	-	-
Ammonia (as N)	-	0.90	0.4	0.90
Iron	-	-	0.3	-
Nitrate (as N)	-	0.159	0.050	0.159
Aesthetic considerations	-	The water should not have an objectionable odour or colour.		

Notes: ¹ NEPM HILs for a commercial industrial land use (HIL F).

² ANZECC 2000 criteria for freshwater ecosystems, 95% level of protection.

³ Australian Drinking Water Guidelines, 2004.

(a) ANZECC 95% trigger value for arsenic as arsenic V.

(b) ANZECC 2000 low or moderate reliability trigger value adopted in the absence of ANZECC 95% trigger values.

Table 11 Responses to Groundwater and Surface Water Assessment Criteria Exceedences

Sample Numbers	Sample Locations	Applicable Analytes ¹	Response
Groundwater			
MW4 and MW5	Vicinity of existing treatment plant (to be decommissioned)	Arsenic, beryllium, chromium, copper, lead, manganese, mercury, TOC, lignins/tanins ammonia, iron and nitrate.	<p>Contaminant concentrations are expected to decrease or remain stable with time.</p> <ul style="list-style-type: none"> • In the event of a significant increase (increase by more than five times between episodes), reanalyse the sample or resample to confirm the result. If result is confirmed, a suitably qualified hydrogeologist should be engaged to investigate the source of the contamination and develop the most appropriate response. • In the event that a long-term increasing trend is identified (over 3 or more monitoring episodes), a suitably qualified hydrogeologist should be engaged to investigate the source of the contamination and develop the most appropriate response.
Other Wells	-	Arsenic, beryllium, chromium, copper, lead, manganese, mercury, TOC, lignins/tanins ammonia, iron and nitrate.	<p>Contaminants concentrations should remain below guideline values or within natural background levels.</p> <ul style="list-style-type: none"> • In the event of an increase to above guideline or natural background levels, or if a long-term increasing trend is identified (over 3 or more monitoring episodes), reanalyse the sample or resample to confirm the result. If the result is confirmed, a suitably qualified hydrogeologist should be engaged to investigate the source of the contamination and most appropriate response.

Surface Water

SW1 and SW2	Ponds 1 and 2	Arsenic, chromium, copper, TOC and lignins/ tanins.	<ul style="list-style-type: none"> • If arsenic, chromium and copper are measured above guideline values, reanalyse the sample or resample to confirm the result. If the result is confirmed, investigate source of contamination as a matter of priority. • If TOC and/or lignins show an increasing trend with time (over 3 or more monitoring episodes) or if the water is observed to have an 'organic', 'rotting' or 'rotten egg' odour, investigate the source of contamination as a matter of priority. Check filters at inlet to Ponds and ensure there are no wood residues in the catchment areas.
SW3	Northern Pond	Arsenic, chromium and copper.	<p>Some low level CCA contamination expected.</p> <ul style="list-style-type: none"> • Investigate cause of any chromium (VI) exceedences (i.e. spillage). Keep water levels in ponds low to prevent over flow during potential storm events.
SW4	Outlet of Activated Carbon Vessel	TOC and lignins/tanins	<ul style="list-style-type: none"> • If TOC or lignin/tanins are detected contact waste water specialist to replenish activated carbon.

Notes: ¹ Analytes for which a response should be considered.

8.8 Care and Maintenance

Each of the groundwater monitoring wells should be inspected regularly, routinely maintained and repaired as necessary. Where monitoring wells are destroyed, replacement monitoring wells will be installed at the nearest practicable location as a matter of priority.

The activated carbon filter used to treat the steamer/kiln condensate should be replenished in accordance with the supplier's recommendations. In addition, pumps used to transfer water should be maintained and regularly inspected to ensure they are in working condition. A spare portable pump should also be kept at the site in the case of a pump failure.

The sealed surfaces of the CCA treatment plant and the bund associated with the AGST should be regularly inspected. Where cracks or damage is identified they should be repaired as a matter of priority. In addition, any pits or drains that come in contact with CCA should be regularly inspected and repaired as necessary.

9. REFERENCES

ANZECC and ARMCANZ 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, October 2000.

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Figures





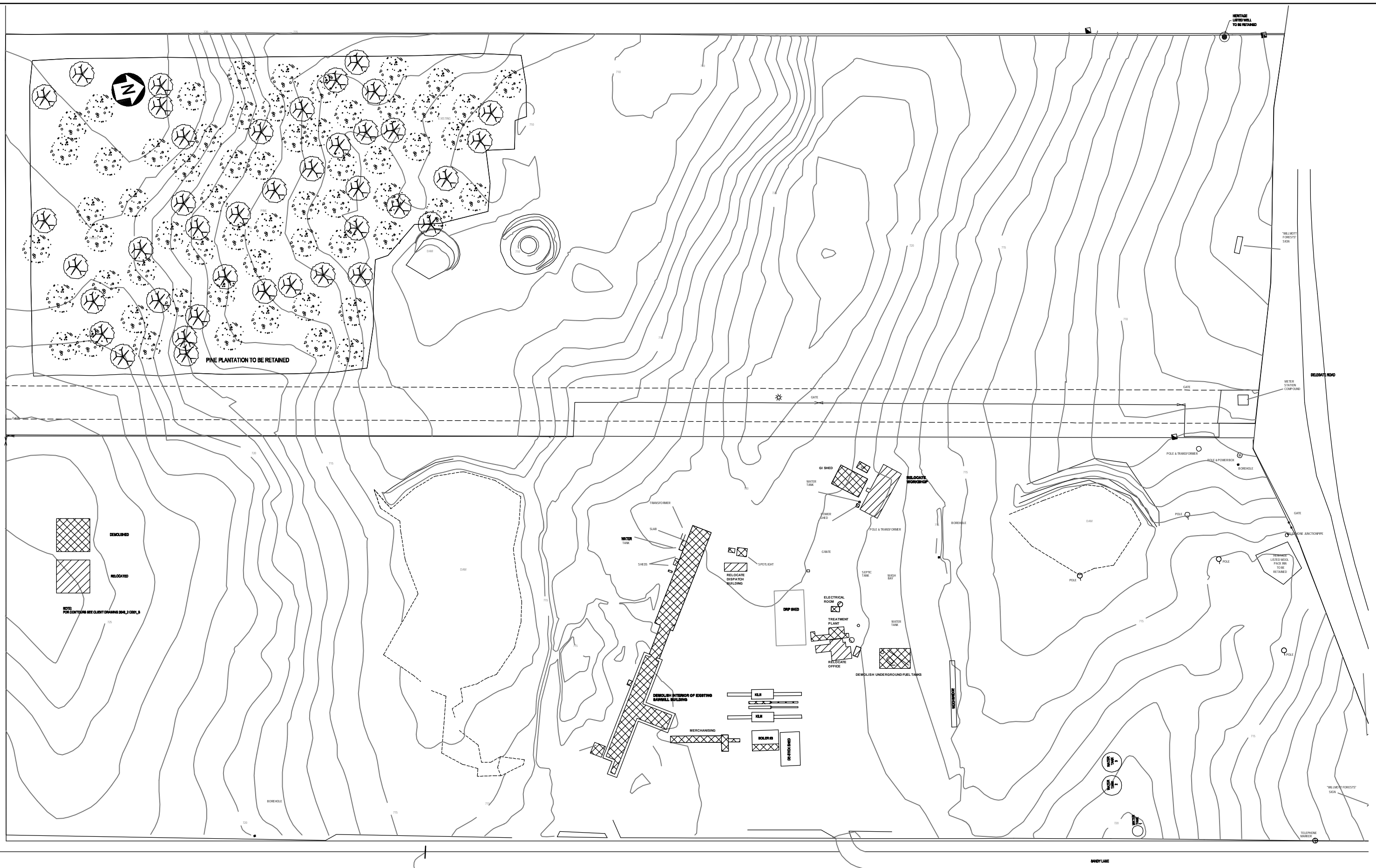
Figure 1: Locality Map

0 125 km

 Approximate Scale

1 Sandy Lane, Bombala,
 New South Wales



PETER J RAMSAY
 & ASSOCIATES



Rev.	Description	Drn	Ckd	App	Date
B	CIVIL, ELECTRICAL & ENVIRONMENTAL DESIGN	BC	CJ	CJ	24.06.09
A	PROGRESS ISSUE FOR INFORMATION ONLY	BC	-	CJ	03.06.09

DOCUMENTS ISSUED DO NOT BEAR ORIGINAL SIGNATURES		Name	Date
Drawn	B. CHAMPION	B. CHAMPION	22.06.09
Design	B. CHAMPION	B. CHAMPION	22.06.09
APPROVED FOR CONSTRUCTION			
Checked	-	-	-
Job Director	-	-	-
Job Manager	-	-	-

Scale 1:1000 Sheet A1

Client: WILLMOTT TIMBERS BOMBALA, NSW

Project: WILLMOTT NAMU PROJECT - PHASE 2

Title: SITE LAYOUT DEMOLISH PLAN DRAWING

Beca AMEC Limited
Australia New Zealand

Drawing Status: ISSUED FOR DESIGN

Client Drawing No. _____

Beca AMEC Ltd Drawing No. 2531501-M-0101

Rev. _____

Rev. B

Figure 2 Land Subject to this Management Plan

Do Not Scale - If in Doubt Ask

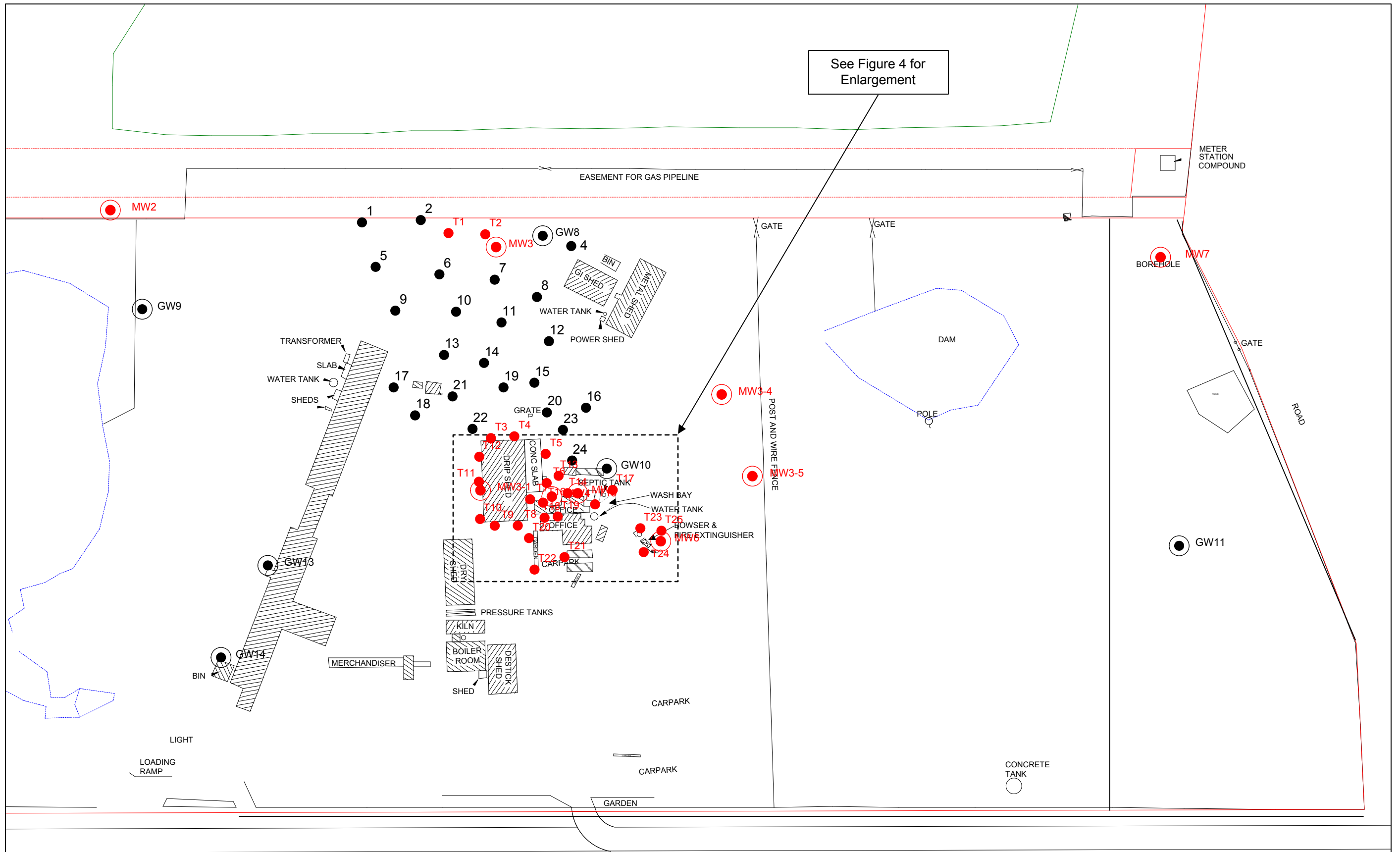
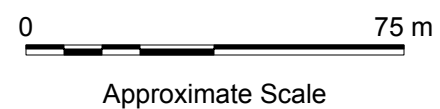


Figure 3: Site Plan Showing Soil Sample and Groundwater Monitoring Well Locations

LEGEND



- 17 Grid Based Borehole Number and Location
- T3 Targeted Borehole Number and Location
- GW1 Groundwater Monitoring Well Number and Location
- MW1 Groundwater Monitoring Well Number and Location (Coffey 2002)

- ⊠ Approximate Location of UPSS
- ▨ Fuel Bowser
- ▨ Approximate Location of Demountable Office



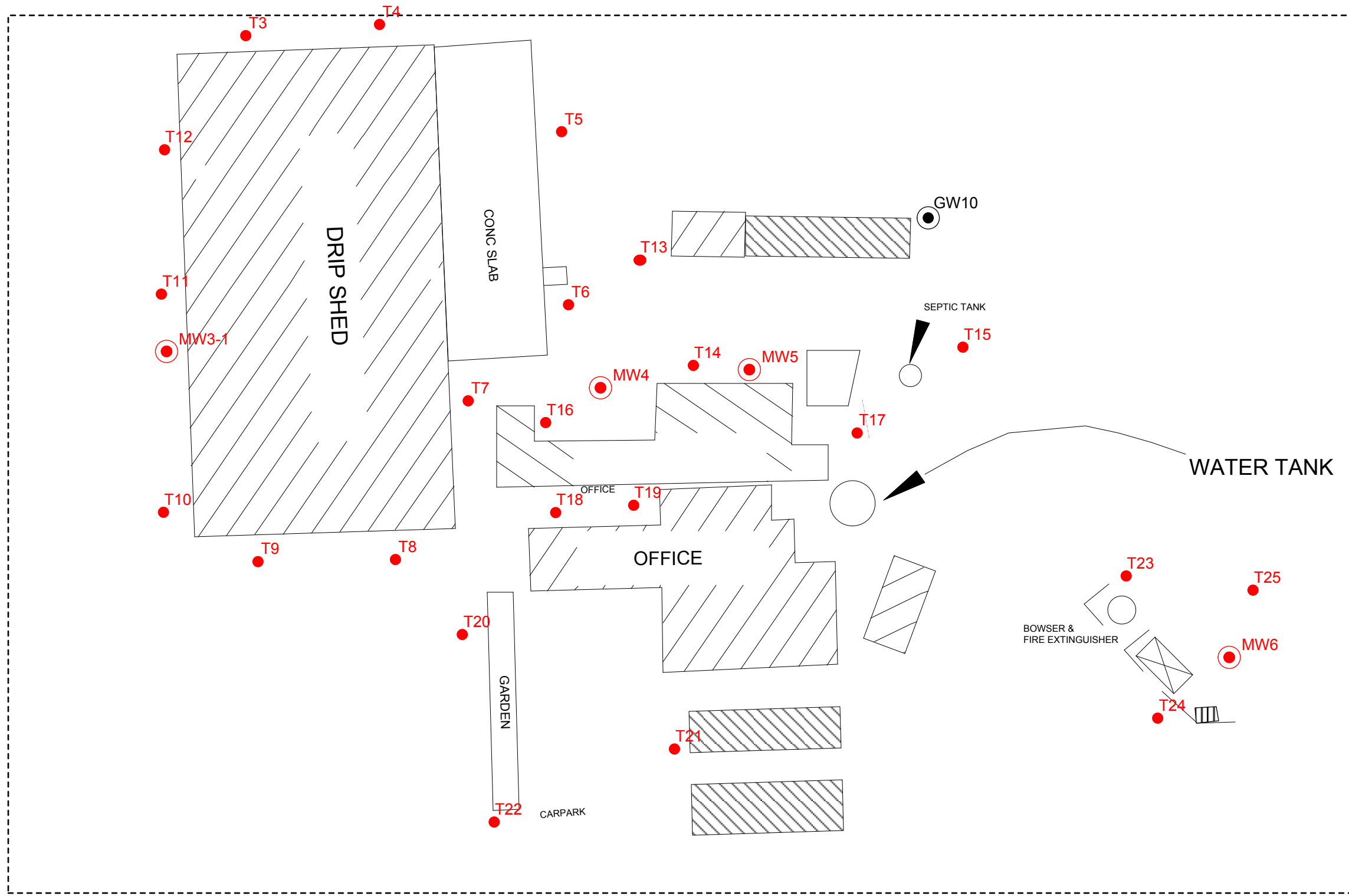
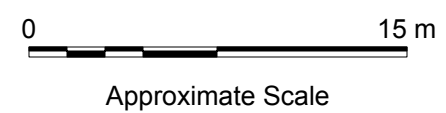


Figure 4: Site Plan Showing Soil Sample and Groundwater Monitoring Well Locations in the Vicinity of the Treatment Plant



- 17 Grid Based Borehole Number and Location
- T3 Targeted Borehole Number and Location
- GW1 Groundwater Monitoring Well Number and Location
- MW1 Groundwater Monitoring Well Number and Location (Coffey 2002)

LEGEND

- Approximate Location of UPSS
- Fuel Bowser
- Approximate Location of Demountable Office

1 Sandy Lane, Bombala,
New South Wales

Source: Base Plan Derived from CAD File Provided by Client



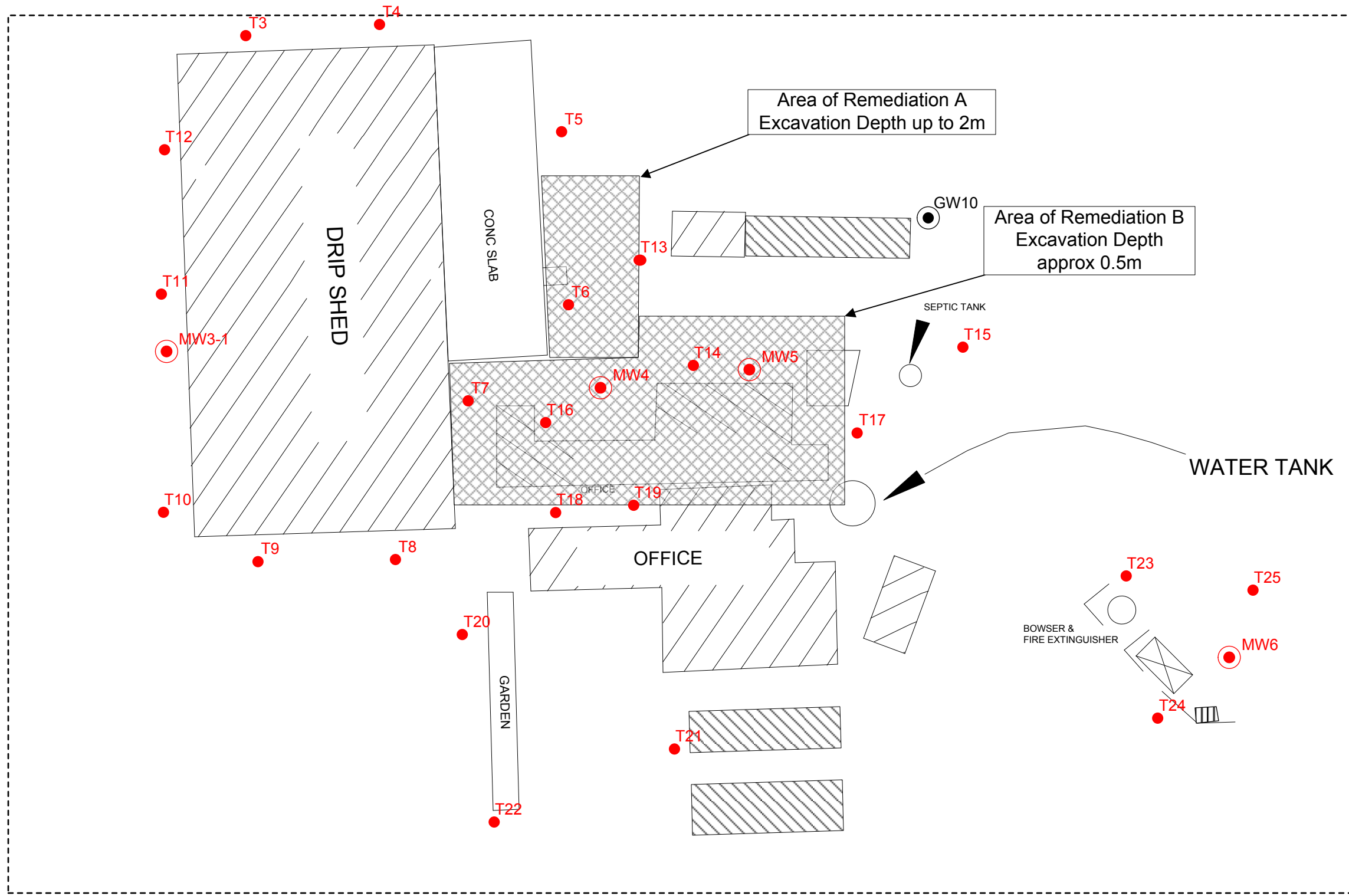
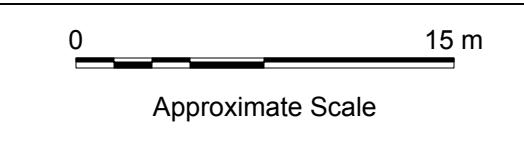


Figure 5: Proposed Extent of Soil Remediation in the Vicinity of the Treatment Plant

LEGEND



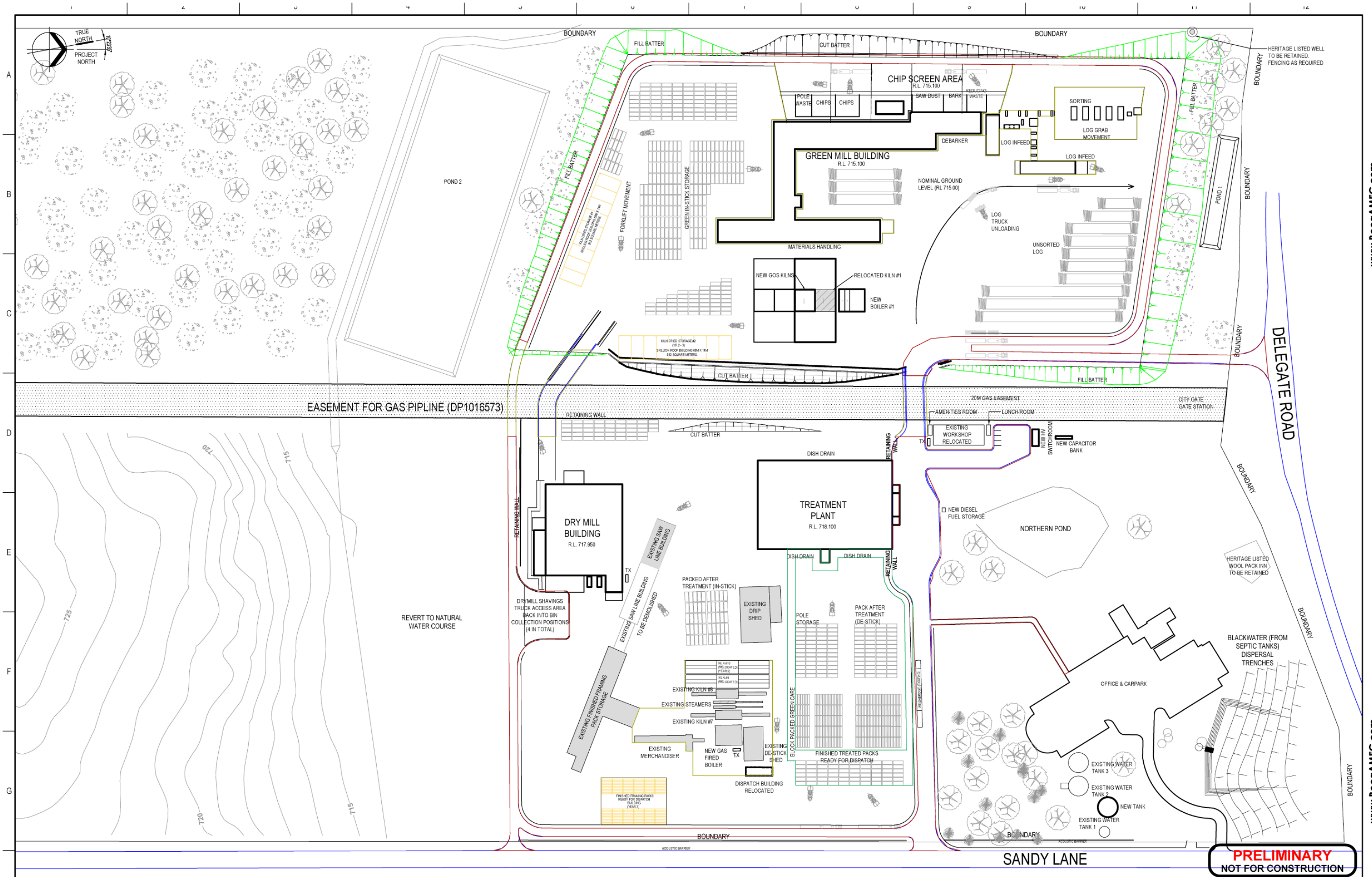
- 17 Grid Based Borehole Number and Location
- T3 Targeted Borehole Number and Location
- GW1 Groundwater Monitoring Well Number and Location
- MW1 Groundwater Monitoring Well Number and Location (Coffey 2002)

- ⊠ Approximate Location of UPSS
- ▨ Fuel Bowser
- ▨ Approximate Location of Demountable Office

1 Sandy Lane, Bombala, New South Wales

Source: Base Plan Derived from CAD File Provided by Client





DESIGNED		NAME (PRINTED)		SIGN	DATE	CLIENT:			TITLE: SITE LAYOUT MODIFIED APPROVAL PLAN DRAWING		
DRAWN		S. CARNEY			05.07.11						Beca AMEC PROJECT No. 2470241
DRAWING CHECK		S. ENGLAND			05.07.11						
DESIGN CHECK		APPROVAL FOR CONSTRUCTION						Beca AMEC PROJECT No. 2470241			
SCALE		AT A1		APP B AMEC	APP CLIENT			PROJECT:	Beca AMEC DRAWING No. 2470241-GA-0100		
REV		DESCRIPTION		DRN	CHK	APP	DATE		CAD FILE: P:\2470241\CAD\2470241-GA-0100 Rev B.dwg		
B		ISSUED FOR APPROVAL		SRE	SC	IF	29.07.11		REV B		
A		DRAWING REPLACES 2531501-M-0100 AND UPDATED		SRE	SC	IF	05.07.11				

DIMENSIONS IN MILLIMETRES DO NOT SCALE PLEASE CHECK CURRENT REVISION

Figure 6: Site Plan Showing Site Features Post Development

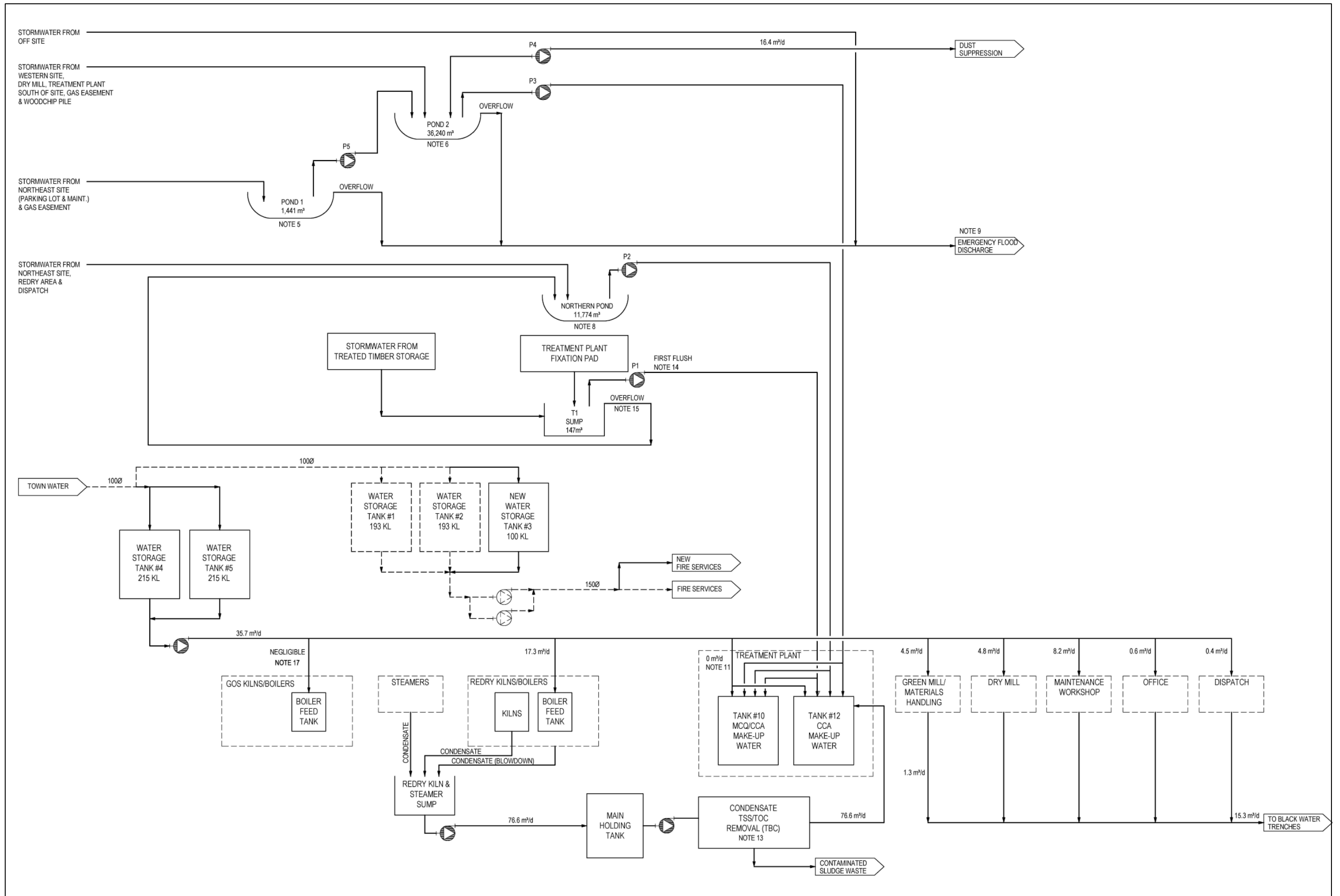


Figure 7: Proposed Water Management System

1 Sandy Lane, Bombala,
New South Wales

Source: Beca AMEC Limited

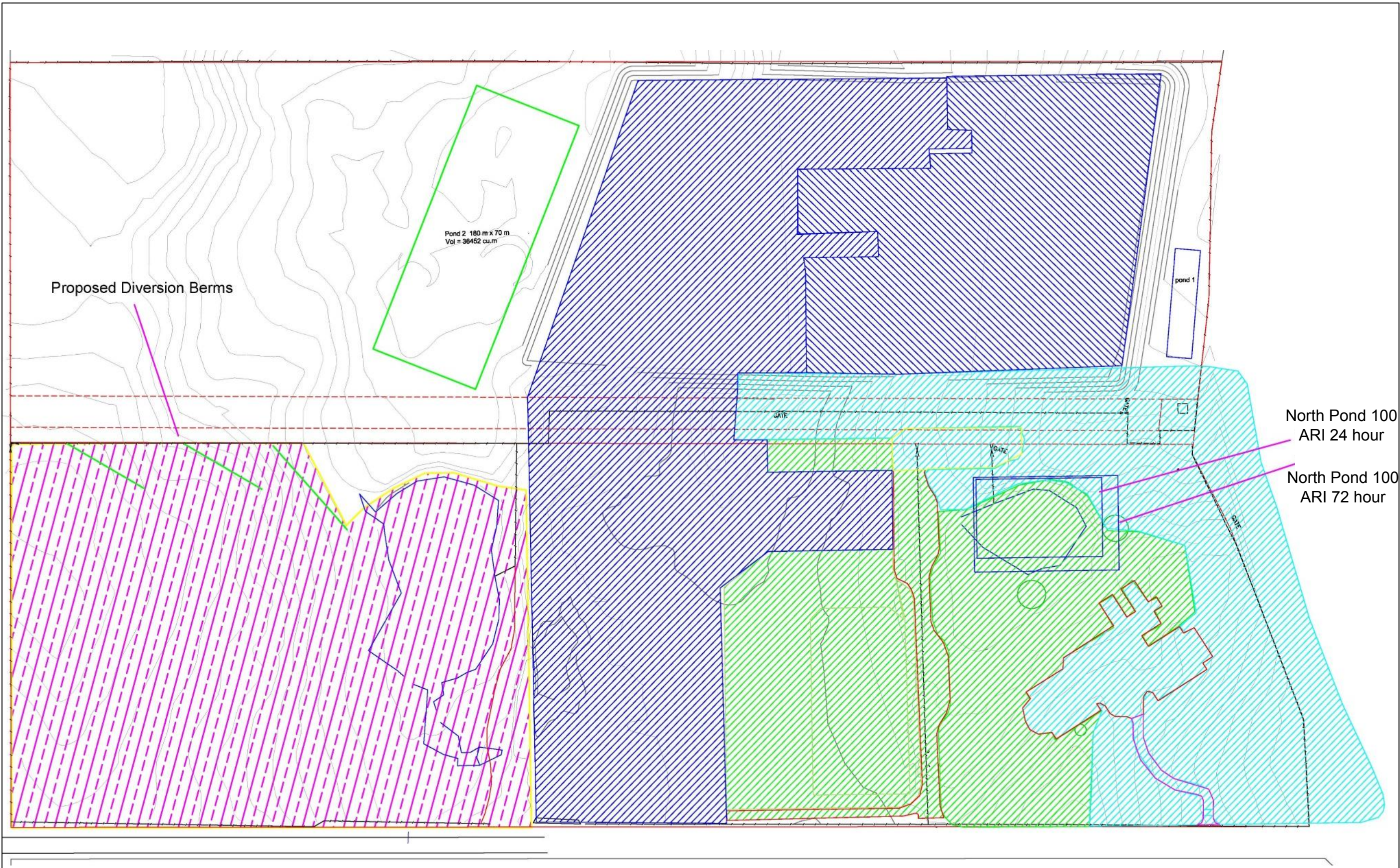
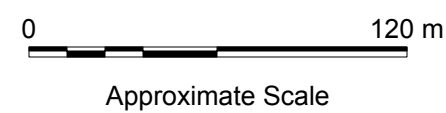


Figure 8: Proposed Surface Water Catchment Areas



1 Sandy Lane, Bombala,
New South Wales

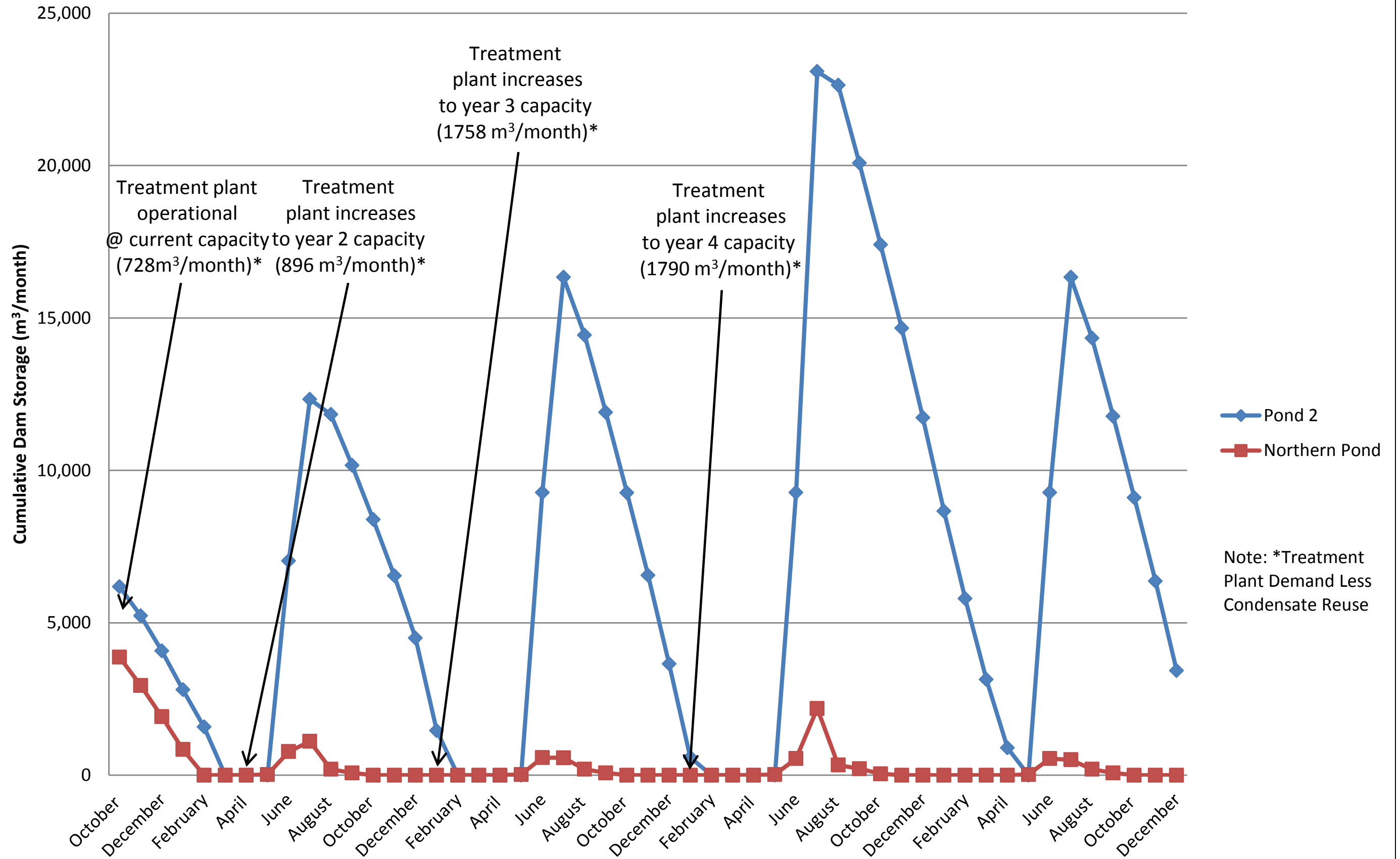
LEGEND

- North Pond Catchment
- Pond 2 Catchment
- Pond 1 Catchment
- Southern Pond Catchment

Source: Tasman Engineering



Northern Pond and Pond 2 Predicted Water Levels With Time



Note: *Treatment Plant Demand Less Condensate Reuse

Figure 9: Predicted Water Levels in the Northern Pond and Pond 2

1 Sandy Lane, Bombala, New South Wales

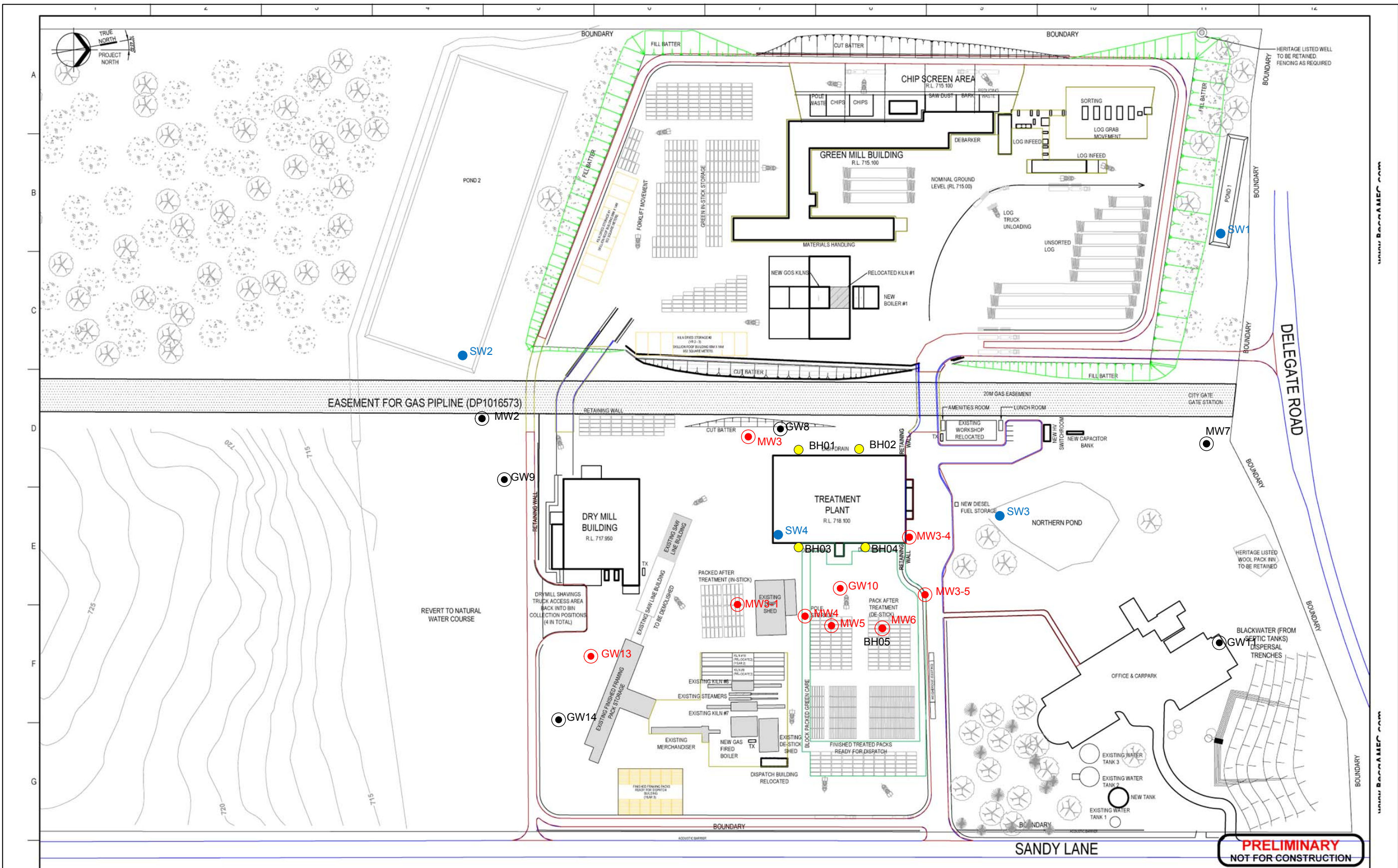


Figure 10: Soil, Groundwater and Surface Water Monitoring Locations

LEGEND

- BH10 Soil Monitoring Location
- SW2 Surface Water Monitoring Location
- MW1 Groundwater Monitoring Well Number and Location For Biannual Monitoring
- GW14 Groundwater Monitoring Well Number and Location For Two Yearly Monitoring



1 Sandy Lane, Bombala,
New South Wales

Source: Base Plan Derived from CAD File Provided by Client

PRELIMINARY
NOT FOR CONSTRUCTION



Appendix A

Site Auditor Endorsement of Sediment and Erosion Controls





11 November 2011

Mr Bart Crawley
Managing Director
Dongwha Timbers Pty Ltd
PO Box 164
LARA VIC 3212

Melbourne
222 Kings Way
South Melbourne VIC 3205
Telephone +61 3 9690 0522
Facsimile +61 3 9690 0585

Sydney
3/538 Gardeners Road
Alexandria NSW 2015
Telephone +61 2 8338 1655
Facsimile +61 2 8338 1755

Dear Bart,

**Re: Endorsement of Sediment and Erosion Control Plan, Dongwha Timbers Pty Ltd,
1 Sandy Lane, Bombala, New South Wales**

I refer to the Sediment and Erosion Control Plan that is required under the Project Approval issued to Dongwha Timbers Pty Ltd at 1 Sandy Lane, Bombala, New South Wales on 7 September 2011.

The Sediment and Erosion Control Plan is to address the requirements specified in Schedule 3 Clause 22 of the Project Approval. The Sediment and Erosion Controls must also be endorsed by an Accredited Site Auditor. In particular, they must:

- be consistent with the requirements of *Landcom's (2004) Managing Urban Stormwater: Soils and Construction Manual*;
- manage activities that could cause soil erosion and generate sediment;
- minimise soil erosion and the potential for the transport of sediment to downstream waters;
- describe the location, function and capacity of erosion and sediment control structures;
- describe the measures to be implemented to maintain these structures overtime; and
- be implemented prior to the commencement of any construction, demolition or remediation and be maintained for as long as necessary to control erosion and sediment on site.

I have reviewed the *Sediment and Erosion Control Plan* of the document prepared by Dr Darren Bennetts of Peter J Ramsay & Associates, titled *Soil and Water Management Plan for the Expansion of the Integrated Sawmilling and Value-Adding Facility, November 2011*. My review has shown that the content of the Plan is appropriate and addresses the requirements specified in the Project Approval.

I consider that the Sediment and Erosion Control Plan meets the requirements of the Project Approval issued by the Minister of Planning and I provide my endorsement of this document.

Should you wish to discuss any matters concerning this letter please do not hesitate to contact me on 03 9690 0522.

Yours sincerely,

A handwritten signature in black ink that reads "P. Ramsay". The signature is written in a cursive, slightly slanted style.

Peter J Ramsay
Site Auditor (Accreditation No. 9814)



Appendix B

Hewatt Earthworks' Project Environmental Management Plan



PROJECT ENVIRONMENTAL MANAGEMENT PLAN

for

Contract No: 100/2011

Document Control:

For controlled copies of this PEMP, the copy number is shown below and initialled in RED by the System Manager (uncontrolled copies are not initialled in RED)

Controlled Copy No: _____ Issued to: _____

Prepared by: _____ Date: _____
Project Engineer

Approved by: _____ Date: _____
Engineer Director

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No part of this document shall be reproduced without the prior permission in writing of the Managing Director of Hewatt Earthworks Pty Ltd.

ENVIRONMENTAL POLICY STATEMENT

Hewatt Earthworks is committed to managing its works whilst protecting the environment and safeguarding health of employees and the community.

This commitment is achieved by:

- Compliance with environmental laws and regulations by obtaining approvals licences or permits from relevant authorities.
- Providing education and training for management, employees and subcontractors to protect the environment.
- Initial and continual identification and assessment of impacts of activities on the environment at each site, as well as the impact of the environment on staff engaged in activities at that site, with the development of appropriate procedures in response to the risks identified.
- Measuring and evaluating the effectiveness of environmental objectives.
- Striving for continuous improvement of the environmental program.

Signed:

Geoff Hewatt
Managing Director

Date:

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 - 1.1 General Description of Project
 - 1.2 Purpose of PEMP
 - 1.3 General Description of Environment
 - 1.4 Project Organisation and Contacts
 - 1.5 Site Facilities and Compound
 - 1.6 Handling and Storage of Materials
 - 1.7 Working Hours
 - 1.8 Environmental Controls for Subcontracted Work
- 2. ENVIRONMENTAL SYSTEM CONTROLS**
 - 2.1 Document Control
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- 3. ENVIRONMENTAL PLANNING AND CONTROL**
 - 3.1 Operational and Monitoring Controls
 - 3.2 Maintenance of Plant and Equipment
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- 12. INDIGENOUS HERITAGE**
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- 15. FIRE PRECAUTIONS**

- 15.1 Principles
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- 15.3 During Period of Very High Fire Danger

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17. STANDARD FORMS

18. PERMITS AND LICENCES

1. INTRODUCTION

1.1 General Description of Project

1. Hewatt Earthworks is undertaking construction, testing and handover of the Civil Engineering Works for the construction of a new Saw Mill Facility in Bombala for TASC0. The project works include Erosion Control, Earthworks, Structures, Roads & Pavements, Stormwater, Potable water, Sewerage works, HV&LV services, Fire System.

The Principal is - TASC0

The Project Manager is – BecaAMEC

1.2 Purpose of PEMP

This Project Environmental Management Plan (PEMP), which has been developed as part of our environmental management process, details the environmental management measures, which are to be implemented in association with construction activities and remediation activities.

The PEMP sets out safeguards to minimise any short-term, localised adverse environmental impacts. It specifies actions, responsibilities, protocols, conformance, verification and containment activities, to be followed by Hewatt Earthworks before, during and on completion of construction.

The PEMP also acknowledges and references requirements of the:

- Soils and Construction, Managing Urban Stormwater. (The Blue Book)
- TASC0 Construction Environmental Management Plan
- Dongwha Timbers Environmental Management Strategy
- Navin Officer Aboriginal Cultural Heritage Management Plan
- The Flora and Fauna Assessment Report contained within the EA

An Environmental Policy Statement is attached, expressing our commitment to effective environmental management.

The PEMP is a controlled document under the Company's quality system.

1.3 General Description of Environment

The site is located in the suburb of Bombala with the *address of 1 Sandy Lane. 'The area is an active Saw Mill which is going to be upgraded under four Separable portions.*

The Client/Head Contractor has not identified any environmentally sensitive areas in the project.

The controls of the construction site are defined within the management plans and checklists included in this document.

1.4 Project Organisation and Contacts.

The **Engineer Director**, is responsible to the Managing Director in his role as the Company Environmental Management Liaison Contact for this project, and is the authorised contact person for liaison with all external agencies.

He is responsible for:

- Compliance with the documents reference in 1.2,

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- implementing and maintaining the Project Environmental Management Plan, PEMP;
- instructing the senior site personnel on how to comply with the Company's environmental policy and procedures;
- monthly evaluation of how effectively environmental reporting systems are performing;
- any necessary actions that are identified in respect of deficiencies and Corrective Action Notices.

The **Project Engineers** (*Contractor Project Manager*) are responsible to the Engineer Director for:

- preparing the PEMP;
- arranging for audits, surveillance and reviews;
- addressing any Corrective Action Notices that may be issued;
- addressing any other deficiencies that may be recognised;
- liaison with Environment ACT/NSW and the local community;
- distribution of all relevant documentation and publications.

The **System Manager**, is our Environmental Site Liaison Contact, and is responsible to the Project Engineers for the implementation of the PEMP. On this project he will delegate the on-site duties to our **OHS & E Officer** (*Contractor Risk & Safety & Environmental Manager*) He will implement the PEMP on site by:

- ensuring that all necessary inductions are completed & regular tool-box meetings are scheduled for all site personnel, including subcontractors' staff;
- arranging periodic monitoring and inspection by suitably trained personnel as per the requirements of the Contract;
- liaison with Client Environmental Consultant
- liaison with Client Site Representative;
- immediate response to any environmental emergencies;
- incorporating the Superintendent's records into the overall record system;
- inspection of plant and equipment;
- record keeping in relation to these activities.

The **Foremen** (*Contractor Site Construction Manager*) are responsible to the Project Engineer for initiating or implementation of:

- tool-box meetings which are attended by all site personnel, including subcontractor staff;
- immediate response to any Unexpected findings and environmental emergencies;
- control of environmental deficiencies and environmental complaints;
- daily liaison with Client Site Representative
- monitoring the activities of all site personnel, including sub-contractors
- direct supervision of works and testing
- arranging for the installation, maintenance and eventual removal of all temporary erosion and sedimentation control structures, refer to EF001 (Environmental Impact Planning Checklist) and EF002 (Weekly Environmental Checklist).

Contact Numbers:

Hewatt Earthworks	-	Head Office:	Tel: 02 6227 5694
			Fax: 02 6227 5687
			Email: info@hewatt.com.au
Hewatt Earthworks	-	Site Office:	02 6459 5549
Hewatt Earthworks	-	24-hour EPA contacts:	
Geoff Hewatt	-	Managing Director:	0417 632 209
Renato Gaspari	-	Office Manager:	0408 023 789
Jason Burgess	-	Engineer Director	0438 855 040

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Alex Baird	-	Project Engineer (Contractor Project Manager)	0419 879 686
Regan Hudson	-	System Manager	0423 018 944
Graham Cooper	-	OHS & E Officer (Contractor Risk & Safety & Environmental Manager)	0457 774 537
Phill Caldwell	-	Foreman (Contractor Site Construction Manager)	0431 055 295

The Project Engineer is to liaise with the following authorities regarding any problems with implementing environmental management measures in their respective functions:

Clients Representative (Stuart Carney – becaAMEC)	Tel:	0409 730 056
Environment Protection Agency	Tel:	02 6229 7002
NSW National Parks & Wildlife	Tel:	02 6458 4080
Fire Brigade – Bombala Rural Fire Service	Tel:	02 6458 3933
Police	Tel:	02 6458 3444
State Emergency Services	Tel:	02 6458 3765 or 132500
Hospital - Bombala	Tel:	02 6458 5777

1.5 Site Facilities and Compound

In planning for the site facilities, the Project Engineer shall consider the following:

1. minimise disturbance to natural ground and vegetation;
2. minimise nuisance to neighbours (eg loose dirt which could be a source of dust; if noisy equipment is needed, locate work area as far from neighbours as practicable);
3. ensuring vehicles can turn off roads into the site without significantly impeding through traffic;
4. sufficient parking areas are provided for all construction workers;
5. separate storage for fuels, chemicals and hazardous goods, inside bunted area(s) and containers e.g. servicing bay for plant;
6. minimise potential for work near dry vegetation which could cause fires (e.g. welding);

1.6 Handling and Storage of Materials

When determining if project-specific methods are needed for handling and storage of materials, the Project Foreman shall include consideration of the potential safety risks if materials are handled or stored incorrectly.

Copies of the Material Safety Data Sheets (MSDS) are available in the Hewatt Site Office. The Foreman shall ensure that all manufacturers' instructions are obtained and kept in a separate file, which is readily available to site personnel.

The Project Foreman will designate the location of storage facilities for each material. Appropriate signage will be erected to ensure no naked flames; heat source, smoking etc. are in proximity of combustible and flammable stores.

1.7 Working Hours

All site personnel are advised during induction of the following normal hours of work:

Monday to Friday	07:00 – 18:00
Saturday	07:00 – 13:00
Sunday and Public Holidays	Nil

Other working times (if required) will be agreed with the Superintendent.

1.8 Environmental Control for Subcontracted Work

When setting up subcontracts and selecting subcontractors, the subcontractor will be inducted into the PEMP.

Arrangements will be made for ensuring that effective environmental controls will be implemented on various components of sub-contracted work.

Prior to the commencement of the subcontracted work, subcontracted staff will be provided with site inductions which shall include environmental awareness, requirements for the site and the appropriate SWMS for their work area.

For all areas of this site and for all subcontractors if there is a conflict between the subcontractor's documents and the Hewatt Earthworks PEMP, the Hewatt Earthworks PEMP will take precedence.

2. ENVIRONMENTAL SYSTEM CONTROLS

2.1 Document Control

The Project Engineer will issue the PEMP to the Foreman and relevant extracts to other parties (on a need to know basis) as controlled copies.

Subcontractors' environmental control measures are to be submitted to Hewatt Earthworks and they will be treated as controlled documents, and verified for compliance with this PEMP.

Where there is a conflict between a Subcontractor's EMP and this PEMP, this PEMP will take precedence.

2.2 Records

The Project Engineer will arrange for environmental records to be filed as part of the project records, copies will be supplied to the Superintendent and the Environmental Consultant as appropriate.

2.3 Awareness and Training

Personnel qualifications/skills related to environmental management activities will be ascertained, training needs identified and appropriate extra training undertaken and recorded.

The Foreman will instruct personnel and sub-contractors as part of their site induction, regarding environmental control measures, which must be observed, and response/containment procedures if environmental emergencies occur or Unexpected Finds are encountered.

The Project Engineer will arrange additional training/instruction as necessary when site personnel commence construction activities which involve new environmental controls. The training will be recorded on a Toolbox Meeting Record form. Site personnel shall be encouraged to be proactive and report any instances of environmental control measures not operating properly and to ensure that all Unexpected Finds are properly and expeditiously dealt with.

2.4 External Communications and Complaints

The following key community stakeholders have been identified and consultation with these groups through the Client Representative is considered imperative, note that there may be other groups who also need to be represented at these meetings:

- NSW Office of Environment and Heritage (EPA)
-

The Superintendent will issue details of all complaints to the Project Engineer, who will establish a file for all external complaints about environmental activities for the project. Details of all complaints, date, time, nature of complaint, names of complainants, their contact details, action taken and date of response, will be recorded on the site Complaints Register (**QF019**).

The Project Engineer will respond to environmental complaints promptly. He will also monitor the effectiveness of actions taken to confirm that each legitimate complaint has been satisfactorily resolved.

When closed out by Hewatt Earthworks, copies of all relevant documentation will be forwarded to the Superintendent.

Any matter which cannot be promptly resolved will be referred to the Engineer Director and the Superintendent.

2.5 Environmental Audit Program

The program for internal environmental auditing is included in the Audit Schedule, attached to the Project Quality Plan. This includes a post construction checklist (**EF003**) to identify and action any outstanding environmental issues.

Environmental auditing follows the same procedures as for QA auditing.

3. ENVIRONMENTAL PLANNING AND CONTROL

3.1 Operational and Monitoring Controls

In order to decide what environmental control measures are needed for this project, the following checklist will be completed:

- **Environmental Impact Planning Checklist (EF001)** - This checklist identifying potential impacts associated with construction activities, including sub-contract work. This information represents the environmental 'targets' and will be used to prepare the Sediment Control Plan
- **Weekly Environmental Checklist (EF002)** - This checklist shows the person responsible for each control and the timing. The checklist also references any additional information explaining how to install an operational control, how to carry out a monitoring task or to record inspections.

The Foreman and/or OHS&E Officer will also conduct a prestart meeting at the start of each day to emphasise the daily tasks to be undertaken, other surrounding activities that may impact the site, H&S and Environmental requirements.

The Foreman will inspect the construction site each week, using (**EF002**), checking &/or noting the following:

- disturbed ground which will generate dust in dry windy conditions;
- disturbed ground which is exposed to erosion;
- that sediment control devices are securely erected and in the right places;
- that control measures are well maintained and functioning effectively and what action is required to promptly repair any defective control devices.
- construction waste and litter to be removed;
- any additional controls that may be required for upcoming works.
- roads and verges immediately outside the site.

Project Engineer will make an inspection of the site after any rainfall greater than 10mm, and additionally will review the checklist each month to evaluate how effectively these controls are protecting the environment. Any actions or improvements to be implemented will be noted.

After major rain events / flooding all excavations will be suspended and excavations will be inspected & reviewed by the Superintendent and Hewatt Earthworks.

- **Post Construction Environment Checklist** – When the works and the removal of all facilities from the site are completed, the Foreman will complete Checklist (**EF003**) as a final Environmental Management System.

3.2 Maintenance of Plant and Equipment

Plant and equipment is to be maintained in safe operating condition, including compliance with noise and gas emissions.

All equipment and plant used on the project is to be regularly serviced as per manufacturers' requirements and checked for safety in accordance with Hewatt Earthworks Daily Plant Inspection Checklist.

All lifting gear is inspected yearly by a competent 3rd party and recorded on the Lifting Gear Register. Copies are to be provided to the Superintendent.

Loads over 3t are required to be slung by a certified dogman. The Superintendent will be notified if this is required.

Hewatt Earthworks employ qualified fitters / mechanics to undertake the prescribed maintenance and service work on the plant and equipment.

3.3 Measuring and Test Equipment

Measuring equipment used for monitoring of environmental impact/pollution will be subject to appropriate servicing and calibration, including any subcontractor equipment.

3.4 Non-conformance, Corrective and Preventive Action

All Hewatt non-conformances, corrective and preventative action records will be forwarded to the Superintendent. Environmental non-conformances will be recorded and rectified in accordance with the recommendations of the Non-conformance report. Rectification shall include containment measures, clean-up and restoration of the affected area and of any deficient operational controls or monitoring controls. On completion, the Project Engineer will re-inspect the outcomes to ensure that they are acceptable before closing out the Non-conformance Report.

Corrective or preventive action to eliminate the causes of actual or potential environmental non-conformances shall be initiated as per the Weekly Environmental Checklist.

If the non-conformance is due to a major environmental incident, the Environmental Protection Unit will be notified

4. ENVIRONMENTAL IMPACT PLANNING CHECKLIST

The checklist (*EF001*) is attached with this PEMP for implementation.

5. INCIDENT MANAGEMENT AND EMERGENCY RESPONSE

An environmental incident is an unplanned event, which occurs on site and causes significant adverse environmental impacts. The general emergency response to environmental incidents is:

1. Ensure site safety, move people from immediate area.
2. Warn traffic of any hazard that affects traffic (use lights, warning signs, etc.)
3. Take any practical steps to contain the hazard and prevent it from spreading.
4. Notify Client/Representative and Environment ACT/NSW.
5. Decide with Client, Client/Representative and relevant authorities how to clean up and remediate the site.

Potential environmental incident situations and containment guidelines are described below. The Project Engineer shall arrange for appropriate containment equipment to be held at the site and will instruct site staff periodically on how to carry out the emergency procedures.

MSDS for chemicals located in the Hewatt Fuels & Oils Storage are available from the Hewatt Site Office.

Pollution of Waterway by Spillage

Spill of fuel, oil or chemical into waterway.

If possible intercept discharge before it enters waterway with an earth bund or sock from spill kit. Spread absorbent material from spill kit to soak up spill. If discharge enters waterway and mixes with water, isolate it by booms.

Ring Environment ACT/NSW.

Spillage / Stormwater in Bunted Area

Isolate as much spillage as possible and arrange for proper disposal of spillage material.

Do not release stormwater from bunted area without first checking water quality.

If water quality is unacceptable, the Foreman will arrange for appropriate method of treatment and/or removal from bunted area.

Plant and Equipment Failure

Any oil, fuel spill as a result of plant failure shall be immediately contained by a localised bund and treated with Spill Kit. After treating any spill area on a public road, the affected area shall be covered with a fine layer of sand prior to re-opening to traffic.

Rubbish and Water Clean-up and Disposal

Refer to Waste Management - Item 9 below.

Access and Traffic Management

Refer to Traffic Management – Item 10 below.

Encountering Contaminated Material

In the event of any suspected or potentially contaminated ground being disturbed, the Client/Representative and Environment ACT/NSW will be notified immediately.

Foreman will ensure that no work takes place in the vicinity of the area in question until such time as approval to proceed is given by Client/Representative.

Surface run-off occurring upstream of the contaminated ground will be diverted around contaminated area.

Any surface run-off contaminated by exposure to the contaminated ground will be treated in accordance to directions received from Client/Representative.

Complete records are to be kept of any contamination incident and these shall include date of discovery, location, suspected nature of contamination, notification to Client/Representative and Environment ACT/NSW and treatment method or result.

Polluted Water Run-off

Refer to Weekly Environment checklist.

Air Pollution

Refer to Dust Control and Air Quality Management – Item 11 below.

6. SOIL AND WATER MANAGEMENT

1. Stockpile material shall be located within building working area only as approved by Client/Representative and shall be protected by silt fencing on the downstream side.
2. Stockpiles shall be restricted in size to that required for an orderly and efficient execution of work.
3. Stockpiles and excavation spoil shall not be located over natural or formed surface drains.
4. The areas cleared for work shall be kept to a minimum and the subsequent rehabilitation work shall be done progressively, as soon as possible after completion of work in any particular area.
5. If the work area is boggy, surface water shall be diverted (by pumping if necessary) into drainage system via a sedimentation control device.
6. The disposal of surplus concrete and the washout of concrete trucks shall only take place at designated areas.
7. Backfilling operations shall match existing soil profiles.
8. To prevent pollution or sediment laden runoff being discharged directly or indirectly into drains and watercourses.
9. To prevent the spreading of mud crushed rock and other debris from the construction site.

7. NOISE AND VIBRATION MANAGEMENT

1. Plant and exhaust systems will be monitored daily at start-up for excessive noise prior to their use on site.
2. Work will only take place in approved working hours.

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3. Noise levels will be consistent with specifications in the project approval and Environmental Protection License.
4. The OHS&E Officer will submit to the Client/Representative details of any impending work activities, which may involve excessive noise. These activities may include jack-hammering, rock breaking with hydraulic breaker, concrete vibration.
5. Hewatt Earthworks will minimise construction noise where possible.
6. Hewatt Earthworks to minimise disturbance to the Public where possible.

8. FLORA AND FAUNA MANAGEMENT

1. The site will be monitored regularly for evidence of any mammal movement and appropriate steps will be taken to minimise interference with movement paths.
2. Any grassed areas disturbed during construction will be revegetated immediately upon completion of work.
3. The work activities including clearing will be confined to the area defined by fences erected prior to commencement of work.
4. The management of flora and fauna will be specifically addressed at all site inductions.
5. The management of flora and fauna will be consistent with the Flora and Fauna Assessment. Flora and Fauna will be addressed, wherever applicable, in the preparation of plans for sedimentation and erosion, traffic, waste management and emergency response.

9. RESOURCES AND WASTE MANAGEMENT

1. The site compound will include fully serviced toilet, garbage bin, waste bin, bunded area for storage of fuels and chemicals and spill absorbent.
2. The site induction for all employees is to include emphasis on the need for a tidy site and location of all waste receptacles.
3. The OHS&E Officer will be responsible for carrying out a daily inspection of the site to ensure that no rubbish/litter is left on site.
4. The OHS&E Officer will be responsible for arranging the timely collection of all rubbish, which will be disposed of at a licensed Waste Point Tip facility. The waste collection dockets will be kept and filed.
5. The OHS&E Officer will be responsible for the timely servicing of toilet facility.
6. The OHS&E Officer will be responsible for advising the waste collector of the presence of any containers for chemicals, fuels, etc.
7. The OHS&E Officer to minimise the generation of waste.

10. TRAFFIC CONTROL

1. The Foreman will liaise with the Client/Representative regarding traffic movements and their interface with current site activities.
2. Appropriate signage will be located at approach to the site.

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3. A pedestrian traffic corridor will be established to facilitate safe movement through the work area where required.
4. Plant and vehicles will only be parked at a location approved by the Client/Representative.
5. The management of traffic will be specifically addressed at all site inductions.
6. The Foreman to ensure that construction traffic and activities minimise disruptions and provide a safe environment for all road users.
7. The Project Engineer to ensure works meet the requirements of the relevant Road Authority and Council

11. DUST AND AIR QUALITY

1. The access road and work area will be monitored for raised dust and will be watered as required.
2. Any trucks leaving site with loads of spoil will have their loads adequately covered and their tailgates secured.
3. Pollution by raised dust will be controlled by spraying all work areas, including stockpiles with water as and when required.
4. All plant leaving the site will be checked for mud presence on wheels, which shall be hosed down if necessary.
5. All plant will be checked daily at start-up and any plant item emitting continuous visible smoke for more than 10 continuous seconds shall not be permitted to operate until fault is rectified.
6. The OHS&E Officer will prevent health or environmental risk or loss of amenity due to emission of dust or exhaust gases.

12. INDIGENOUS HERITAGE

1. Navin Officer Heritage Consultants Pty Ltd undertook an archaeological survey of the site in May 2011. The report recommends that: "No further cultural assessment is required for the Bombala Sawmill expansion project."
2. If any Aboriginal artefacts are discovered during construction, work will cease immediately and the Client/Representative will be advised so that the following people and organisations can be consulted for further advice and action:
 - Local Aboriginal Council
 - National Parks and Wildlife
3. All construction staff involved with the project will be informed of this requirement during induction.
4. Work will not recommence until officers of the above named organisations have inspected the material and permission has been given to proceed.
5. The OHS&E Officer to prevent damage or loss to heritage places or objects that would result in the loss of cultural, historical and educational value to the community.

13. NON-INDIGENOUS HERITAGE

BOMBALA SAW MILL

1. Two non-Aboriginal heritage sites have been identified within the project area. These sites will be protected during construction works and will be detailed during the induction process.
2. If any non-indigenous artefacts are discovered during construction, work will cease immediately and the Client/Representative will be advised so that the ACT/NSW Heritage Office can be consulted for further advice and action.
3. All construction staff involved with the project will be informed of this requirement during induction.
4. Work will not recommence until officers of the above ACT/NSW Heritage Office have inspected the material and permission has been given to proceed.
5. The OHS&E Officer to prevent damage or loss to heritage places or objects that would result in the loss of cultural, historical and educational value to the community.

14. GROUND VIBRATION AND AIR BLAST

All excavation and demolition work will be carried out only during normal working hours. Further restrictions may be imposed if nearby residents are affected.

14a VISUAL IMPACT

The OHS&E Officer to minimise visual nuisance to neighbours and general public.

15. FIRE PRECAUTIONS**15.1 Principles**

1. Plant and equipment must be equipped and maintained in order to minimise the risk of igniting a fire, and be fitted with a fire extinguisher capable of extinguishing a fire on the machine.
2. All plant and equipment must be audited to ensure compliance with these conditions.
3. Operations must be appropriately restricted during periods of extreme fire weather to minimise the risk of ignitions while not unnecessarily impeding productivity in accordance with the following conditions.

15.2 During the Declared Fire Season

All plant (dozers, scrapers, graders, backhoes, mulchers & front end loaders) and equipment (chainsaws, jackhammers, post-hole borers etc.) must be:

- Maintained and operated in a way that it will minimise the risk of catching fire or starting a fire.
- Fitted with a securely fixed, spark free exhaust in good, serviceable condition
- Free of excessive build-up of either surplus oils, dust impregnated with oil, or vegetative matter.
- Refuelling of plant & equipment must only occur where the area around has been cleared to at least 1.5m around the refuelling point.

15.3 During Periods of Very High Fire Danger

1. The lighting of any fires in connection with the work, including the burning off of cleared vegetation, is prohibited at all times.
2. The NSW RFS will provide fire weather forecasts during the designated fire season. This will include the expected FDI.

3. The Contractor is responsible for ensuring that any Subcontractors on site comply with all conditions and any directions from the Superintendent with respect to fire prevention.
4. On 'total fire ban' days, all activities that may generate fires will not be used in the open, without the specific approval of the NSW RFS and the Contractor must hold a Hot Works Permit covering all specific activities that may generate fires.
5. Where machinery has been closed down by order from the FDU, the operator must stay with the machine for a period off at least 30 minutes to ensure that no fire ignites from their machine
 - During periods of high fire danger, the Contractor will ensure that an adequate water supply, in the form of water tankers, and machinery capable of fighting fires, such as graders and bulldozers, will be kept on site and be operational, at all times.
 - Field based plant and maintenance involving welding and oxyacetylene cutting will only be carried out when a water tanker is on site and has pre-watered the area.

16. COMMUNITY LIAISON PLAN

All liaisons with the public are to be undertaken by the Client Representative. Refer also to 2.4 above.

17. STANDARD FORMS

- | | |
|---|-------|
| 1. Environmental Impact Planning Checklist | EF001 |
| 2. Weekly Environmental Checklist | EF002 |
| 3. Post Construction Environmental Checklist | EF003 |
| 4. Waste Management Register | EF004 |
| 5. Complaints Register | QF019 |
| 6. Daily Contaminated Materials Register | EF006 |
| 7. Remediation Area Activity Register | EF007 |
| 8. Daily Erosion and Environmental Control Report | EF008 |
| 9. Non-Conformance Register | QF013 |

18. PERMITS AND LICENCES

Hewatt may be required to complete the following Permits:

1. Environmental Authorisation
2. Waterways Works Licence
3. Water Abstraction Licence (or Exemption)

And in accordance with relevant tenders, the following approvals and Licences for:

1. Transport of materials and equipment
2. Transport of waste materials, which may include Industrial and/or Hazardous Wastes.
3. Disposal of waste materials, which may include Industrial and/or Hazardous Wastes.
4. Remediation of ACM, including all controls and appropriately licenses asbestos removalists.
5. Excavation in the vicinity of underground services.
6. Protection and/or deviation of underground services.

SOIL AND WATER MANAGEMENT PLAN

1. Access soil and water inspections on site when work is commenced in relation to plans prepared for site.
2. Access soil and water inspections on site when work is commenced in relation to plans prepared for site.
3. Provide works to prevent erosion points to prevent soil losses and sedimentation.
4. Provide works to prevent erosion points to prevent soil losses and sedimentation.
5. Provide works to prevent erosion points to prevent soil losses and sedimentation.
6. Provide works to prevent erosion points to prevent soil losses and sedimentation.
7. Provide works to prevent erosion points to prevent soil losses and sedimentation.
8. Provide works to prevent erosion points to prevent soil losses and sedimentation.
9. Provide works to prevent erosion points to prevent soil losses and sedimentation.
10. Provide works to prevent erosion points to prevent soil losses and sedimentation.

CONSTRUCTION SCHEDULE

1. Construct stabilised site access as shown on attached erosion control plan.
2. Install low flow sand concentrated flow channels as shown on attached erosion control plan.
3. Install silt fences as shown on attached erosion control plan.
4. Install silt fences as shown on attached erosion control plan.
5. Install silt fences as shown on attached erosion control plan.
6. Install silt fences as shown on attached erosion control plan.
7. Install silt fences as shown on attached erosion control plan.
8. Install silt fences as shown on attached erosion control plan.
9. Install silt fences as shown on attached erosion control plan.
10. Install silt fences as shown on attached erosion control plan.

SOIL AND WATER OPERATIONAL INSTRUCTIONS

1. Erect sediment controls at locations shown in accordance with attached erosion control plan.
2. Maintain all erosion control devices as per maintenance schedule.
3. Place additional hayrack erosion controls in new erosion areas after work commences.
4. Backfill fencing to remain in place until all exposed soil is stabilised by re-vegetation or blumens seeding.
5. Place rock check dams at locations shown in accordance with attached erosion control plan.
6. Check after every rainfall event where runoff occurs and repair or replace.
7. Maintain in place until all exposed soil is stabilised.
8. Revegetate all erosion areas and exposed earth by spreading seed and mulch.
9. Revegetation is to be placed immediately on the completion of each barrier section.
10. If generation of seed is delayed due to dry conditions, mulching and watering should be carried out and mulch cover replaced soon as rain/mulching/irrigation is possible.
11. Dispose of topsoil in approved site.

MAINTENANCE SCHEDULE

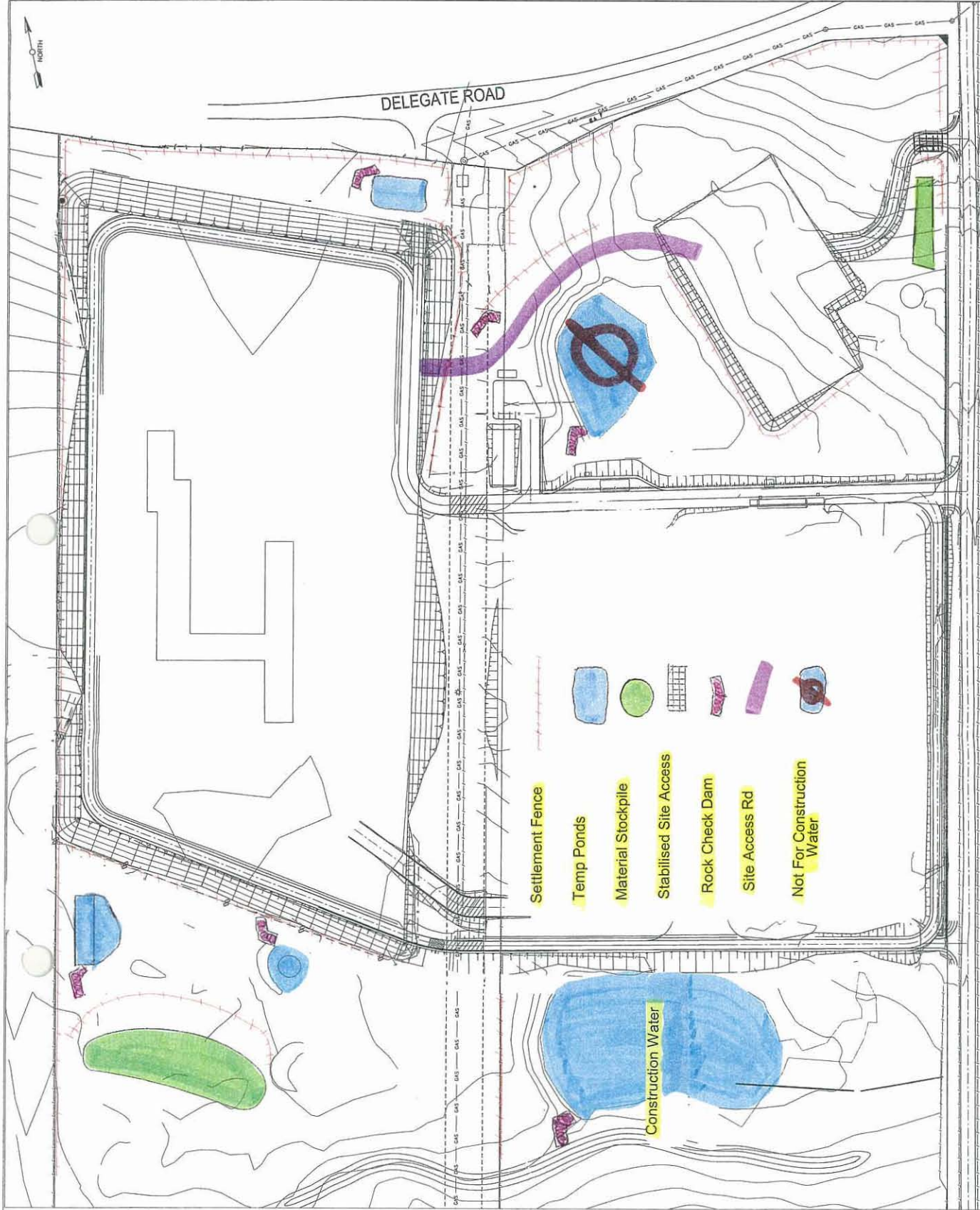
1. Check and clean drains, diversion banks, silt fences and pits that have been located with sediment at regular intervals.
2. Check the condition of all erosion control devices and replace if necessary.
3. Check the rehabilitated areas have established sufficient grass cover.
4. Control any excessive growth with mowing or slashing.
5. Control erosion of dust from unsealed roads, unpaved areas and water storage tanks.
6. Maintain all erosion control devices in good condition.
7. Ensure that silt fences have a minimum 100mm water level above the top of the silt fence.
8. Check and clean drains, diversion banks, silt fences and pits that have been located with sediment at regular intervals.

REVEGETATION SCHEDULE

1. Scarify the ground surface along the line of the contour to a depth of 50 to 100mm to break up any topsoil setting surfaces and to allow for seed to penetrate.
2. Add soil amendments as required.
3. This is to a depth of 300mm.
4. Where possible replace topsoil to a depth of 40 to 50mm on lands where slope exceeds 4:1 V and to at least 75mm on lower slopes.

REHABILITATION SCHEDULE

1. Re-establish vegetation within 24 hours of completion of work.
2. Before spreading topsoil, scarify along contours to enable laying of different layers. Do not spread topsoil in layers where laying is not possible.
3. Apply topsoil to a depth of 40-50mm where slope exceeds 4:1 V and to a depth of 75mm otherwise.
4. Use 70mm otherwise.
5. Spread mulch and encourage water penetration.
6. Spread mulch and encourage water penetration.
7. Select plants consistent with existing soil conditions and indigenous plant species in accordance with local council guidelines.



Settlement Fence

Temp Ponds

Material Stockpile

Stabilised Site Access

Rock Check Dam

Site Access Rd

Not For Construction Water

Construction Water

HEWATT EARTHWORKS
PTY LTD ABN 59 130 000 095

TASMAN ENGINEERING CONSULTANTS
STRUCTURAL, CIVIL AND GEOTECHNICAL ENGINEERS
OFFICE 1, MARKET STREET CENTRE
62 MARK ST. ABERNETHY NSW 2548
Tel: 02 46554776 Fax: 02 46541778 Mob: 0488 400 243
Email: austin@tasmaneng.com.au

Scale: 1:1000
Drawn: SS
Checked: AL
Approved: Date

User: TASCO
Rev: A1
Dwg: T-176/1
Sheet: 20 of 31



Appendix C

Estimated Water Use and Waste Water Generation



WATER SUMMARY

WILLMOTT - NAMU PROJECT - PHASE 2

Project No. 2531501

08-Jul-09

By : Peter Haintz & Cam Johnston

WATER REQUIREMENT		Peak Flow (L/hr)	Average Yearly Demand				Pressure (Bar)	Temp. (°C)	Quality	Comments
			Year 1 (1000L/yr)	Year 2 (1000L/yr)	Year 3 (1000L/yr)	Year 4 (1000L/yr)				
Process Water										
Green Mill		403	709	709	709	709	1 to 2	5 to 25	Per Veisto e-mail dated 02/07/09	
Materials Handling		0	0	0	0	0				
Dry Mill		0	0	0	0	0				
Treatment Plant		7,697	25,165	30,735	37,127	39,473	3	Ambient	Per Osmose E-mail 03/07/09	
Palings	100 l/m3		419	539	677	677			L/m3 per Osmose e-mail dated 26/05/09	
Sleepers	300 l/m3		4,260	5,479	6,875	9,221			L/m3 per Osmose e-mail dated 26/05/09	
Sapwood (Structural Sawn & Appearance)	300 l/m3		9,372	12,065	15,152	15,152			L/m3 per Osmose e-mail dated 26/05/09	
Decking	250 l/m3		5,370	6,909	8,680	8,680			L/m3 per Osmose e-mail dated 26/05/09	
Rounds	320 l/m3		5,744	5,744	5,744	5,744			L/m3 per Osmose e-mail dated 26/05/09	
Appearance	250 l/m3		Included	Included	Included	Included			Included in Sapwood	
GOS Boilers		4,000	5,441	7,003	8,796	11,990				
GOS Kilns steam loss (Preheat)-Single Track	50 m3/charge	2,000	2,721	4,283	6,076	9,270			2,000 l/hr x 2 hrs/charge x Kiln Production / 50m3/charge per Mahild meeting 10/06/09. Charges based on production rate less 100m3 production noted below	
GOS Kilns steam loss (Preheat)-Double Track	100 m3/charge	4,000	2,720	2,720	2,720	2,720			4,000 l/hr x 2 hrs/charge x Kiln Production / 100m3/charge per Mahild meeting 10/06/09 & Telecon 03/07/09. Estimate double track usage = 1 charge/day = 34,000m3/year	
Blowdown - Hot Water		0	0	0	0	0			No Blowdown on Hot Water Boilers	
Redry Boilers		3,943	11,637	13,686	16,035	17,990				
Steamers steam loss	250 L/m3	2,500	8,038	9,054	10,217	12,172			L/m3 per Osmose e-mail dated 25/06/09. Qty steam = Qty condensate & Steam evaporation = wood moisture volume. Peak per Osmose E-mail 25/6/09	
Redry Kilns steam loss (No Preheat)		0	0	0	0	0				
Blowdown - Steam	15%	1,443	3,599	4,632	5,819	5,819			Blowdown as a % of circ. flow per Mahild meeting 10/06/09. 1 MW boiler = 1.2 t/hr steam flow & 1t steam = 1m3 water per mahild telecon 03/07/09. 10,000m3 per MW peak & 50% MW for average per Mahild meeting 10/06/09	
Sawshop		0	0	0	0	0			Assumed Negligible per R. Rowling/P. Herde E-mail 03/07/09	
Potable Services	50 L/day/man/shift	438	2,737	2,799	3,490	4,092			Peak based on 50L/person/day x max. # people/shift. TO BE CONFIRMED BY VANLEEUWEN.	
Log Yard	235 shifts/yr		24	24	35	35			47 weeks/yr & 5 days/wk & 1 shift	
Green Mill	235 shifts/yr		153	153	153	153			47 weeks/yr & 5 days/wk & 1 shift	
Materials Handling	235 shifts/yr		Included	Included	Included	Included			47 weeks/yr & 5 days/wk & 1 shift	
Kilns/Boilers	1008 shifts/yr		252	302	353	403			48 weeks/yr & 7 days/wk & 3 shift	
Dry Mill	1008 shifts/yr		1,109	1,109	1,109	1,613			48 weeks/yr & 7 days/wk & 3 shift	
Stenner	235 shifts/yr		35	35	35	35			47 weeks/yr & 5 days/wk & 1 shift	
Sticking/De-Sticking (Green Mill)	235 shifts/yr		0	0	129	129			47 weeks/yr & 5 days/wk & 1 shift	
Treatment Plant	235 shifts/yr		1,000	1,000	1,500	1,500	6	Ambient	Per Osmose E-mail 03/07/09	
Dispatch	235 shifts/yr		47	59	59	82			47 weeks/yr & 5 days/wk & 1 shift	
Administration	235 shifts/yr		118	118	118	141			47 weeks/yr & 5 days/wk & 1 shift	
Fire Services	23 l/s	83,333	0	0	0	0			20 l/s for buildings >5,000 m2 and fill 500 m3 tank in 6 hours per VanLeeuwen E-mail dated 03/07/09	
Miscellaneous		100	6,000	6,000	6,000	6,000				
Wash Bay		0	0	0	0	0			Assumed Negligible	
Dust Suppression		100	6,000	6,000	6,000	6,000			E-mail from Peter Herde dated 29/07/08 multiplied by 2 for twice the area.	
SUBTOTAL WATER REQUIREMENT			51,689	60,932	72,158	80,254				
Contingency	20%		10,338	12,186	14,432	16,051				
TOTAL WATER REQUIREMENT			62,026	73,119	86,589	96,304				
LESS RECYCLE WATER			25,165	30,735	35,108	35,342			Minimum of available and acceptable for Treatment Plant reuse	
Available Recycle Water			33,911	34,469	35,108	35,342				
Stormwater			31,395	31,395	31,395	31,395			Rainfall per P. Haintz e-mail dated 29 July 2009	
Average Rainfall	644 mm/yr								TO BE CONFIRMED BY VANLEEUWEN.	
Developed Site Area	130000 m2								TO BE CONFIRMED BY VANLEEUWEN.	
Collection Efficiency	50%								TO BE CONFIRMED BY VANLEEUWEN.	
Evaporation Losses	25%								TO BE CONFIRMED BY VANLEEUWEN.	
Recycled Steamer Condensate	Minimum of below		2,516	3,074	3,713	3,947			Lesser of available from Steamer and acceptable by Treatment	
Available Steamer Condensate			8,038	9,054	10,217	12,172			Steamer loss	
Max Acceptable in Treatment Plant	10%		2,516	3,074	3,713	3,947			Portion of Treatment Water that can be dirty Steamer Water	
NET WATER REQUIREMENT			36,861	42,383	51,481	60,962				
PEAK WATER REQUIREMENT										
Flow From Storage To Site										
Peak Process Flow From Storage	20%		19,372						Sum of peak flows except Potable and Fire	
Peak Potable Flow From Storage	20%		525							
Peak Fire Flow From Storage	20%		100,000							
Flow From Town Water To Storage	20%		100,000							

WATER SUMMARY

WILLMOTT - NAMU PROJECT - PHASE 2

Project No. 2531501

08-Jul-09

By : Peter Haintz & Cam Johnston

WASTE WATER	Peak Flow (L/hr)	Average Yearly Demand				Pressure (Bar)	Temp. (°C)	Quality	Comments
		Year 1 (1000L/yr)	Year 2 (1000L/yr)	Year 3 (1000L/yr)	Year 4 (1000L/yr)				
Sanitary Sewer	50 L/day/man/shift	438	2,737	2,799	3,490	4,092			From Potable Water above
Log Yard	235 shifts/yr		24	24	35	35			From Potable Water above
Green Mill	235 shifts/yr		153	153	153	153			From Potable Water above
Materials Handling	235 shifts/yr		Included	Included	Included	Included			From Potable Water above
Kilns/Boilers	1008 shifts/yr		252	302	353	403			From Potable Water above
Dry Mill	1008 shifts/yr		1,109	1,109	1,109	1,613			From Potable Water above
Stenner	235 shifts/yr		35	35	35	35			From Potable Water above
Sticking/De-Sticking (Green Mill)	235 shifts/yr		0	0	129	129			From Potable Water above
Treatment Plant	235 shifts/yr		1,000	1,000	1,500	1,500	6	Ambient	From Potable Water above
Dispatch	235 shifts/yr		47	59	59	82			From Potable Water above
Administration	235 shifts/yr		118	118	118	141			From Potable Water above
Process Water		3,943	9,121	10,612	12,323	14,043			
Redry Boilers		3,943	9,121	10,612	12,323	14,043			
Steamers steam loss	250 L/m3		2,500	5,521	5,980	6,504			Steamer Steam loss less recycled steam loss
Blowdown - Steam	15%		1,443	3,599	4,632	5,819			From Boiler blowdown above
Site Run-off - Assuming Recycle		100	8,747	3,733	0	0			Excess storm water above recycle requirement. Storm water - (Recycled water - Steamer recycle)
Site Run-off - Assuming No Recycle		100	37,395	37,395	37,395	37,395			
Stormwater			31,395	31,395	31,395	31,395			From Stormwater above
Average Rainfall	644 mm/yr								From Stormwater above
Developed Site Area	130000 m2								From Stormwater above
Collection Efficiency	50% 0 days/yr								From Stormwater above
Evaporation Losses	25% 0 days/yr								From Stormwater above
Wash Bay		0	0	0	0	0			From Wash Bay above
Dust Suppression		100	6,000	6,000	6,000	6,000			From Dust Suppression above



Appendix D

Water Balance Results



Table R1 Water Balance for Pond 1

Variable Terms	Units	2011					2012 - Construction and Average Rainfall										
		October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	
Inputs																	
Rainfall (Average) (Therry Street, Bombala)	mm/month	55.3	63.7	64.0	63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0	
Direct Rainfall (Pond 1)	m ³ /month	61	70	71	70	65	66	49	48	65	51	44	49	61	70	71	
Runoff (Remainder of Site)*	m ³ /month	0	0	0	0	0	0	0	0	1,167	915	0	0	0	0	0	
Outputs																	
Evaporation (Average) (Orbost, 2010)	mm/month	105	123	143	155	129	109	72	50	39	43	65	81	105	123	143	
Direct Evaporation (Pond 1)	m ³ /month	93	109	126	137	114	96	64	44	34	38	57	72	93	109	126	
Water Transfer to Southern Pond	m ³ /month	0	0	0	0	0	0	0	4	1,198	928	0	0	0	0	0	
Cumulative Dam Storage	m ³	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Fixed Terms

Areas	Area (m ²)	Runoff Ratios (% x 10 ⁻²)
-Total Area 1	34,000	-
-Pond 1	1,104	1
-Remainder of Area 1 (during construction)	34,000	0.58
-Remainder of Area 1 (sealed post development)	5,430	0.84
-Remainder of Area 1 (unsealed post development)	28,570	0.58

Notes

* In an average year, runoff from site only occurs when rainfall exceeds evaporation (typically only winter).

2013 - Full Production and Average Rainfall

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
70	65	66	49	48	65	51	44	49	61	70	71
0	0	0	0	0	1,251	981	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
137	114	96	64	44	34	38	57	72	93	109	126
0	0	0	0	4	1,282	993	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

2014 - Full Production and 4% AEP, 144 Hour Rainfall Event

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	86.4	40.0	44.4	55.3	63.7	64.0
70	65	66	49	48	65	95	44	49	61	70	71
0	0	0	0	0	1,251	1,826	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
137	114	96	64	44	34	38	57	72	93	109	126
0	0	0	0	4	1,282	1,883	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

2015 - Full Production and Average Rainfall

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
70	65	66	49	48	65	51	44	49	61	70	71
0	0	0	0	0	1,251	981	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
137	114	96	64	44	34	38	57	72	93	109	126
0	0	0	0	4	1,282	993	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

Table R2 Water Balance for Pond 2

Variable Terms	Units	2011					2012 - Construction and Average Rainfall										
		October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	
Inputs																	
Rainfall (Average) (Thery Street, Bombala)	mm/month	55.3	63.7	64.0	63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0	
Direct Rainfall (Pond 2)	m ³ /month	697	803	806	799	737	748	563	551	746	585	504	559	697	803	806	
Runoff (South of Southern Pond)*	m ³ /month	0	0	0	0	0	0	0	0	450	353	0	0	0	0	0	
Runoff (Remainder of Catchment)*	m ³ /month	0	0	0	0	0	0	0	0	5,321	4,170	0	0	0	0	0	
Transfer from Pond 1	m ³ /month	0	0	0	0	0	0	0	4	1,198	928	0	0	0	0	0	
Outputs																	
Evaporation (Average) (Orbost, 2010)	mm/month	105	123	143	155	129	109	72	50	39	43	65	81	105	123	143	
Direct Evaporation (Southern Wetland/Pond 2)	m ³ /month	1,062	1,240	1,437	1,562	1,298	1,094	726	500	393	437	656	816	1,062	1,240	1,437	
Water Usage (Remainder of Treatment Plant)	m ³ /month	0	0	0	0	144	728	896	896	0	0	53	896	896	896	896	
Water Usage (General Site Dust Suppression)	m ³ /month	515	515	515	515	515	515	294	0	294	294	294	515	515	515	515	
Water Usage (Construction)	m ³ /month	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cumulative Dam Storage	m ³	6,179	5,227	4,081	2,803	1,582	0	0	0	7,028	12,332	11,833	10,165	8,388	6,540	4,498	

New treatment plant commences operation at 50% capacity
Woodchip stockpiles still in place, removed by Jan 2013

Fixed Terms

Areas	Area (m ²)	Runoff Ratios (% x 10 ⁻²)
-Total Area 2 + Area 3 (during construction)	183,000	-
-Total Area 2 + 3 (post development)	183,000	-
-Pond 2	12,600	1
-South of Southern Pond (woodchip during construction)	76,000	0.1
-South of Southern Pond (no woodchip post development)	76,000	0.58
-Remainder of Catchment (during construction)	107,000	0.58
-Remainder of Catchment (post development)	107,000	0.84

Notes

* In an average year, runoff from site only occurs when rainfall exceeds evaporation (typically only winter).

2013 - Full Production and Average Rainfall

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
799	737	748	563	551	746	585	504	559	697	803	806
0	0	0	0	0	2,610	2,045	0	0	0	0	0
0	0	0	0	0	5,321	4,170	0	0	0	0	0
0	0	0	0	4	1,282	993	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
1,562	1,298	1,094	726	500	393	437	656	816	1,062	1,240	1,437
1,758	1,758	1,758	1,758	1,758	0	0	1,453	1,758	1,758	1,758	1,758
515	515	515	294	0	294	294	294	515	515	515	515
0	0	0	0	0	0	0	0	0	0	0	0
1,461	0	0	0	0	9,271	16,333	14,434	11,904	9,266	6,555	3,651

2014 - Full Production and 4% AEP, 144 Hour Rainfall Event

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	86.4	40.0	44.4	55.3	63.7	64.0
799	737	748	563	551	746	1,089	504	559	697	803	806
0	0	0	0	0	2,610	3,809	0	0	0	0	0
0	0	0	0	0	5,321	7,766	0	0	0	0	0
0	0	0	0	4	1,282	1,883	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
1,562	1,298	1,094	726	500	393	437	656	816	1,062	1,240	1,437
1,790	1,790	491	1,790	1,790	0	0	0	1,790	1,790	1,790	1,790
515	515	515	294	0	294	294	294	515	515	515	515
0	0	0	0	0	0	0	0	0	0	0	0
583	0	0	0	0	9,271	23,085	22,639	20,077	17,406	14,664	11,728

2015 - Full Production and Average Rainfall

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
799	737	748	563	551	746	585	504	559	697	803	806
0	0	0	0	0	2,610	2,045	0	0	0	0	0
0	0	0	0	0	5,321	4,170	0	0	0	0	0
0	0	0	0	4	1,282	993	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
1,562	1,298	1,094	726	500	393	437	656	816	1,062	1,240	1,437
1,790	1,790	1,790	1,790	1,790	0	0	1,549	1,790	1,790	1,790	1,790
515	515	515	294	0	294	294	294	515	515	515	515
0	0	0	0	0	0	0	0	0	0	0	0
8,660	5,793	3,143	897	0	9,271	16,333	14,338	11,776	9,106	6,363	3,427

Table R3 Water Balance for Northern Pond

Variable Terms	Units	2011					2012 - Construction and Average Rainfall										
		October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	
Inputs																	
Rainfall (Average) (Therry Street, Bombala)	mm/month	55.3	63.7	64.0	63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0	
Direct Rainfall (Northern Pond)	m ³ /month	320	369	371	367	339	344	259	253	343	269	232	257	320	369	371	
Runoff (Remainder of Site)*	m ³ /month	0	0	0	0	0	0	0	0	1,483	1,163	0	0	0	0	0	
Outputs																	
Evaporation (Average) (Orbost, 2010)	mm/month	105	123	143	155	129	109	72	50	39	43	65	81	105	123	143	
Direct Evaporation (Northern Pond)	m ³ /month	489	570	661	719	597	503	334	230	181	201	302	376	489	570	661	
Water Usage (Treatment Plant)	m ³ /month	728	728	728	728	584	0	0	0	896	896	843	0	0	0	0	
Cumulative Dam Storage	m ³	3,869	2,940	1,922	842	0	0	0	23	773	1,107	194	76	0	0	0	

New treatment plant commences operation at 50% capacity

Fixed Terms

Areas	Area (m ²)	Runoff Ratios (% x 10 ⁻²)
-Total Area 4 Area	49000	-
-Northern Pond	5795	1
-Remainder of Area 4 (during construction)	43205	0.58
-Remainder of Area 4 (post development)	43205	0.84

Notes

* In an average year, runoff from site only occurs when rainfall exceeds evaporation (typically only winter).

2013 - Full Production and Average Rainfall

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
367	339	344	259	253	343	269	232	257	320	369	371
0	0	0	0	0	2,148	1,684	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
719	597	503	334	230	181	201	302	376	489	570	661
0	0	0	0	0	1,758	1,758	305	0	0	0	0
0	0	0	0	23	576	570	195	76	0	0	0

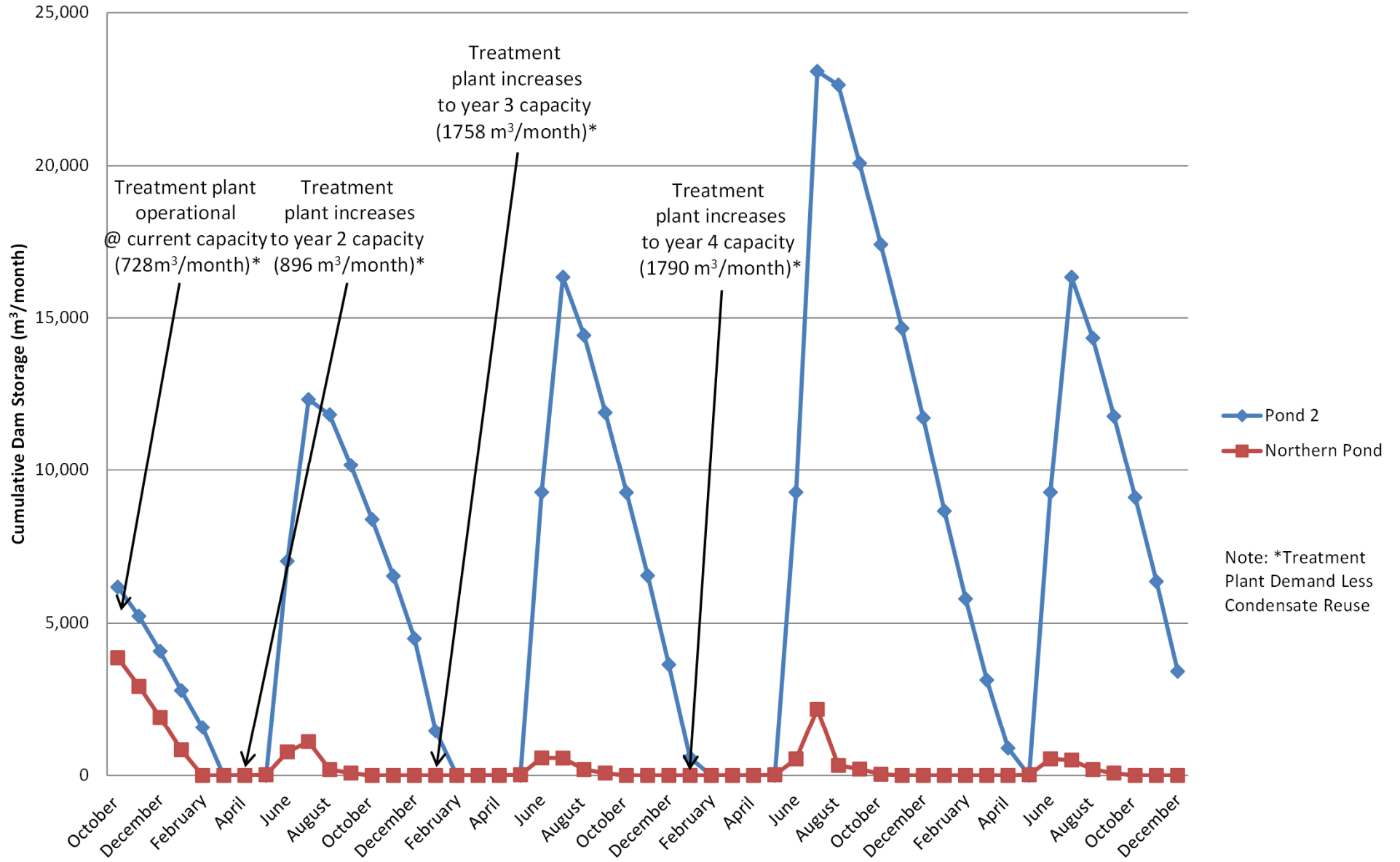
2014 - Full Production and 4% AEP, 144 Hour Rainfall Event

January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	86.4	40.0	44.4	55.3	63.7	64.0
367	339	344	259	253	343	501	232	257	320	369	371
0	0	0	0	0	2,148	3,136	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
719	597	503	334	230	181	201	302	376	489	570	661
0	0	0	0	0	1,790	1,790	1,790	0	0	0	0
0	0	0	0	23	544	2,189	329	211	43	0	0

2015 - Full Production and Average Rainfall

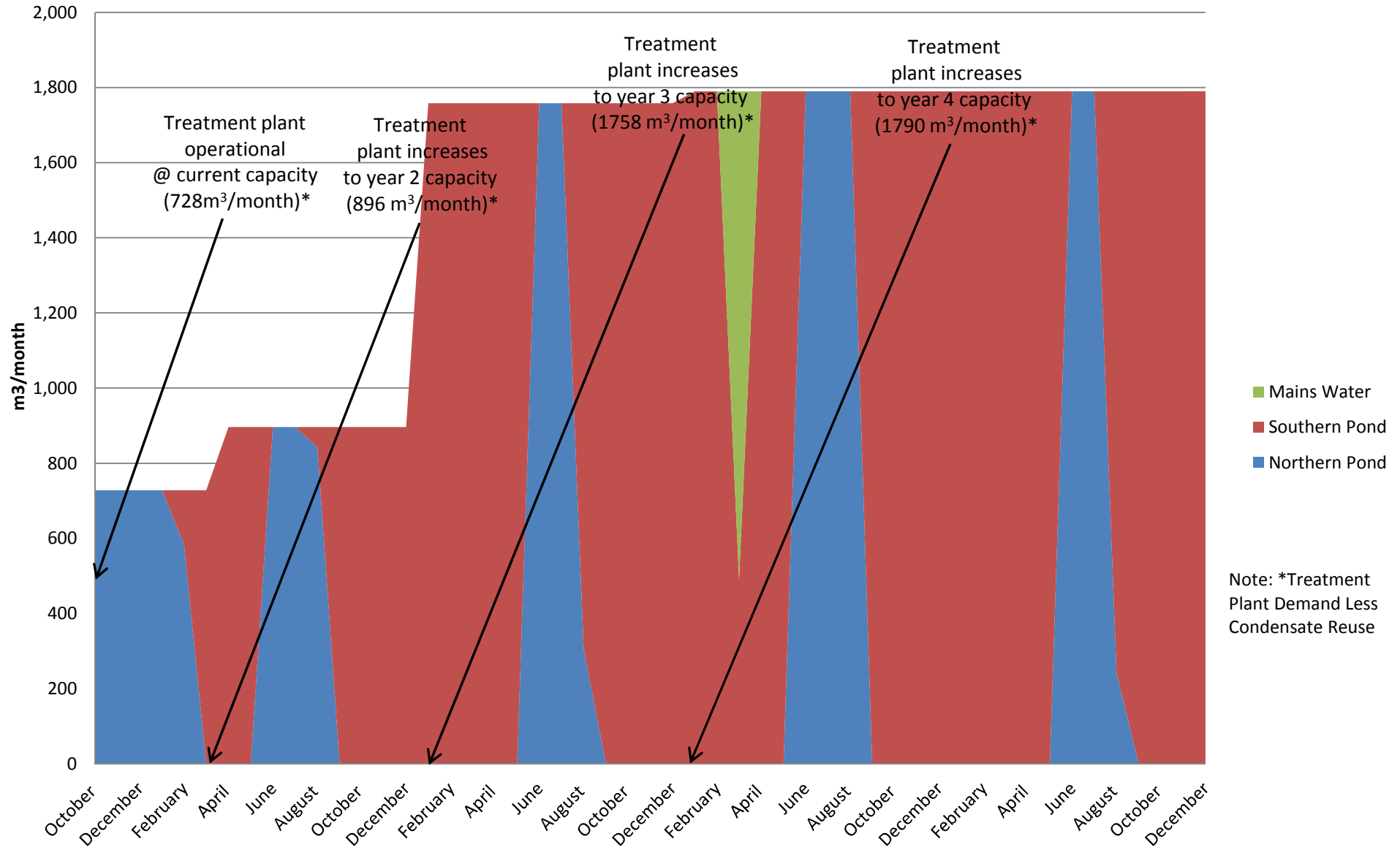
January	February	March	April	May	June	July	August	September	October	November	December
63.4	58.5	59.4	44.7	43.7	59.2	46.4	40.0	44.4	55.3	63.7	64.0
367	339	344	259	253	343	269	232	257	320	369	371
0	0	0	0	0	2,148	1,684	0	0	0	0	0
155	129	109	72	50	39	43	65	81	105	123	143
719	597	503	334	230	181	201	302	376	489	570	661
0	0	0	0	0	1,790	1,790	241	0	0	0	0
0	0	0	0	23	544	506	195	76	0	0	0

Northern Pond and Pond 2 Predicted Water Levels With Time



Note: *Treatment Plant Demand Less Condensate Reuse

Monthly Water Source Contribution



Application 07_0161 - Modification

Appendix G

Updated Preliminary Hazard Analysis

Bombala Sawmill Project

25 November 2011



DONGWHA TIMBERS
www.tascoaustralia.com.au

Report

Preliminary Hazard Analysis Supplement - Bombala Sawmill Expansion

Date: 4 November 2011, Revision: 0 (Final), Job # J0110290, Folder # F11734

Prepared For

Dongwha Timbers

Julia Beck, Position: Project Engineer, The Fifth Estate

Ph: 0410 667 149, Email: julia@fifthestate.com.au

Prepared By

Advitech Pty Limited

Rachel Kneller, Ph: 02 4924 5400, Email: rachel.kneller@advitech.com.au

1. INTRODUCTION

Advitech Pty Limited was engaged by Dongwha in 2009 to prepare a Preliminary Hazard Analysis (PHA) as part of the Environmental Assessment (EA) of the expansion of their integrated sawmilling and value adding facility near Bombala in NSW. The development will increase the timber processing capacity at the site to 400 000 tonnes per annum of softwood log input.

A PHA was prepared in accordance with the Department of Planning's *Multi-Level Risk Assessment, 1997, Hazardous Industry Planning Advisory Paper No. 4* and *Hazardous Industry Planning Advisory Paper No. 6*. Since consent was given, the proponent has changed one of the treatment chemicals to be used on-site. The change allows for a smaller volume of chemicals to be stored and transported.

This supplementary report was prepared to address the change in chemical storage and transport and assess the impact these changes have on the overall risk of the proposed facility upgrade. It should be read in conjunction with the original PHA completed on 30 October 2009. The specific change(s) since 30 October 2009 result in the storage and handling of reduced quantities of less hazardous dangerous goods. As would be expected, the overall level of risk associated with the facility is no higher as a consequence of the changed chemical treatment regime.

It should be noted that this report was prepared by Advitech Pty Limited for Dongwha Timbers ("the customer") in accordance with the scope of work and specific requirements agreed between Advitech and the customer. This report was prepared with background information, terms of reference and assumptions agreed with the customer. The report is not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing.

1.1 Site Location and Surrounding Land Users

Dongwha Timbers currently operate a timber processing facility near Bombala in southeast New South Wales (Lot 2, DP 1016573, Lot 1, DP 236109 and Lot 27 DP 1061792).

The land is zoned 1(a) Rural Zone under the *Bombala Local Environmental Plan, 1990*. The nature of current surrounding land use can be broadly classified as mixed agriculture. The specific mixed agricultural land use applications adjacent to Dongwha Timbers include grazing, cultivation and forestry. The closest sensitive receiver is a residence named 'The Parsonage', located approximately 500 m northwest of the site. The township of Bombala is located 2 km to the northwest.

1.2 Project Description

The facility currently undertakes the processing of 100,000 tonnes of log input annually. The proposed development will boost this annual processing rate to 400, 000 tonnes of softwood log input.

The main processes of the new development are sawmilling and pole production. The proposed infrastructure includes:

- Log yard processing and sorting system;
- Sawmill with integrated sorting and stacking system;
- Treatment plant;
- Heat plant, kilns and dry storage building;
- Dry mill building;
- Hard stand areas for log storage; and
- Fully enclosed bark, chip and sawdust bins fed by conveyors.

The layout of the proposed mill facilities is shown in **Figure 1**. The changes to the original proposed upgrade involve the storage, handling and transport of dangerous goods in and out of the treatment plant. All other areas of the site will be according to the information in the original PHA.

Operations within the treatment plant involve impregnation of the timber with the appropriate chemical agents. Impregnation of the timber is achieved within a large vacuum vessel. Once processed, the treated timber is stored in an undercover bunded area for a suitable period allowing time to ensure all chemicals are fixed within the timber substrate matrix.

1.3 Dangerous Goods Storage

Since consent was granted, Dongwha has proposed to change one of the treatment chemicals to be used on-site. This involves the non-CCA treatment chemical, ACQ Type D which will be replaced with Osmose Micropro and Carboquat.

The following dangerous goods and hazardous substances will be stored at the site including:

- Sarmix Oxcell;
- Osmose Micropro;
- Carboquat;
- Determite Timber Framing Solution;
- Kathon WT;
- Spirax Sarco Sigma 1 (corrosion inhibitor);
- Methylated Spirits;
- Mineral Turpentine;
- Plaskem solvent;
- Valvoline G-05 coolant;
- WD 40; and
- LPG.

2. STATUTORY REQUIREMENTS

Preliminary risk screening of the proposed development is required under *NSW State Environmental Planning Policy No 33 (SEPP 33)*. SEPP 33 requires potentially hazardous and/or offensive developments to undertake a PHA to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls. Should the risk level exceed the criteria of acceptability, or if the controls are assessed as inadequate to prevent offensive impacts on the surrounding land users the development is classified as 'hazardous industry' or 'offensive industry' respectively and may not be permissible within most industrial zones in NSW.

A development may also be considered potentially hazardous with respect to the transport of dangerous goods. A proposed development may be potentially hazardous if the number of generated traffic movements (for significant quantities of hazardous materials entering or leaving the site) is above the cumulative annual or peak weekly vehicle movements. Table 2 in the document *Applying SEPP 33* (Department of Urban Affairs and Planning (DUAP), 1994) outlines the screening thresholds for transportation. If the development's transportation of dangerous goods exceeds the thresholds a route evaluation study should be completed in accordance with the route selection guidelines prepared by the Department of Planning.

2.1 Objectives

The objectives of this PHA supplement include:

- Identification of hazard scenarios associated with the changes to the proposed expansion of the sawmilling and pole production at Dongwha's Bombala Sawmill;
- Analysis of the consequences (effects) for people and the environment and their probability (likelihood or frequency) of occurrence for each hazard scenario;
- Qualitative assessment of relative risks by estimating the resultant risk to the surrounding land users and environment to provide guidance within any subsequent semi quantitative or quantitative risk assessments;
- Ensure that the proposed safeguards are adequate, and thus demonstrate that the operation will not impose a level of risk that is intolerable with respect to its surroundings; and
- Meet the requirements for inclusion of the hazard identification session minutes within the development EA.

3. RISK ASSESSMENT

In order to identify the potential hazards involved in the changes to the proposal a review of the original facilitated risk assessment of the treatment plant was conducted at the Advitech office on the 4 October 2011. The risk assessment review excluded all other areas of the plant as the changes to the proposal will only affect the storage and handling of dangerous goods within the treatment plant.

3.1.1 Objective

The objective of the risk assessment was to identify and evaluate risks associated with the changes to the proposed upgrade with the potential to create off-site impacts.

The risk assessment excluded occupational risks and detailed design issues.

3.2 Methodology

Each scenario identified in the original facilitated treatment plant risk assessment was assessed in relation to the revised dangerous goods consumption regime. Additional scenarios were then identified relevant to the changes. A systematic approach within the framework of AS 4360 Risk Management was used to identify risk scenarios and minimise the possibility of missing important information. The minutes of the meeting provide a record of the procedure used and the information obtained (**Appendix I**).

Section 3.3 in the original PHA outlines the terms and definitions used in the risk assessment review. The scoring tables that were used to estimate the risk level for each scenario are presented in **Appendix II**.

4. PRELIMINARY RISK SCREENING

Table 1 summarises the proposed inventories of substances to be stored within the treatment plant that are defined as Dangerous Goods (DG) in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code) and compares them against the storage screening thresholds in Table 3 of *Applying SEPP 33* (DUAP, 1994).

The original PHA contains a list of all the dangerous goods to be stored on the site. All other dangerous goods not stored within the treatment plant are in minor quantities and have not varied with these changes.

Table 1: Dangerous Goods Inventory for Treatment Plant

Chemical	Trade Name	ADG Class	Sub-Class	Packing Group (PG)	Area	Total Storage Capacity (m ³)	Screening Threshold Quantity (m ³)
Copper chrome arsenate	Sarmix Oxcell	8	6.1	III	Treatment Plant	25,000 L @ 60% 6,000 L @ 1.1% 60,000 L @ 1.8%	50 000 L
Dialkyldimethylammonium bicarbonate/carbonate solution	Carboquat	8	-	III	Treatment Plant	5,000 L @ 80%	50,000 L
Sodium nitrate copper carbonate hydroxide solution	Osmose Micropro	9	-	III	Treatment Plant	6,000 L @ 58%	-
Dilute mix of 1/3 Carboquat and 2/9 Osmose Micropro.	Mixture	-	-	-	Treatment Plant	60,000L @ 0.7-2%	-

4.1 Storage Quantity Screening

The original PHA found the proposed development to be potentially hazardous with regard to the storage and handling of Class 8 dangerous goods. There was a total of 212,000 L of Class 8, packaging group II to be stored on the site.

The updated development is also classified as potentially hazardous due to the 96,000 L total storage of Class 8 packaging III chemicals. The proposed changes have reduced the total storage capacity of potentially hazardous materials and the potential impact on the site and the surrounding land users as the packaging group of the Class 8 materials has changed from II to III. The packaging group number of a substance is an indication of how hazardous the material is within its dangerous goods classification. Packaging group II is more hazardous than packaging group III.

All other substances stored on-site are either stored at quantities below the threshold limits or are not classified as dangerous goods.

5. HAZARD IDENTIFICATION

5.1 General

Hazard identification is a systematic process listing potential causes and consequences (in qualitative terms). Reference is also made to proposed operational and organisational safeguards that would prevent such hazardous events from occurring, or should they occur, that would protect the plant, its equipment, people and the environment. This process enables the establishment at least in principle, of the adequacy and relevancy of proposed safeguards.

The aim of the hazard identification process is to highlight any residual risks associated with the interaction of the proposed treatment plant and bulk tanks with the surrounding environment. A range of possible hazard scenarios was developed and ranked in terms of consequence and likelihood in consultation with the relevant stakeholders.

5.2 Hazard Identification Tables

The hazard scenarios identified are presented in **Appendix I**. Each hazard scenario was evaluated in terms of consequence and likelihood using the scoring methodology from the tables presented in **Appendix II**. A qualitative assessment of the resultant risk was then made using the risk matrix in **Appendix II**. The hazards identified are a result of deviation from normal operations and the qualitative risk assigned to each scenario takes into account the inherent and proposed physical, operational and organisational safeguards designed to reduce the consequence and likelihood of these hazards. Risks identified as high or extreme by the risk ranking matrix were carried forward for further analysis if the incident posed significant off-site risk.

It is important to understand that the selection of the qualitative consequence score for each hazard identified is based on the most likely consequence given the existing physical safeguards only. It does not consider the soft barriers such as control systems, training or standard operating procedures.

The likelihood score is an estimation of the likelihood of the nominated consequence occurring. Alternatively, the likelihood score may be considered as an estimation of the effectiveness of the inherent and proposed physical, operational and organisational safeguards.

5.3 Assumptions

In undertaking the Hazard Identification Study a number of assumptions were made. These include:

- All plant and equipment is operated and installed in accordance with appropriate Australian Standards, codes and guidelines;
- The existing site will cease operations once the new site is commissioned;
- Dangerous goods quantities and locations are as notified/supplied by Dongwha Timbers;
- Dangerous goods are stored in accordance with the ADG Code, relevant standards and guidelines even if not a licensable quantity; and
- All equipment and systems are designed to be inherently safe.

5.4 Level of Risk Assessment

Applying SEPP 33 states:

- If any of the screening thresholds are exceeded then the proposed development should be considered potentially hazardous and a PHA is required to be submitted with the development application.
- If the quantities are close to the screening values and the development site is near a sensitive receiver then the proposed development is also considered to be potentially hazardous and a PHA is required.

Based on the above assessment the proposed development exceeds the storage threshold for dangerous goods Class 8 substances and therefore, further hazard analysis is required.

Multi-Level Risk Assessment (1997) provides guidance on choosing the level of assessment required based on dangerous goods classes. For Class 8 dangerous goods a qualitative analysis, which includes a demonstration of compliance with all relevant standards and codes and the published NSW risk criteria (HIPAP No. 4) should normally suffice. In particular, adequate measures to protect the biophysical environment should be clearly demonstrated. If the qualitative analysis cannot demonstrate there will be no significant risk (i.e. that risk criteria would be satisfied), a higher level of analysis will be required.

6. RISK ANALYSIS

The risk assessment aimed to ensure all identified scenarios are adequately addressed and that the potential for off-site impacts is reduced to as low as reasonably practicable (ALARP). ALARP may signify one or more of the following:

- All practical barriers and controls are in place to minimise the risk.
- Likelihood is so remote that risk is acceptable without further action.
- The level of risk is considered acceptable by the community.
- Further risk reduction is either impractical or the cost is grossly disproportionate to the improvement gained.

There was on high risk scenario identified which is detailed in **Table 2**.

6.1 Qualitative Risk Analysis

A qualitative assessment of the risks imposed by a development is sufficient where risk scenarios meet the criteria detailed in the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 4* (HIPAP No. 4). If these criteria are met then the proposal is deemed not hazardous to the surrounding land users and further quantitative assessment of risks is not warranted. The criteria are:

1. All 'avoidable' risks should be avoided to ensure that risks are not introduced in an area where feasible alternatives are possible and justified.
2. Where the consequences of a hazardous incident are significant to people and the environment, then all feasible measures should be adopted so that the likelihood of such an incident occurring is very low.
3. The consequences of the more likely hazardous events should be contained within the boundaries of the installation.
4. Where there is an existing high risk from a neighbouring hazardous installation, additional hazardous developments should not be allowed if they add significantly to that existing risk.

Irrespective of the cumulative risk level from the whole installation, *HIPAP No. 4* requires the risk implications of high consequence and high likelihood risk scenarios to be examined to ensure risks to people and the environment are minimised. There were no high consequence or high likelihood scenarios identified within the treatment plant.

All risks identified during the risk assessment with high cumulative, consequence and likelihood scores were assessed in accordance with *HIPAP No. 4* qualitative risk assessment criteria. There was one scenario identified with a high cumulative risk score which is outlined in Table 2. This scenario was identified in the original PHA.

There were two additional scenarios identified relevant to the changes to the development, scenario 1 and 17 outlined in **Appendix I**. They both had very low cumulative risk scores.

Table 2: Risk Register

Ref	Asset	Hazard	Scenario	Cause	Consequence	Current Barriers	C	L	R	Actions
3	Treatment Plant	Loss of Containment	Loss of containment from treated timbers	Failure to follow procedure	Chemicals drip onto truck and/or environment	Operational procedures to ensure correct product is dispatched	3	C	13	Ensure new treatment plant incorporates best practice technology and operating procedures

6.1.1 High Cumulative Risk Scenarios

6.1.1.1 Scenario 3 Treatment Plant

A loss of containment at the treatment plant may result in a loss of chemical agents to the environment.

1. All 'avoidable' risks should be avoided to ensure that risks are not introduced in an area where feasible alternatives are possible and justified.
This risk is not avoidable but easily managed through correct procedures and training. Spills to the environment will be avoided by allowing adequate time for chemical fixing and the availability of spill kits.
2. Where the consequences of a hazardous incident are significant to people and the environment, then all feasible measures should be adopted so that the likelihood of such an incident occurring is very low.
The consequence of this scenario occurring was described as moderate. All feasible measures including training, procedures and appropriate infrastructure will be adopted to ensure the likelihood of the incident occurring is very low.
3. The consequences of the more likely hazardous events should be contained within the boundaries of the installation.
The likelihood of this incident occurring was described as possible, however the identified safeguards will ensure any impacts are contained onsite.
4. Where there is an existing high risk from a hazardous installation, additional hazardous developments should not be allowed if they add significantly to that existing risk.
Neither the existing or proposed installations pose a high risk to the surrounding land users.

7. TRANSPORT OF DANGEROUS GOODS SCREENING

Applying SEPP33 states that proposed developments may be deemed potentially hazardous if the number of generated traffic movements, for significant quantities of dangerous goods entering and leaving the site, are above the cumulative vehicle movements shown in Table 2 of the guideline. The original PHA found that the development was not classified as potentially hazardous with respect to the transportation of dangerous goods.

The proposed changes to the dangerous goods in the treatment plant will result in no net change to the proposed number of truck movements. The new chemicals are more concentrated and therefore require smaller volumes to be delivered.

There is therefore no material change to the total truck movements at the site as a result of the modification. And the development is not classified as potentially hazardous with respect to transport.

8. CONCLUSIONS

All risks identified during the risk assessment with high cumulative scores have been qualitatively assessed and have demonstrated effective technical and management controls to ensure the ongoing safety of the proposed development. There were no identified scenarios with high likelihood or high consequence scores. None of the other hazard scenarios identified had the potential of presenting an unacceptable risk to the surrounding land users.

The transport screening thresholds for Class 8 were not exceeded.

It is recommended that management procedures be implemented that incorporate practices to prevent risk scenarios occurring through:

- Appropriate engineering controls, process monitoring and, physical inspections of all components of the storage tanks;
- Emergency Response Plan; and
- Training and education of personnel with regard to emergency response and location of safety equipment in the new areas.




It is concluded the overall level of risk associated with the facility is no higher as a consequence of the changed chemical treatment regime.

9. REFERENCES

The following information was used in the preparation of this report:

1. **Commonwealth Government**, 1999, *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code).
2. **Council of Standards Australia**, 2004, *Risk Management*.
3. **Department of Urban Affairs & Planning**, 1994, *Applying SEPP 33*, New South Wales Government.
4. **Department of Urban Affairs & Planning**, 1992, *State Environmental Planning Policy No. 33-Hazardous and Offensive Development*, New South Wales Government.
5. **Department of Urban Affairs & Planning**, 1990, *Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning*, New South Wales Government
6. **Department of Urban Affairs & Planning**, 1992, *Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis*, New South Wales Government.
7. **Department of Urban Affairs & Planning**, 1997, *Multi-level Risk Assessment*, New South Wales Government.

Endorsements

Function	Signature	Name and Title	Date
Written By		Rachel Kneller Process Engineer	04-11-2011
Checked By		Colin Barker Manager Process Engineering and Sustainability	04-11-2011
Authorised for Release By		Colin Barker Manager Process Engineering and Sustainability	04-11-2011

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Appendix I

Risk Assessment Minutes

RISK ASSESSMENT DETAILS AND CONTEXT

Client: Dongwha Timbers

Project: Expansion of Integrated Sawmilling and Value-Adding Facility, Near Bombala

Job Number: J0110290

Folder Number: F11734

Risk Context: Bombala Sawmill

Date: Tuesday, 4 October 2011

Author: Rachel Kneller

Objectives of Assessment: To document planning and environmental risks associated with the change of chemicals in the treatment plant to satisfy Council/DoP requirements and identify uncertainties in design and operation of facility. The risk assessment excludes OH&S and detailed design issues.

Agreed Scope, Boundaries, Limitations: Limited to planning and environmental risks (excludes OH&S risk and detailed design issues)

- Storage, handling and transport of dangerous goods;
- Equipment location;
- Process emissions to air/water/land (including waste handling and storage);
- Interactions between operations and surrounding land users.

Key Stakeholders: Dongwa Holdings
Fifth Estate
NSW Department of Planning
Bombala Council
Neighbours

RISK ASSESSMENT METHODOLOGY

Risk Context:	Bombala Sawmill
Introduction:	Advitech was engaged by Dongwha Timbers to conduct a risk assessment on expansion of their integrated sawmilling and value-adding facility, near Bombala. The risk assessment workshop was held on 04/10/2011.
Methodology:	The risk assessment was conducted as a review of the previous structured workshop, facilitated by Advitech and attended by relevant stakeholders. The results of the review were input directly into this worksheet by an Advitech representative. Risk scenarios were identified in a systematic process, utilising hazard guidewords described below.
Assets:	Assets were defined as "tangible and intangible items of value or processes, procedures or tasks performing as intended". The system(s) studied were broken down into assets on the basis of the steps of the process including log store and debarker, sawmill, kiln/steamer, dry mill, treatment plant and finished store and dispatch.
Hazards:	Hazards were defined as "sources of potential harm or situations with the potential to cause a loss". The hazard guidewords used to assist in risk identification covered the areas relating to societal risks.
Risk Classification:	Risk scenarios were classified (scored) according to Advitech's Risk Classification System.
Results:	The results of the risk assessment workshop are given in the following spreadsheet.
Note:	It should be noted that Advitech Pty Limited prepared these risk assessment workshop results for the client in accordance with the scope of work and specific requirements agreed between Advitech and the customer. These notes were prepared with background information, terms of reference and assumptions agreed with the customer. The results of the workshop are not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in these results, other than that which was intended at the time of writing.
Disclaimer:	<p>Any representation, statement, opinion or advice expressed or implied in this document is made in good faith, but on the basis that liability (whether by reason of negligence or otherwise) is strictly limited to that expressed on our standard "Conditions of Engagement".</p> <p>All Intellectual Property rights in this document are Commercial in Confidence and remain the property of Advitech Pty Ltd. This document must only be used for the purposes for which it is provided and not otherwise reproduced, copied or distributed without the express consent of Advitech.</p>

MEETING ATTENDANCE

04-Oct-11	Jim Kelty	Facilitator (Advitech)
	Rachel Kneller	Scribe (Advitech)



Context: Bombala Sawmill

Date: 04/10/2011

Asset: Treatment Plant

Ref	N/A	Hazard	Scenario	Cause	Consequence	Current Barriers	C	L	R	Action	Comments
1		Loss of Containment	Loss of containment of storage tanks	Explosion from mill damaging the tank and bund	Chemical spill within treatment area	Zero discharge bund designed to contain 120% of tanks as defined in Australian Standard. Tanks, plant and all equipment designed to comply with relevant Australian Standards. Entire system roofed and bunded. Containment dam will catch any runoff.	4	E	3	Test mixture to check pH to determine dangerous good classification.	Scenario scored low as there will be no offsite impacts
2		Noise	Tanker accident entering the site	Accident between tanker and forklift	Spill enters containment dam	Procedures to ensure safe entry of tankers transporting dangerous goods. Need to coincide with high rainfall event to escape offsite.	3	E	6	No further action required	
3		Loss of Containment	Non fixed product leaving the site	Failure to follow procedure	Chemicals drip onto truck and/or environment	Operational procedures to ensure correct product is dispatched. Chemical dilution once in field.	3	C	13	Ensure new treatment plant incorporates best practice technology and operating procedures	New chemicals are less hazardous than the originally proposed CCA.



Ref	N/A	Hazard	Scenario	Cause	Consequence	Current Barriers	C	L	R	Action	Comments
4		Noise	Noise generated by transport of material in and out of treatment plant	Noise impacts from forklift operation	Complaints from neighbours	Distance to closest neighbours 750 m. White noise reversing beepers fitted to on-site vehicles.	4	D	5	No further action required	
5	x	Visual Impact									
6		Air/Dust	Dust generated from vehicles	Vehicle movement	Complaints from neighbours	All roadways sealed. Housekeeping procedures in place to prevent build up of dust.	4	D	5	No further action required	Sawmill further away from closest neighbour and therefore improving current conditions
7	x	Vibration									
8	x	Fire/Explosion									
9	x	Transport									
10	x	Services									
11	x	Sensitive Areas									
12	x	Maintenance									
13	x	Timing									
14	x	Materials of construction									
15		Access	Unauthorised access of treatment plant	Sabotage of tanks	Chemical spill	Authorised access only Site manned 24 hours	4	E	3	Consider internal fence around tanks	Site attended 24 hours
16		Natural Hazards	Earthquake damaging bund and tanks		Chemical spill	Not in earthquake prone area Site manned 24 hours to allow quick response Emergency response plan	4	E	3	No further action required	New chemicals are less hazardous than the originally proposed CCA.

Ref	N/A	Hazard	Scenario	Cause	Consequence	Current Barriers	C	L	R	Action	Comments
17		Incompatible substances	Incompatible chemicals mixing	Multiple chemical spill in the same area	Possible toxic cloud	No known compatibility issues between proposed non-CCA chemicals and other treatment chemicals already approved	5	E	1	Ensure no strong acids or strong oxidising/reducing agents are brought into the treatment plant or chemical storage areas.	



Appendix II

**Risk Assessment Scoring
Tables**

Table 3: Classification of Consequence

Category	Personnel	Financial	Environment	Community, Compliance, Reputation
1 Catastrophic	Fatality	Huge loss > \$_____ . (e.g. > \$10m) (e.g. > \$1m)	Short and long term impacts; alteration to biological or biochemical systems; toxicological effects; shutdown during investigation. E.g. Ok Tedi (PNG), fish kills.	Inter/national public/media outrage; shutdown order; public enquiry; major prosecution and fines.
2 Major	Extensive injury or illness, permanent disability	Major loss \$_____ to _____ . (e.g. \$1m - 10m) (e.g. \$100k - 1m)	Offsite release; long-term impact (>1 reporting period); fine, investigation or prosecution. E.g. Significant discharge of pollutant into air or water.	Widespread public/media concern; major breach; significant fines; investigation.
3 Moderate	Injury or illness requiring hospital admission, LTI, restricted work	High loss \$_____ to _____ . (e.g. \$100k - 1m) (e.g. \$10 - 100k)	Offsite release; transient impact (<1 reporting period); reportable breach of license conditions; fine or prosecution. E.g. Persistent noise or odour complaints.	Public/media attention outside local area; regulation breach; reportable; fines likely.
4 Minor	Reversible injury or illness requiring offsite medical treatment	Medium loss \$_____ to _____ . (e.g. \$10 - 100k) (e.g. \$1k - 10k)	Contained onsite; clean-up may require outside assistance; reportable to authorities (e.g. EPA). E.g. large chemical spill (i.e. IBC, pallet of drums) into bund.	Local public/media attention; minor regulation breach; reportable to authorities.
5 Insignificant	Negligible injuries requiring first aid treatment (onsite) or less	Low loss < \$_____ . (e.g. < \$10k) (e.g. < \$1k)	Contained onsite; transient impact; not reportable. E.g. small chemical spill into bund.	Not noticeable to public/media, not reportable.

Table 4: Classification of Likelihood

Category	Description	Indicative Frequency
A Common	Expected to occur, happens often	1 a year or more frequent
B Likely	Has occurred, heard of it happening here or somewhere similar	1 in 10 yrs or so
C Possible	Could occur, unusual but possible, may happen within working lifetime	1 in 40 yrs or so
D Unlikely	Not expected to occur, remotely possible	1 in 100 yrs or so
E Rare	Conceivable only in exceptional circumstances, practically impossible	1 in 1000 yrs or less frequent

Table 5: Risk Assessment Matrix

		LIKELIHOOD					Ranking	Range	Priority
		A	B	C	D	E			
CONSEQUENCE	1	25	24	22	19	15	Extreme	20 - 25	Requires urgent and immediate attention, senior management response needed.
	2	23	21	18	14	10	High	12 - 19	Requires proactive management, senior management attention needed.
	3	20	17	13	9	6	Moderate	6 - 11	Requires active monitoring, management responsibility must be assigned.
	4	16	12	8	5	3	Low	1 - 5	Does not require active management, manage with routine procedures.
	5	11	7	4	2	1			

Application 07_0161 - Modification

Appendix H

Letter of advice regarding air quality impacts from this modification

Bombala Sawmill Project

25 November 2011



DONGWHA TIMBERS
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24 November 2011

Mr Hong Lee
Director
Dongwha Timbers Pty Ltd
PO Box 164
LARA VIC 3212

Melbourne
222 Kings Way
South Melbourne VIC 3205
Telephone +61 3 9690 0522
Facsimile +61 3 9690 0585

Sydney
3/538 Gardeners Road
Alexandria NSW 2015
Telephone +61 2 8338 1655
Facsimile +61 2 8338 1755

Dear Hong,

Re: Modification to Dongwha Timbers Pty Ltd, Bombala Sawmill Project, Application Number 07_0061 Mod 1

I understand that Dongwha Timbers Pty Ltd is requesting a number of changes to the project approval issued for the sawmill project in Bombala. These changes include the replacement of the previously proposed Alkaline Copper Quaternary solution with a different treatment chemical, and the replacement of the existing wood fired boiler with a gas boiler.

Replacement of the Alkaline Copper Quaternary Solution

The Alkaline Copper Quaternary (ACQ) solution which is currently used is delivered as a premixed and ready to use solution. The ACQ solution is highly dilute, and this requires a large volume of chemical to be delivered for its formulation. It is therefore proposed that the ACQ solution is replaced with a formulation which consists of two component chemicals (Osmose Micropro and Carboquat) which are mixed on-site rather than delivered as pre-mixed and ready to use. This modification reduces the volume of the chemical that has to be delivered overall. I understand that the Micropro product is an Osmose developed micronised copper chemical that is an improved timber treatment system. Whilst comprising of two chemical components, the active ingredients of copper and ammonium are the same.

The Environmental Assessment (EA) of November 2009 for the proposed expansion of the Bombala mill provided an assessment of the potential emissions to air, which included consideration of the potential emissions from the ACQ treatment process. The assessment was performed considering the site at full production capacity. The proposed change in chemicals is not considered to alter the air quality assessment in the EA.

Upgrade of the Wood Fired Boiler to Gas

Currently the project approval is for three gas fired boilers and one wood fired boiler (existing boiler). Dongwha Timbers is proposing to replace the wood fired boiler with a gas boiler. The boiler will be housed within the existing structure, and will not exceed the size of proposed new boilers at the site (10 MW).

Limits on air emissions were set in Table 1 of the Project Approval. These were established based on emission estimations made in the Application for Project Approval, and consideration of the predicted cumulative impact of air emissions from the boilers. The air emission limits for the gas fired boilers are less than those for the wood fired boiler for all pollutants. Replacing the wood fired boiler with a gas fired boiler is therefore expected to result in an overall cumulative reduction in air emissions for the project.

The reduction in air emissions will be shown in the full modelling of air emissions from the project, which will be provided in the Air Emissions Management Plan.

Should you wish to discuss any matter concerning this letter, please do not hesitate to contact me on 02 8338 1655.

Yours sincerely,



Peter J Ramsay & Associates

Application 07_0161 - Modification

Appendix I

Dust and Wood Residue Monitoring and Management Plan

Bombala Sawmill Project

25 November 2011



DONGWHA TIMBERS
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Application 07_0161

Dust and Wood Residue Monitoring and Management Plan

Bombala Sawmill Project

Revision 2
30 September 2011



DONGWHA TIMBERS
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1 INTRODUCTION

This plan has been prepared in accordance with Schedule 3 of the Project Approval for the expansion of the Dongwha Timbers (formerly Willmott Timbers) sawmill in Bombala. The condition for the plan is:

4. The Proponent must prepare and implement a Dust and Wood Residue Monitoring and Management Plan to the satisfaction of the Director-General. The plan must:

- (a) be prepared in consultation with DECCW and approved by the Director-General prior to the commencement of construction of stage 1;*
- (b) provide a detailed program for management of the existing wood residue stockpile:

 - i. describing how the stockpile would be monitored and managed;*
 - ii. describing the disposal options and progress achieved to date;*
 - iii. setting out the disposal strategy to be implemented, with detailed staging, linking to the stages of the mill expansion, and timing for complete removal of the stockpile;*
 - iv. outlining the contingency measures that would be implemented should the management of the stockpile prove insufficient, or the disposal strategy be delayed;**
- (c) quantify the volumes of wood residue to be produced once operating at full capacity;*
- (d) demonstrate that these volumes can be appropriately stored and disposed of;*
- (e) provide a monitoring strategy to identify:

 - i. any potential or actual failings in the management of dust and wood residue;*
 - ii. when excess wood residue is being produced and when milling is required to cease to avoid exceeding the capacity of the storage area; and**
- (f) outline the contingency measures that would be implemented should:

 - i. the management measures prove insufficient;*
 - ii. the disposal options change; or*
 - iii. the wood residue produced exceed the storage capacity on site.**

The plan is presented in two sections: Part A, which addresses the current operations of the site (which will continue until the new sawmill is operational), and Part B, which addresses the operations of the site once the new sawmill is operating. Part A also addresses the legacy wood residue stockpiles and specifies how they will be removed prior to the sawmill expansion project's completion.

1.1 CONSULTATION

In accordance with Condition 4 (a), this plan has been prepared in consultation with the Office of Environment and Heritage (formerly DECCW).

A draft of this plan was provided to the regional EPA office on 30 August. On 7 September 2011, the Operations Officer, South East Region (Queanbeyan) advised that there were no comments on the plan. A copy of the email sent is attached in Appendix A.

2 PART A: MANAGEMENT OF RESIDUE FROM CURRENT OPERATIONS

The operational and environmental impacts resulting from the stockpiles of wood residues on site created by the former owner are well documented by Dongwha and the EPA. The issues arising from the stockpiles culminated in the EPA issuing Pollution Reduction Program U2, Wood Waste and Residue Management Plan.

The Waste Management Plan is included to this report as Appendix B.

The plan addressed the current generation of wood waste on the site and outlined the management measures which have been implemented to manage both it and the legacy wood waste. The key outcome of the plan was that the legacy stockpiles were scheduled to be fully removed by mid-2013.

Dongwha submitted the plan to the EPA in mid-2010, and in September 2010, the Pollution Reduction Program was noted as being fulfilled.

The Waste Management Plan continues to be used as the basis of the management of wood waste on site, and remains appropriate for the duration of the construction project. The plan therefore fulfills the Project Approval's requirement to "provide a detailed program for management of the existing wood residue stockpile".

The specific elements of the Plan which relate to Condition 4(b) are summarised below.

i. describing how the stockpile would be monitored and managed;

The stockpiles have been surveyed in detail. Each load of wood residue which leaves the site is recorded, including both the volume and type of residue product, which distinguishes the legacy residue products from the residue products currently produced. The records are reconciled monthly to provide an accurate picture of the size and composition of the stockpiles. Further, weekly inspections of the stockpiles are undertaken to ensure they are not generating any off-site impacts.

The stockpiles are managed to maximize the rate at which their constituent products are value-added and sold. This is detailed in Section 4.2 of the Waste Management Plan.

ii. describing the disposal options and progress achieved to date;

Please refer to Section 4 of the Waste Management Plan attached in Appendix B.

Further, Appendix C contains a report which tracks estimated residue removal with actual removal.

iii. setting out the disposal strategy to be implemented, with detailed staging, linking to the stages of the mill expansion, and timing for complete removal of the stockpile;

Please refer to Figure 4.1, Long-Term Site Management Measures Table & Graph.

iv. outlining the contingency measures that would be implemented should the management of the stockpile prove insufficient, or the disposal strategy be delayed;

Please refer to Part B, Section 4.2.2 Contingency Management.

3 PART B: MANAGEMENT OF RESIDUE FROM EXPANDED OPERATIONS

3.1 DESCRIPTION OF WOOD RESIDUES

Wood residues including bark, untreated and treated damaged boards, chips and sawdust, pole waste and wood shavings are generated by several manufacturing processes during the existing and expanded sawmill operations. Wood residues generated by the expanded mill will continuously be removed from the site. All wood waste streams apart from wood shavings, will be stored in concrete bunkers and at times alternative approved collection points up to a total of 3 000 tonnes. The majority of concrete bunkers will be located in the western portion of the site adjacent to the expanded green mill with existing bunkers being retained to contain residues produced in the southern section of the site.

3.1.1 BARK WASTE

Pine logs will be delivered to the site bark-on, and will be de-barked on site. This bark will be sold as landscape mulch or removed from site for further processing, for which there is a ready market. The current production of bark waste is 5 000 tpa, increasing to 18,800 tpa once the expanded operation hits full capacity in 2015..

3.1.2 UNTREATED AND TREATED DAMAGED BOARDS

Prior to the timber treatment process, timber off-cuts and damaged boards are generated during the timber optimization and quality control process. Quality control checks are performed throughout the various production processes. Any damaged product identified will be returned to its original production point to be replaced and unrecoverable items sent to the chippers to be converted into pine woodchips ready for sales into the cardboard and pulp industry.

The treatment plant operators are the last quality control point in the production process. Any treated timber waste identified at this point will be segregated and sent to Kemps creek landfill for disposal, which is a facility registered to accept this type of waste.

3.1.3 CHIPS AND SAWDUST

Currently the uncontaminated (bark free) chips and sawdust generated by Operations are sold to businesses trading in the cardboard and animal bedding industries. Existing contracts will ensure this continues with the mill expansion. The material is currently sold to customers in NSW and Victoria. The increase in volume is estimated to be from 34,000 tpa to 143,300 tpa once the expansion hits full capacity in 2015.

A quantity of chips and sawdust in the existing wood residue stockpile has become cross contaminated with other material from neighboring stockpiles. The contaminated material has been separated and will be sold as downgrade landscape chip and as boiler fuel. A small portion will also be used as boiler fuel for the existing wood fired boiler until it is replaced by the new gas fired boiler which is planned for December 2011.

3.1.4 POLE WASTE

Pole waste is generated from the production of treated pine poles from logs. Currently approximately 22,000 tpa of pole waste is generated at the mill. The expanded Operations will retain the pole production plant with projected waste volumes to be 14,100 tpa.

Current pole waste production is sold to a company that remanufactures the material into a pine mulch product for the plant nursery industry along with soft fall protection material for children’s playgrounds. This is planned to continue into the expanded sawmill operations.

3.1.5 SHAVINGS

Approximately 16,400 tpa of shavings will be generated in the expanded Operations, increasing from the 2 000 tpa currently generated. Wood shavings can be used un several applications Dongwha’s plan is on sell the product to a remanufacturer to be based in Bombala who will process the product into animal bedding (turkey farms).

Shavings to be produced from the new planer mill will be disposed in a fully sealed system. An extraction process removes the shavings from the planer and is captured by a collector/filter. The shavings are then blown into a special-purpose semi-trailer. In order to fully seal the system, a return air pipe is fitted to the back door of the semi-trailer to draw positive air out. The system has the capacity to have 4 semi trailers online at one time, and when a semi-trailer is filled to capacity the trap door is automatically shut and the next semi-trailer commences filling. Once full the semi-trailers are removed offsite for disposal. Shavings that are not immediately removed from the site will be stored in the semi-trailers within the dry mill area. There will be no shavings stored in open areas.

3.1.6 WOOD RESIDUES SUMMARY

A summary of the wood residues generated at the Dongwha facility is shown in **Error! Reference source not found.**, and the density of the wood residues is shown in **Error! Reference source not found.**

Table 1 Summary of Wood Residue Generated

Residue Type	Approximate Current Volume (tpa) (based on current intake of 106,000 tpa)	Approximate Expanded Volume (tpa) (based on intake of 400,000 tpa)
Bark	5 000	18,800
Chips and sawdust (including chipped untreated timber and damaged boards)	34,000	143,300
Pole waste	22,000	14 310
Shavings	2 000	16,400
Total (tonnes per annum)	63,000	186,900
Total (m³ per annum)	~ 200,000	~740,000

There are differing bulk densities of residues generated by this project, which determines handling and storage of these materials onsite and during transportation. To clarify for the reader, the densities of the main materials associated with the project are shown below.

Table 2 Density of Wood Residues

Product	Density (tonnes/m ³)
Bark	0.29
Chips and sawdust (including chipped untreated timber and damaged boards)	0.29
Pole waste	0.36
Shavings	0.10

There is approximately a two-and-a-half fold increase in wood residue generation on a tonne basis, despite the four fold increase in production. This is due to better plant design, upgrading of old equipment and more efficient operations and procedures.

3.2 MANAGEMENT OF WOOD RESIDUES

The expansion of the Bombala sawmill means that although there will be a large increase in timber produced at the site, the production of waste will be proportionally less, with all waste having management measures in place so that it can be removed from the site as it is produced.

The primary management method for addressing the ongoing generation of wood residue products on site has been built into the design of the project. This includes using a debarker, so that clean bark products can be separated from other wood residue products as a more desirable product with ready markets. Also, the sawmill line has been designed to minimise waste production.

The secondary method is to establish off-take agreements for each product. The volumes of the contracts are matched with production volumes to prevent build-up. The contracts for each of the wood residue products are described below.

3.2.1 RESIDUE CONTRACTS

Different contracts are in place for different types of residue materials, due to their different applications as end products.

All contracts are entered into with the overarching principle that the off-take volume over a given period (e.g. week or month) will be sufficient to remove all of the waste produced by the sawmill. This means that each customer of residues has a contractual liability to remove all of the material as it is produced by Dongwha, thereby minimising the risk of build-up of any residue product on site.

The specific off-take contracts for each residue type are discussed below.

3.2.1.1 BARK WASTE / DE-BARKING

Pine logs delivered to the site bark-on, are currently de-barked on site under contract with all bark collected sold to the contractor. The Agreement requires the contractor to remove the bark as soon as practical and monitoring over the past 3 months indicates volumes stored on site to be below 80 tonne at any given time. The current agreement will continue until the commencement of the expanded Operations with new agreements to be reached 6 months prior to the commissioning of the new sawmill (expected December

2012). This contract may be extended, or a new contract let to a larger market player with the capacity to take the entire volume produced.

3.2.1.2 CHIPS

The current Sale Agreement is with a well known participant in the Australian Pulp and Paper Industry and sees the chip being sold for cardboard manufacture. The Agreement requires no stockpiling of product on site a practice often used by previous owners of the sawmill. The current agreement incorporates the increase in production as the expansion of Operations evolves.

3.2.1.3 SAWDUST

Negotiations are currently in progress that will see all sawdust produced from Operations sold and removed daily to a value adding facility based in Bombala specializing in the production of animal bedding. The term of the agreement will be a period of 5 years plus options.

3.2.1.4 POLE WASTE

The current agreement sees all pole waste being sold for landscape and soft-fall material for children's playgrounds. The current contract requires that loads are taken from site on a daily basis with no stockpiling developing as has happened in the past. Monitoring over the past 3 months indicates volumes stored on site to be minimal at any given time. Dongwha is in the process of re-negotiating its existing agreement to allow for an extension of time that will incorporate the expanded operations.

3.2.1.5 SHAVINGS

There is no agreement in place for the existing shavings material due to the low volumes currently produced.

In order to secure the sale of the shavings produced once the expanded Operations commence Dongwha is currently in negotiations with a business which will value add the product to allow it to be utilized in the animal bedding industry. The target completion date for the negotiations is December 2011.

3.2.2 CONTINGENCY MANAGEMENT

Factors which would trigger contingency management are listed below.

- Material can't be removed as contracted due to road closure during snow events
- Industrial Action
- Reneging of contract.

These factors relate to both the existing stockpiles, and wood residues continually produced at the site.

3.2.2.1 ROAD CLOSURE/INDUSTRIAL ACTION

The overall operation of the facility will be heavily reliant on road transportation to provide raw materials (logs) as well as removal of residues and the distribution of finished timber products to customers along the Eastern seaboard of Australia. The sizing of the log storage area is sufficient to supply the sawmill with

enough log to enable it to run for approx 3 days. If there were to be any event that should exceed this 3 day period, residue holding capacities would be closely monitored to ensure compliance and if necessary the operations would be either reduced or stopped.

It is noted that if transport stopped, logs would not be delivered to site, which would result in a stoppage of processing in any case; thus also stopping the production of residue materials. The storage capacity for both log input and residue output was aligned for this purpose to minimise disruption to site while providing for efficient land utilisation.

Companies contracted to remove residues from the site have indicated that they have sufficient capacity to remove additional buildup of wood residue should any event cause maximum storage capacity to be reached.

3.2.2.2 CONTRACTS

The overall viability of the mill to process sustainable plantation pine logs into finished timber products is highly reliant on the removal of all residues in a timely and efficient manner. Contracts are in place to provide a degree of certainty of this crucial exercise. These contracts have been raised with particular detail to the urgency of the removal process and also contain a process that needs to be adhered to should either party become in dispute.

The first contingency measure would be for Dongwha to approach alternative companies who have expressed an interest in taking the material. For several of the residue streams, Dongwha has received expressions of interest from other remanufacturers and export companies to remove residues under contract, which would be actively pursued should the opportunity arise.

As an alternative, through Dongwha's sister companies, woodchips and sawdust could be sold for utilization in the production of MDF and particleboard in counties such as South Korea and Malaysia. Utilisation of the multi-purpose wharf in Eden would assist in the facilitation of overseas freight.

Due to the above Dongwha feels that these alternate arrangements would allow the company to continue production without breaching its obligations under the EPL.

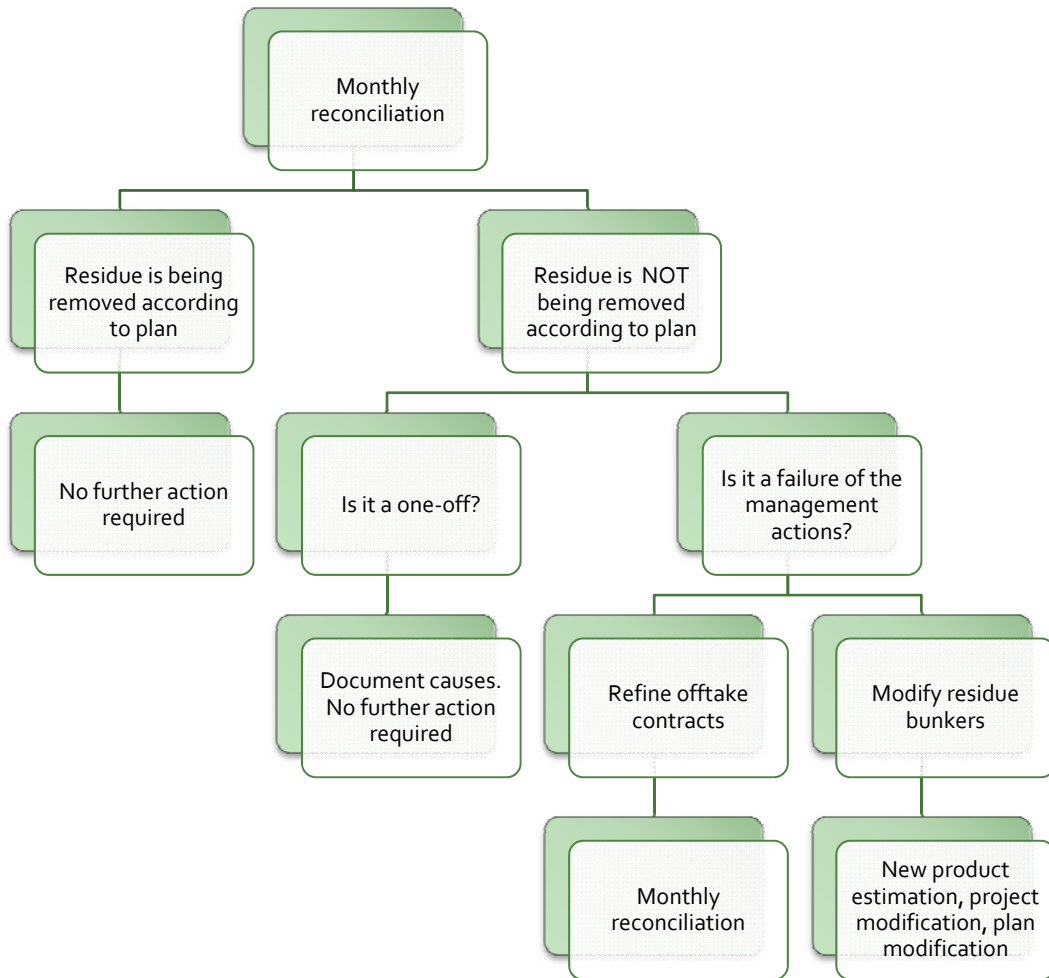
3.2.2.3 STORAGE CAPACITIES

The residue storage bunkers to be constructed for the expanded operations will have storage capacity of 3 days. However, the bunkers have been designed so that there is an excess of room directly behind the bunkers in the loading area. This area could be used to extend the bunkers on a temporary basis to accommodate approximately five days of production.

Throughout monitoring, should the company find it difficult to contain the volumes expected, a permanent extension of the bunkers would be feasible in their current location. Should this also fail, alternative locations for residue would be explored and utilised, subject to planning permission and the operational constraints of the site.

3.3 MONITORING

The following diagram summarises the monitoring strategy.



Residues removed from site are reconciled against actual residues produced; this information is drawn from production records that are maintained on a daily basis through a computerised inventory system that has the ability to track the movements at any given point with the information being live on the system. The close monitoring will allow quick and decisive action in stopping any exceeding of the site limit for residue holding.

Each month, removal of wood residues will be tracked against plan. If a discrepancy arises action will be taken immediately to rectify any problem identified. If there is a failure in this plan that exceeds the site limit for residue holding, the EPA will be notified immediately.

Site wide residue reports are compiled on a monthly basis and as part of these reports any contingency events and their management will be listed in the report.

Annual reviews of this plan are required to ensure its adequacy in line with the increases in production volumes. Amendments made during these reviews will be forwarded to the appropriate agencies and bodies.

4 CONCLUSION

The expanded sawmill will produce more wood residues than the existing operation as a direct result of the increased log volumes being processed (106,000 to 400,000 tonnes p.a.). However in light of advances in product management and technology for value-adding residues into saleable products, the new mill will have access to new markets and all of the wood residues will be able to be beneficially reused.

There are some events outside Dongwha's control which may affect the timing of wood residue removal, and when these events occur, contingency plans have been developed to minimise the disruption to ensure compliance with limits as per the commitments made by Dongwha.

5 CONTACT DETAILS

Russell Rowling, Tasco Australia
1 Sandy Lane
PO Box 146
Bombala NSW 2632

Ph: (02) 6459 5555
Fax: (02) 6458 3756
e: Russell.Rowling@tascoaustralia.com.au

Julia Beck, The Fifth Estate
GPO Box 5494
Sydney NSW 2001

Ph: (02) 9232 8282
Fax: (02) 9232 8275
e: Julia@fifthestate.com.au

Application 07_0161

Appendix A

Dust and Wood Residue Monitoring and Management Plan

Bombala Sawmill Project

Revision 2
30 September 2011



DONGWHA TIMBERS
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Julia Beck

From: Russell Rowling [Russell.Rowling@tascoaustralia.com.au]
Sent: Wednesday, 7 September 2011 9:56 AM
To: Bart Crawley
Cc: Julia Beck; Stuart Wilmot
Subject: FW: Dust Plan

Importance: High

Please find attached the OEM's reply to the draft dust plan.

Regards

Russell Rowling
Procurement Coordinator



1 Sandy Lane
PO Box 146
Bombala NSW 2632

Ph: (02) 6459 5555
Direct: (02) 6459 5509
Mobile: 0428 393 236
Fax: (02) 6458 3756
e: Russell.Rowling@tascoaustralia.com.au
w: www.tascoaustralia.com.au

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From: McGregor Duncan [mailto:Duncan.McGregor@environment.nsw.gov.au]
Sent: Wednesday, 7 September 2011 9:24 AM
To: Russell Rowling
Cc: Jones Sandie
Subject: RE: Dust Plan
Importance: High

Hi Russell,

OEH have reviewed the plan and have no comments on it as drafted.

Regards,
Duncan.

Mr Duncan McGregor

Operations Officer, South East Region (Queanbeyan)
Environment Protection and Regulation Group
Office of Environment and Heritage - DPC NSW
ph. 62297002 | fax. 62297006 | mob. 0427604194
duncan.mcgregor@environment.nsw.gov.au

From: Jones Sandie
Sent: Tuesday, 30 August 2011 3:28 PM
To: Usback Tim
Cc: McGregor Duncan
Subject: FW: Dust Plan

Tim,

Please trim.

Duncan,
FYI

Dr Sandie Jones | Head Operations Unit | South East Region (South Branch)
Environment Protection & Regulation Group | Office of Environment and Heritage | Department of Premier and Cabinet | ph.
62297002 | fax. 62297006 | [<sandie.jones@environment.nsw.gov.au>](mailto:sandie.jones@environment.nsw.gov.au)

From: Russell Rowling [mailto:Russell.Rowling@tascoaustralia.com.au]
Sent: Tuesday, 30 August 2011 2:57 PM
To: Jones Sandie
Subject: Dust Plan

Sandie,

I am still waiting on results from my recent water sampling of our rear dam, I have attached the completed residue and dust plan as required under the new development could you please review and comment on the plan. I have been told that I need to get this back to the consultant within ten days if possible, could you please let me know if this will be a problem from your end.

Best Regards

Russell Rowling
Procurement Coordinator



Phone: (02) 6459 5555
Mobile: 0428 393 236
Extension: 509
Fax: (02) 6458 3756
Russell.Rowling@tascoaustralia.com.au
www.willmotttimbers.com.au

Russell Rowling
Procurement Coordinator



1 Sandy Lane
PO Box 146
Bombala NSW 2632

Ph: (02) 6459 5555
Direct: (02) 6459 5509
Mobile: 0428 393 236
Fax: (02) 6458 3756
e: Russell.Rowling@tascoaustralia.com.au
w: www.tascoaustralia.com.au

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Application 07_0161

Appendix B

Dust and Wood Residue Monitoring and Management Plan

Bombala Sawmill Project

Revision 2
30 September 2011



DONGWHA TIMBERS
www.tascoaustralia.com.au

**WASTE MANAGEMENT PLAN
LICENCE NO. 11205
WILLMOTT TIMBERS PTY LTD
SANDY LANE BOMBALA NSW**

NSW Department of Environment and
Conservation

Date of Issue: 14 July 2010

Author:

Russell Rowling

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1 INTRODUCTION

Willmott Timbers Pty Ltd are in the process of implementing the following Waste Management plan with the aim of preventing the windborne off-site deposition of wood-residues associated with its processing facilities at their companies Sandy Lane site.

The need to develop and implement this plan was highlighted by the clean up notice No. 1106429 (see **Appendix A**) issued by the NSW Environmental Protection Authority (EPA) which is part of the Department of Environment, Climate Change and Water (DECCW).

The measures identified and evaluated during assessments by both EPA and Vantage Environmental Pty Ltd (VE) have been grouped into two categories of required actions the first being procedural measures and the second involve capital projects. Details of these measures can be found in the following sections of this plan.

Section 2 outlines the actions along with notes on each item carried out under the remedial works that were required under clean – up notice no 1106429.

Section 3 and 4 references the mid - term along with long term site management measures outlined in the remediation report for the parsonage dated 30 September 2009 written by VE

2 RESULTS OF REMEDIAL WORKS

A description of the remedial works undertaken at the subject site is listed in the following table.

2.1 Table of remedial works

Item	Actions	Date	Status
1. Mapping of areas affected by windborne wood residues	VE mapped all areas of The Parsonage pasture, Sandy Lane and dams.	21.9.2009	Complete
2. Removal of wood residue, contaminated water, soil and sediment from dams	Dam water emptied. Residue and sediment cleared using excavator. Dams refilled with fresh water.	21.9.09 – 23.9.09	Complete
3. Installation of temporary erosion and sedimentation controls	Silt fencing was installed by contractor	21.9.09 – 23.9.09	Complete
4. Re- establish aquatic vegetation	Relocated aquatic vegetation from Willmott Timbers site dams	23.9.09	Complete
5. Removal of wood residue from affected areas	Residues were removed from The Parsonage by mechanical and manual means.	16.9.09 – 30.9.09	Complete
6. Pasture reinstatement	Affected pasture was reseeded by a local contractor	12.9.09	Complete
7. Removal of wood residue from Sandy Lane	Residues were removed from Sandy Lane & Wedmore Lane by mechanical and manual means.	28.9.09 – 30.9.09	Complete
8. Monitoring of the effectiveness of measures	Weekly inspections of affected areas. Document weekly inspections as an ongoing log	30.9.09 April 2010	Complete

3 MEDIUM TERM SITE MANAGEMENT MEASURES

The following table demonstrates the medium term measures outlined in the Remediation Report for "THE PARSONAGE" clean – up notice No 1106429.

3.1 Table of Medium-Term Site Management Measures

Item	Actions	Date	Status
1. Earth Mound	Construct a earth mound adjacent to South – East boundary	Dec 09	Complete
2. Fencing	Boundary fencing was erected under development approval No DA.10.0024	Dec 09	Complete
3. Revegetation of earth mound	Planting of suitable trees and shrubs to the earth mound	30.4.2010	Complete

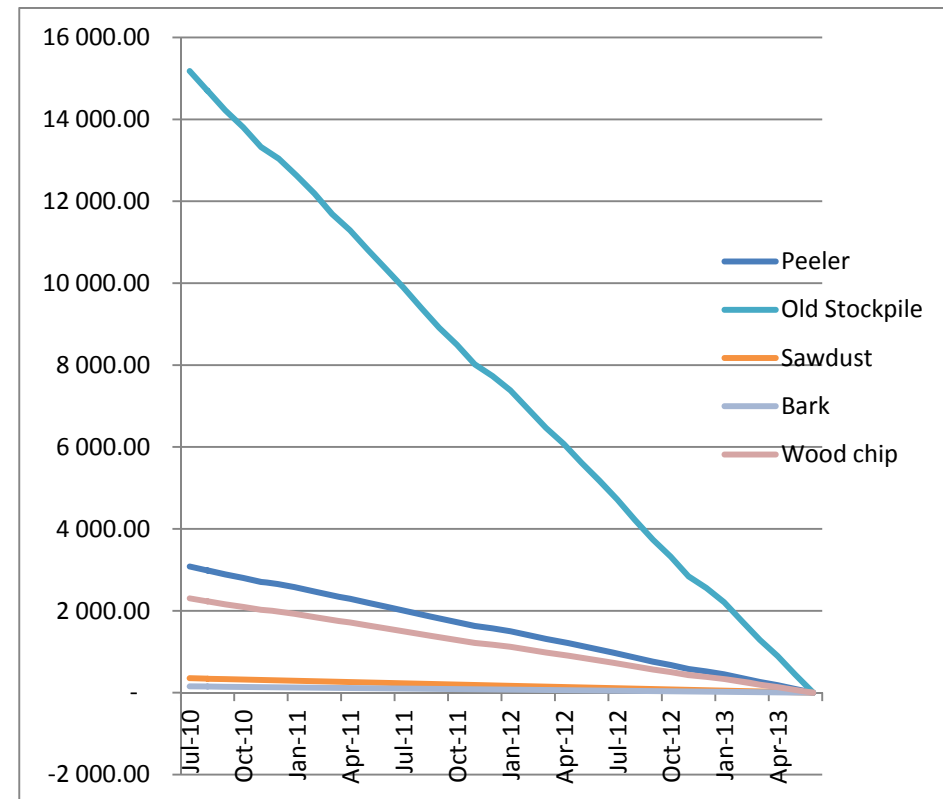
3.2 Notes on Table of Mid-Term Site Management Measures

1. On February 5th 2010 Dr Sandy Jones Head of Operations Unit and Lyndal Walters Regional Operations Officer of the DECCW visited our site and carried out an inspection of the partially completed site management measures. During their visit photographs were taken that demonstrated the effectiveness of the earth mound and fence along with the reduction in wood waste stockpiles.

4.1 Long-Term Site Management Measures Table & Graph (For supporting data refer appendix A)

Willmott Timbers Pty Limited T/A/ TASCO
Plan to Reduce Residue and Waste

Month	D Peeler	E Old Stockpile	C Sawdust	B Bark	A Wood chip
Jul-10	3,082.43	15,179.50	351.86	155.09	2,304.07
Aug-10	2,984.85	14,699.00	340.72	150.18	2,231.13
Sep-10	2,887.28	14,218.49	329.59	145.27	2,158.20
Oct-10	2,803.01	13,803.51	319.97	141.03	2,095.21
Nov-10	2,705.44	13,323.01	308.83	136.12	2,022.27
Dec-10	2,647.78	13,039.08	302.25	133.22	1,979.18
Jan-11	2,563.51	12,624.10	292.63	128.98	1,916.19
Feb-11	2,474.81	12,187.28	282.50	124.52	1,849.88
Mar-11	2,372.80	11,684.94	270.86	119.39	1,773.63
Apr-11	2,292.97	11,291.80	261.74	115.37	1,713.96
May-11	2,195.40	10,811.30	250.61	110.46	1,641.03
Jun-11	2,102.26	10,352.64	239.97	105.77	1,571.41
Jul-11	2,009.12	9,893.97	229.34	101.09	1,501.79
Aug-11	1,907.11	9,391.63	217.70	95.96	1,425.54
Sep-11	1,809.54	8,911.13	206.56	91.05	1,352.60
Oct-11	1,725.27	8,496.15	196.94	86.81	1,289.61
Nov-11	1,627.70	8,015.65	185.80	81.90	1,216.68
Dec-11	1,570.04	7,731.72	179.22	79.00	1,173.58
Jan-12	1,499.08	7,382.26	171.12	75.43	1,120.54
Feb-12	1,405.94	6,923.60	160.49	70.74	1,050.92
Mar-12	1,312.80	6,464.94	149.86	66.05	981.30
Apr-12	1,232.97	6,071.80	140.74	62.04	921.63
May-12	1,139.83	5,613.14	130.11	57.35	852.01
Jun-12	1,051.13	5,176.32	119.99	52.89	785.70
Jul-12	957.99	4,717.66	109.36	48.20	716.08
Aug-12	855.98	4,215.31	97.71	43.07	639.83
Sep-12	758.41	3,734.81	86.57	38.16	566.90
Oct-12	674.14	3,319.83	76.95	33.92	503.91
Nov-12	576.57	2,839.33	65.82	29.01	430.98
Dec-12	518.91	2,555.40	59.23	26.11	387.88
Jan-13	447.95	2,205.94	51.13	22.54	334.84
Feb-13	354.81	1,747.28	40.50	17.85	265.22
Mar-13	261.67	1,288.62	29.87	13.17	195.60
Apr-13	181.84	895.48	20.76	9.15	135.92
May-13	88.70	436.82	10.13	4.46	66.30
Jun-13	- 0.00	0.00	0.00	0.00	- 0.00



4.2 NOTES ON Long – Term Site Management Measures Graph

The above graph illustrates the various wood waste streams that are generated at Willmott Timbers Sandy Lane production facility.

Column A shows the pine wood chip that is expected to be generated by the existing sawmill section of the facility. The wood chip generated will be the result of processed sawn timber from de-barked logs and the volumes produced will be stored in a purpose built concrete, steel and timber bunker. This purpose built bunker has been installed and put into service as part of the recent development approval for the De – Barker installation. The bunker has been constructed to the south of the existing saw mill section of the site and is fed by various conveyers from the saw mill chipper.

This purpose built bunker has a maximum holding capacity of 250 tonne (t) with trucks carrying this product being loaded from the bunker to reduce the chance of contamination.

Currently 95 percent of this material is be sold under a formal agreement with Visy Pulp & Paper Tumut and the remaining 5 percent being supplied to a remanufacturer in Melbourne as part of a formal agreement to reduce existing stockpiles. Previously without de – barking this material had to be stockpiled on site with the only commercially viable method of disposal being to supply landscaping markets which have in the past proven difficult to predict and sensitive to seasonal change which let to large build ups of material.

Column B shows bark that is expected to be generated by the debarking of logs used by the sawmill section of the facility. Mighty Mulch has been engaged as a contractor to run the de – barking operations. The bark generated will be stored in a small stockpile in the southern most section of the site this location is on a high, dry, free draining area. As well as this area there is a containment area directly behind the de – barker itself which is capable of storing approximately 30 t of bark. Consideration has been given to the containment of this material with weekly inspections of Sandy Lane and the earthmound as well as fencing which has been erected as part of medium term measures is proving effective in ensuring material does not leave site.

It is expected that the maximum quantity of bark being temporarily stored at the site would not exceed 140 t, of this 140 t Mighty Mulch have indicated that approximately 25 percent may be screened prior to removal from site The Landscape market demand for bark products far exceeds the quantities that are expected to be generated at the site and at this stage Mighty Mulch customers are private and in confidence.

Column C shows the sawdust generated at the existing sawmill and paling mill sections. This material is sold to regular customers through Independent Mulch Pty Ltd. Approximately 25 percent of this material is blended into an alternative product known as Boiler Fuel. This product is then sold to sawmills in Tumut to fuel their heat plants. The saw dust generated will be stored in a small stockpile to the west of the chip overflow area directly behind the saw mill building. It is expected that the maximum quantity of sawdust being temporarily stored at the site would not exceed 300 t.

Consideration has been given to the containment of this material with weekly inspections of Sandy Lane and the earth mound as well as fencing which has been erected as part of medium term measures is proving effective in ensuring material does not leave site.

Column D shows the waste generated by the pole production section of the site. The material generated will be stored in small stockpiles as close as practically possible directly behind the saw mill building. It is expected that the maximum quantity of peeler waste being stored at the site would not exceed 300 t.

Waste in its raw form is screened and used to fuel the site heat plant at the boiler.

Waste in its raw form is sold through Independent Mulch Pty Ltd as listed below:

- Sold as general garden mulch into the landscape market
- Sold as feed stock to re-manufacturers in Melbourne for further value adding/processing

Processed waste is sold through Independent Mulch Pty Ltd as listed below:

- Processed onsite into soft fall mulch used in playgrounds etc.

When processing of raw rounder waste is required it is ground by tub grinding into various products, this processing is conducted adjacent to the planned small stockpiles. Orders placed for this material range from 20 – 40 t. However there is a commercial in confidence agreement through Independent Mulch to supply a large majority of this material to one single customer.

Consideration has been given to the containment of this material with weekly inspections of Sandy Lane and the earth mound as well as fencing which has been erected as part of medium term measures is proving effective in ensuring material does not leave site.

Column E shows historic stockpiles of residues stored at the site, this material will be further processed by Independent Mulch Pty Ltd utilising the services of Merimbula Sand and Gravel producing soft fall mulch and plantation mulch with the products produced being sold into strong existing markets. As is with the material from pole production some of this material is blended into Boiler Fuel to reduce the existing stockpile as a matter of priority.

Consideration has been given to the containment of this material with weekly inspections of Sandy Lane and the earth mound as well as fencing which has been erected as part of medium term measures is proving effective in ensuring material does not leave site.

As a tool to monitor the effectiveness of this plan it is proposed that the Willmott Timbers Procurement Coordinator Mr. Russell Rowling be responsible to monitor both volumes produced along with sales and movement of the various streams on a monthly basis. It is felt that this method of monitoring the volumes of wood fibre on site would allow the best management options to reduce volumes.

4.3 Long – Term Site Management Capital Works

1. Bombala Shire Council issued development consent on the 2nd of December 2009 for Willmott Timbers to install an on-site de-barker and chip handling system to remove the bark from logs before sawmilling. This means the resultant chip production is free of bark which will allow sales into a non seasonal, reliable market for recycling into paper products at Visy Pulp & Paper Tumut. A long term contract to supply woodchip has been entered into with Visy Pulp & Paper Tumut which will see 95 percent of production levels from the sawmill being committed to the one client.

At the time of compiling this plan the de barker has been installed and is in the commissioning stages. It is anticipated we will have development consent by mid July whereby the de barking process will be fully operational.

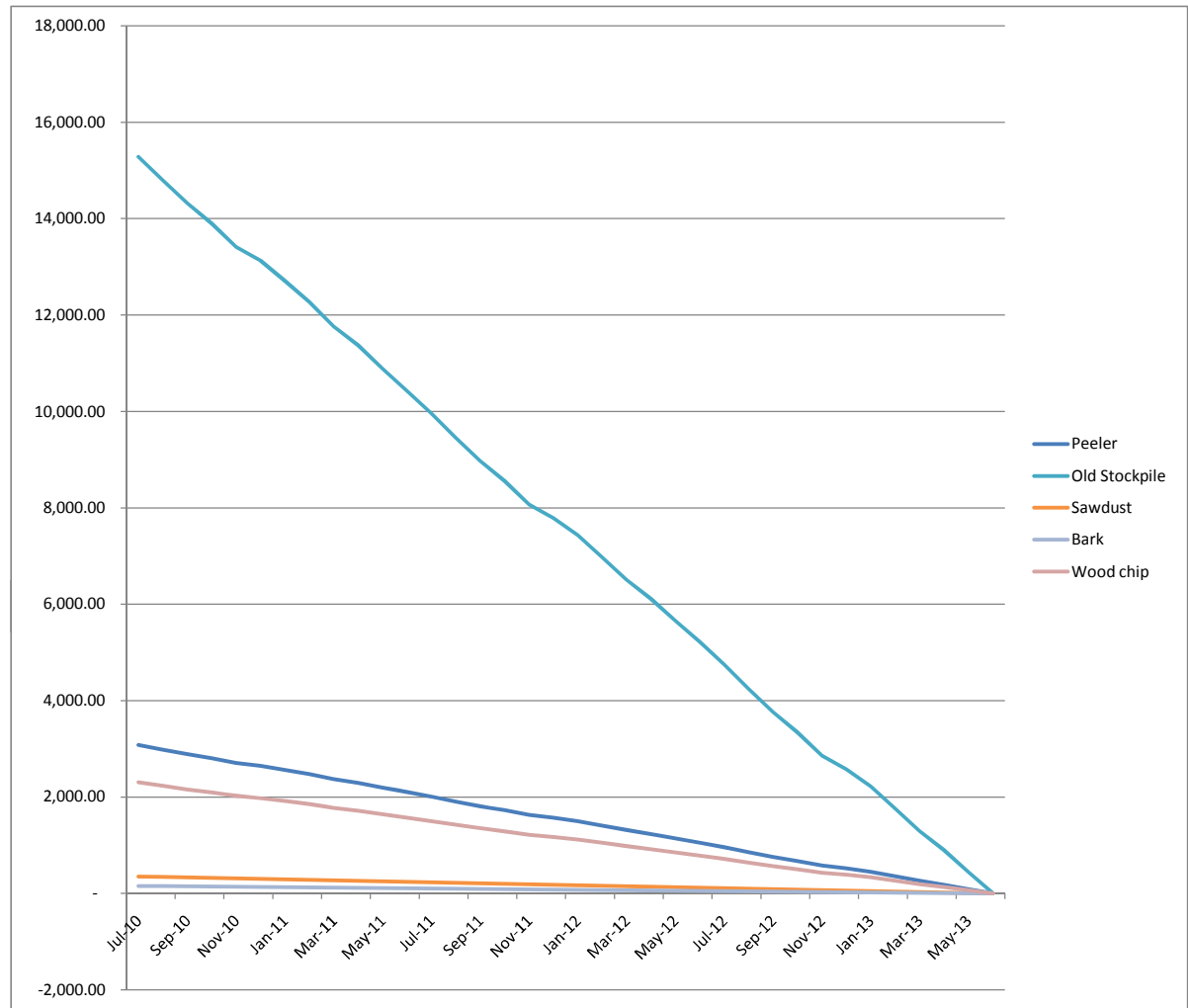
2. A computer aided timber recovery improvement system has been installed to aid the production of more timber and less waste in the sawmill and is currently proving to reduce the amount of pine wood chip that is being generated.

The initial estimate is this could equate to the generation of approximately 11,500m³ less wood residues per year.

3. Traditionally residues from timber pole production activities has required additional processing because there is limited demand for such material in its raw form. To assist in processing the current stockpile of raw form rounder waste, through the services of Independent Mulch Pty Ltd has engaged the services Merimbula Sand and Gravel to help turn this product into a more saleable form.

Willmott Timbers Pty Limited T/A/ TASC0
Plan to Reduce Peeler production and Production

Month	Peeler	Old Stockpile	Sawdust	Bark	Wood chip
Jul-10	3 082.43	15 282.25	351.86	155.09	2 304.07
Aug-10	2 984.85	14 798.49	340.72	150.18	2 231.13
Sep-10	2 887.28	14 314.74	329.59	145.27	2 158.20
Oct-10	2 803.01	13 896.95	319.97	141.03	2 095.21
Nov-10	2 705.44	13 413.19	308.83	136.12	2 022.27
Dec-10	2 647.78	13 127.34	302.25	133.22	1 979.18
Jan-11	2 563.51	12 709.55	292.63	128.98	1 916.19
Feb-11	2 474.81	12 269.77	282.50	124.52	1 849.88
Mar-11	2 372.80	11 764.03	270.86	119.39	1 773.63
Apr-11	2 292.97	11 368.23	261.74	115.37	1 713.96
May-11	2 195.40	10 884.48	250.61	110.46	1 641.03
Jun-11	2 102.26	10 422.71	239.97	105.77	1 571.41
Jul-11	2 009.12	9 960.95	229.34	101.09	1 501.79
Aug-11	1 907.11	9 455.20	217.70	95.96	1 425.54
Sep-11	1 809.54	8 971.45	206.56	91.05	1 352.60
Oct-11	1 725.27	8 553.66	196.94	86.81	1 289.61
Nov-11	1 627.70	8 069.91	185.80	81.90	1 216.68
Dec-11	1 570.04	7 784.05	179.22	79.00	1 173.58
Jan-12	1 499.08	7 432.23	171.12	75.43	1 120.54
Feb-12	1 405.94	6 970.46	160.49	70.74	1 050.92
Mar-12	1 312.80	6 508.70	149.86	66.05	981.30
Apr-12	1 232.97	6 112.90	140.74	62.04	921.63
May-12	1 139.83	5 651.13	130.11	57.35	852.01
Jun-12	1 051.13	5 211.36	119.99	52.89	785.70
Jul-12	957.99	4 749.59	109.36	48.20	716.08
Aug-12	855.98	4 243.85	97.71	43.07	639.83
Sep-12	758.41	3 760.09	86.57	38.16	566.90
Oct-12	674.14	3 342.30	76.95	33.92	503.91
Nov-12	576.57	2 858.55	65.82	29.01	430.98
Dec-12	518.91	2 572.69	59.23	26.11	387.88
Jan-13	447.95	2 220.87	51.13	22.54	334.84
Feb-13	354.81	1 759.11	40.50	17.85	265.22
Mar-13	261.67	1 297.34	29.87	13.17	195.60
Apr-13	181.84	901.54	20.76	9.15	135.92
May-13	88.70	439.78	10.13	4.46	66.30
Jun-13	- 0.00	0.00	0.00	0.00	- 0.00



Willmott Timbers Pty Limited T/A/ TASCO
Plan to Reduce Wood chip Stockpile and Production

Month	Work Days	Public Holidays	Actual work days	Opening Balance	Monthly Sales of Existing Wood chip stockpile	Expected monthly production	Closing Balance	Daily Sales	Daily Truck Loads	Monthly Truck Loads
Jul-10	22		22	2 377.00	72.93	2 215.28	2 304.07	104.01	3.71	81.72
Aug-10	22		22	2 304.07	72.93	2 215.28	2 231.13	104.01	3.71	81.72
Sep-10	22		22	2 231.13	72.93	2 215.28	2 158.20	104.01	3.71	81.72
Oct-10	21	2	19	2 158.20	62.99	1 913.20	2 095.21	104.01	3.71	70.58
Nov-10	22		22	2 095.21	72.93	2 215.28	2 022.27	104.01	3.71	81.72
Dec-10	15	2	13	2 022.27	43.10	1 309.03	1 979.18	104.01	3.71	48.29
Jan-11	21	2	19	1 979.18	62.99	1 913.20	1 916.19	104.01	3.71	70.58
Feb-11	20		20	1 916.19	66.30	2 013.89	1 849.88	104.01	3.71	74.29
Mar-11	23		23	1 849.88	76.25	2 315.97	1 773.63	104.01	3.71	85.44
Apr-11	21	3	18	1 773.63	59.67	1 812.50	1 713.96	104.01	3.71	66.86
May-11	22		22	1 713.96	72.93	2 215.28	1 641.03	104.01	3.71	81.72
Jun-11	22	1	21	1 641.03	69.62	2 114.59	1 571.41	104.01	3.71	78.01
Jul-11	21		21	1 571.41	69.62	2 114.59	1 501.79	104.01	3.71	78.01
Aug-11	23		23	1 501.79	76.25	2 315.97	1 425.54	104.01	3.71	85.44
Sep-11	22		22	1 425.54	72.93	2 215.28	1 352.60	104.01	3.71	81.72
Oct-11	21	2	19	1 352.60	62.99	1 913.20	1 289.61	104.01	3.71	70.58
Nov-11	22		22	1 289.61	72.93	2 215.28	1 216.68	104.01	3.71	81.72
Dec-11	15	2	13	1 216.68	43.10	1 309.03	1 173.58	104.01	3.71	48.29
Jan-12	18	2	16	1 173.58	53.04	1 611.11	1 120.54	104.01	3.71	59.43
Feb-12	21		21	1 120.54	69.62	2 114.59	1 050.92	104.01	3.71	78.01
Mar-12	21		21	1 050.92	69.62	2 114.59	981.30	104.01	3.71	78.01
Apr-12	21	3	18	981.30	59.67	1 812.50	921.63	104.01	3.71	66.86
May-12	21		21	921.63	69.62	2 114.59	852.01	104.01	3.71	78.01
Jun-12	21	1	20	852.01	66.30	2 013.89	785.70	104.01	3.71	74.29
Jul-12	21		21	785.70	69.62	2 114.59	716.08	104.01	3.71	78.01
Aug-12	23		23	716.08	76.25	2 315.97	639.83	104.01	3.71	85.44
Sep-12	22		22	639.83	72.93	2 215.28	566.90	104.01	3.71	81.72
Oct-12	21	2	19	566.90	62.99	1 913.20	503.91	104.01	3.71	70.58
Nov-12	22		22	503.91	72.93	2 215.28	430.98	104.01	3.71	81.72
Dec-12	15	2	13	430.98	43.10	1 309.03	387.88	104.01	3.71	48.29
Jan-13	18	2	16	387.88	53.04	1 611.11	334.84	104.01	3.71	59.43
Feb-13	21		21	334.84	69.62	2 114.59	265.22	104.01	3.71	78.01
Mar-13	21		21	265.22	69.62	2 114.59	195.60	104.01	3.71	78.01
Apr-13	21	3	18	195.60	59.67	1 812.50	135.92	104.01	3.71	66.86
May-13	21		21	135.92	69.62	2 114.59	66.30	104.01	3.71	78.01
Jun-13	21	1	20	66.30	66.30	2 013.89	- 0.00	104.01	3.71	74.29
Totals	747	30	717		1 591.30	48 333.39				

Truck Load 28 Tonnes
Existing Sawdust stockpile 2377 Tonnes
Planned Production Annually 24066 Tonnes
years 3

Application 07_0161

Appendix C

Dust and Wood Residue Monitoring and Management Plan

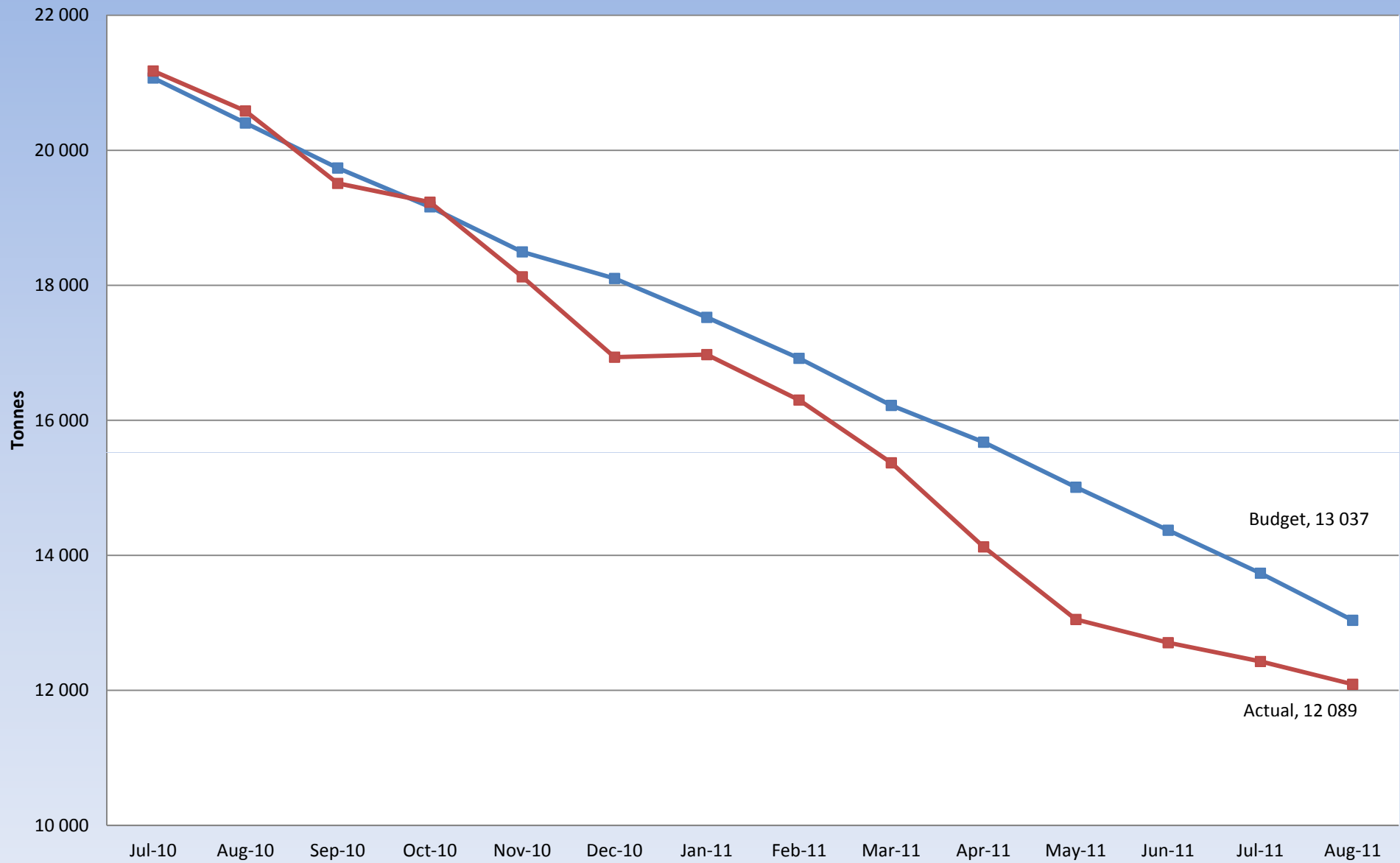
Bombala Sawmill Project

Revision 2
30 September 2011



DONGWHA TIMBERS
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Residue reduction Plan



4.1

Long-Term Site Management Measures Table & Graph (For supporting data refer appendix A)

Willmott Timbers Pty Limited T/A/ TASCO

Plan to Reduce Residue and Waste

Based on Lumbertrack Invoices

Month	Old Stockpile	Peeler	Sawdust	Bark	Wood chip	Budgeted Reduction	Expected Total tonnes	Old Stockpile	Peeler	Sawdust	Bark	Wood chip	Actual Reduction	Actual Remaining Tonnes
Jun-10	15 766	3 180	363	160	2 377		21 846	15 766	3 180	363	160	2 377		21 846
Jul-10	15 180	3 082	352	155	2 304	773	21 073	15 361	3 017	348	145	2 305	670	21 176
Aug-10	14 699	2 985	341	150	2 231	667	20 406	14 901	2 946	374	151	2 211	593	20 583
Sep-10	14 218	2 887	330	145	2 158	667	19 739	14 519	2 810	396	146	1 639	1 073	19 510
Oct-10	13 804	2 803	320	141	2 095	576	19 163	14 321	2 674	418	142	1 677	279	19 231
Nov-10	13 323	2 705	309	136	2 022	667	18 496	13 645	2 538	440	137	1 366	1 105	18 126
Dec-10	13 039	2 648	302	133	1 979	394	18 102	12 977	2 402	462	133	962	1 190	16 936
Jan-11	12 624	2 564	293	129	1 916	576	17 525	12 773	2 266	484	128	1 323	38	16 974
Feb-11	12 187	2 475	283	125	1 850	606	16 919	12 392	2 130	506	124	1 149	673	16 301
Mar-11	11 685	2 373	271	119	1 774	697	16 222	11 915	1 994	528	119	815	929	15 371
Apr-11	11 292	2 293	262	115	1 714	546	15 676	11 603	1 858	550	115	-	1 246	14 126
May-11	10 811	2 195	251	110	1 641	667	15 009	11 201	1 328	407	115	-	1 075	13 050
Jun-11	10 353	2 102	240	106	1 571	637	14 372	11 032	1 328	231	115	-	345	12 706
Jul-11	9 894	2 009	229	101	1 502	637	13 735	10 777	1 328	208	115	-	278	12 428
Aug-11	9 392	1 907	218	96	1 426	697	13 038	10 557	1 328	89	115	-	338	12 089
Sep-11	8 911	1 810	207	91	1 353	667	12 371							
Oct-11	8 496	1 725	197	87	1 290	576	11 795							
Nov-11	8 016	1 628	186	82	1 217	667	11 128							
Dec-11	7 732	1 570	179	79	1 174	394	10 734							
Jan-12	7 382	1 499	171	75	1 121	485	10 248							
Feb-12	6 924	1 406	160	71	1 051	637	9 612							
Mar-12	6 465	1 313	150	66	981	637	8 975							
Apr-12	6 072	1 233	141	62	922	546	8 429							
May-12	5 613	1 140	130	57	852	637	7 792							
Jun-12	5 176	1 051	120	53	786	606	7 186							
Jul-12	4 718	958	109	48	716	637	6 549							
Aug-12	4 215	856	98	43	640	697	5 852							
Sep-12	3 735	758	87	38	567	667	5 185							
Oct-12	3 320	674	77	34	504	576	4 609							
Nov-12	2 839	577	66	29	431	667	3 942							
Dec-12	2 555	519	59	26	388	394	3 548							
Jan-13	2 206	448	51	23	335	485	3 062							
Feb-13	1 747	355	41	18	265	637	2 426							
Mar-13	1 289	262	30	13	196	637	1 789							
Apr-13	895	182	21	9	136	546	1 243							
May-13	437	89	10	4	66	637	606							
Jun-13	-	-	-	-	-	606	-							

Application 07_0161 - Modification

Appendix J

Administration building architectural presentation

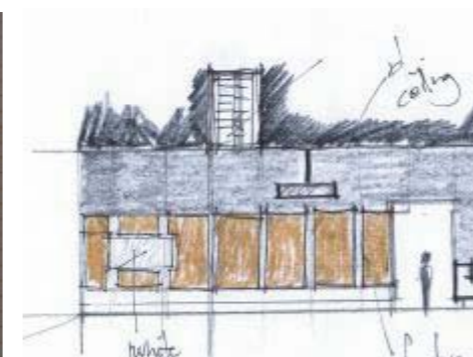
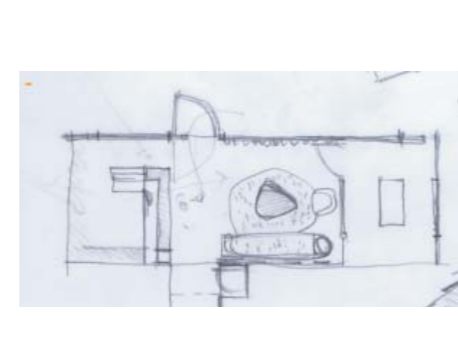
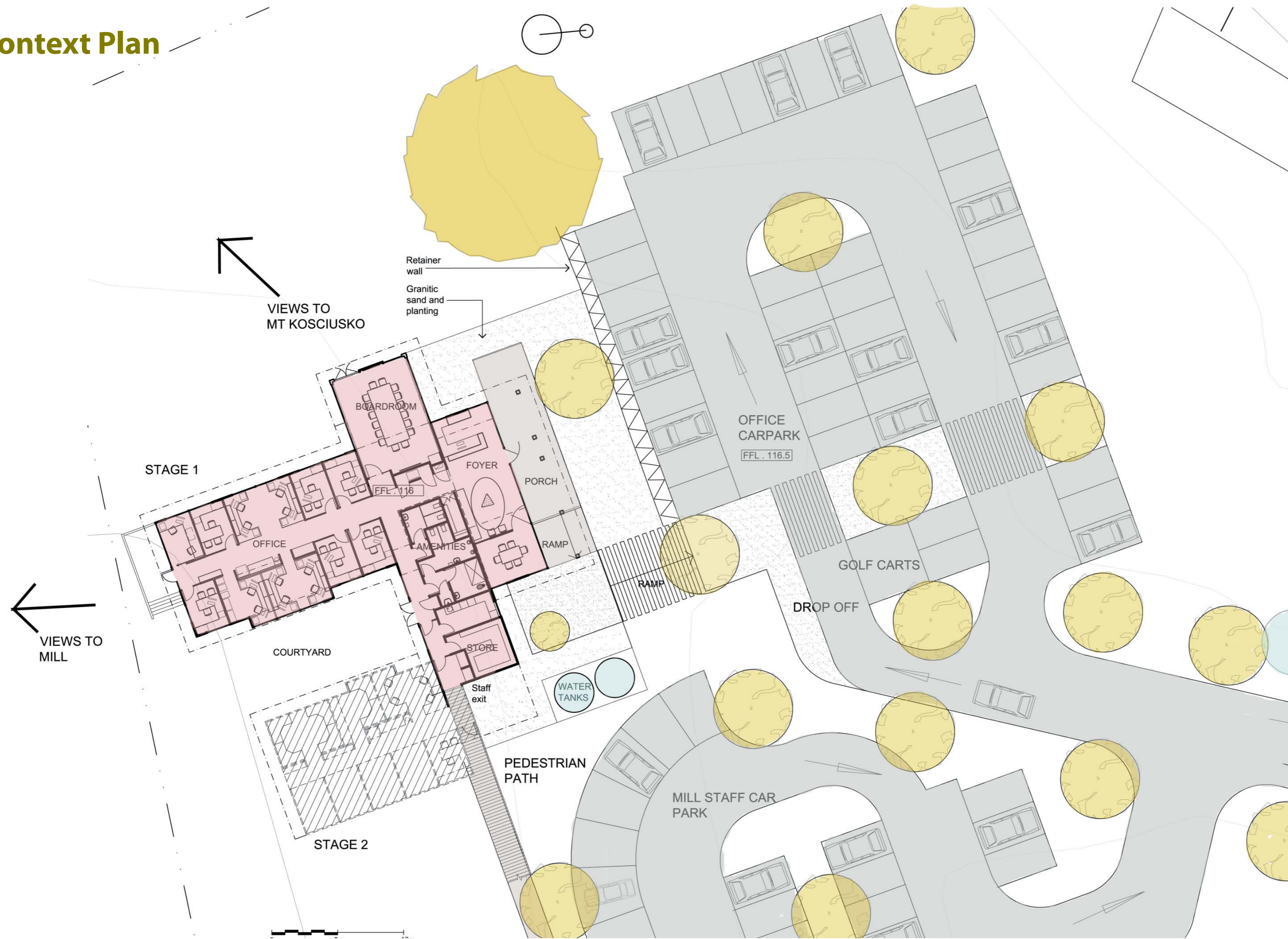
Bombala Sawmill Project

25 November 2011

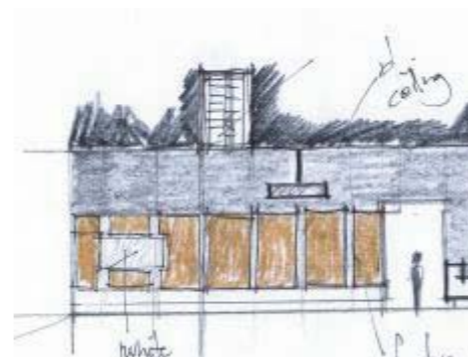
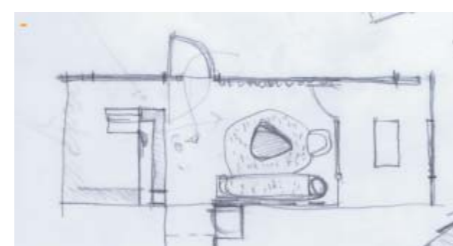
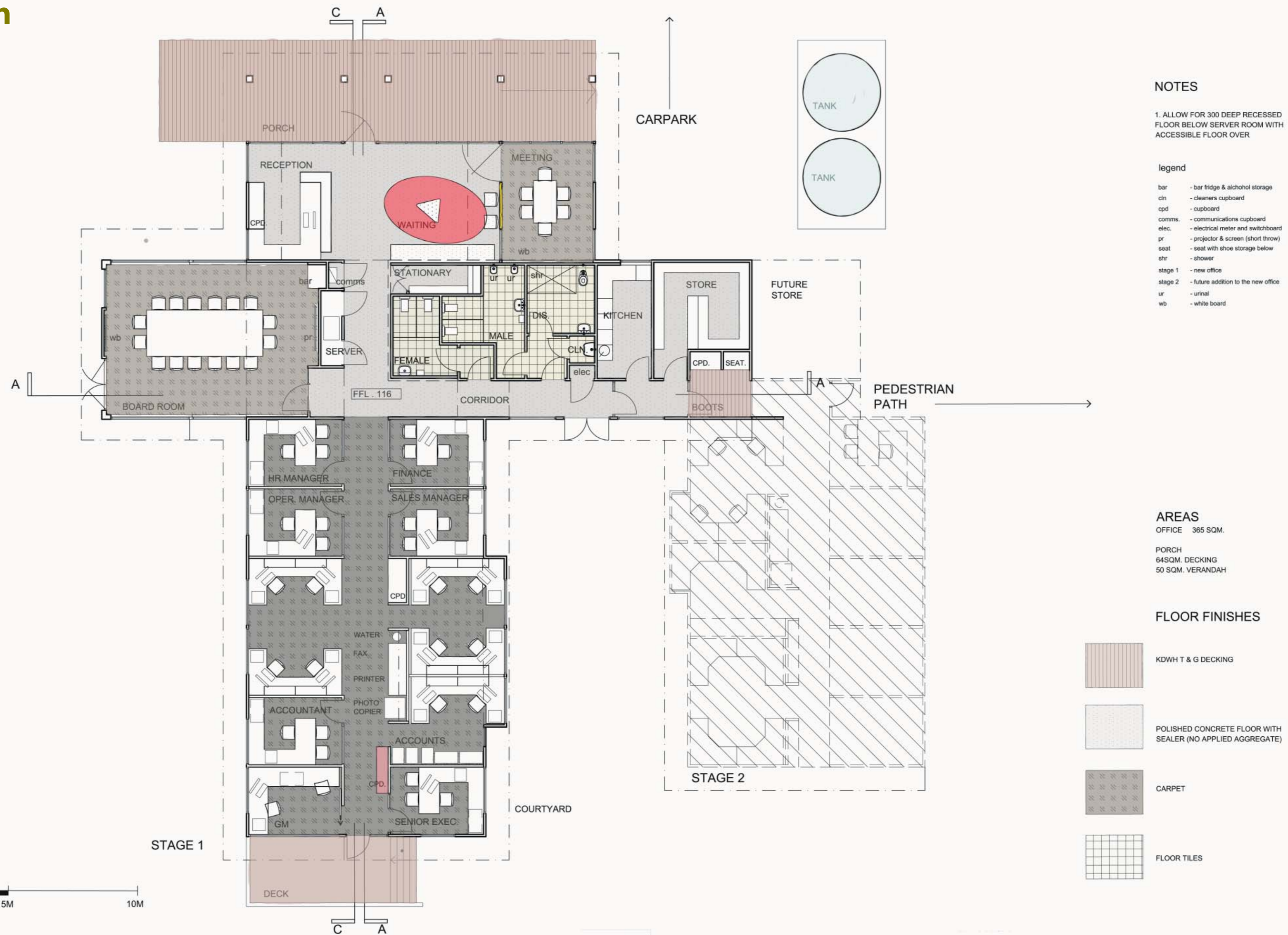


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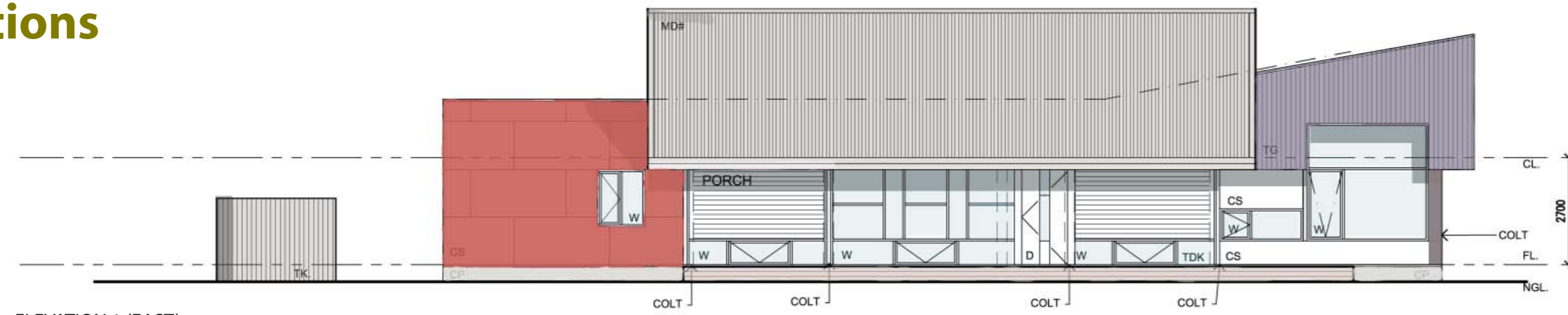
Context Plan



Floor Plan



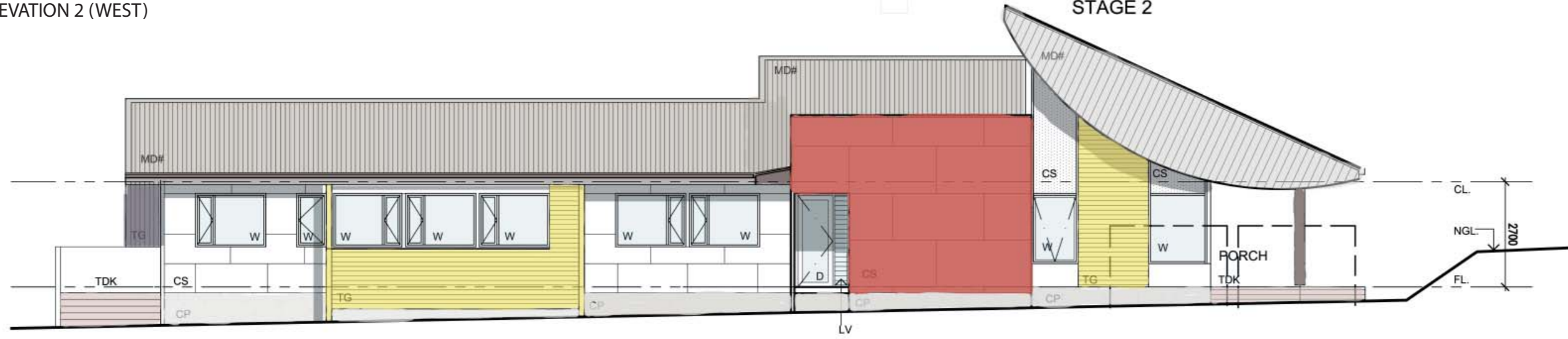
Elevations



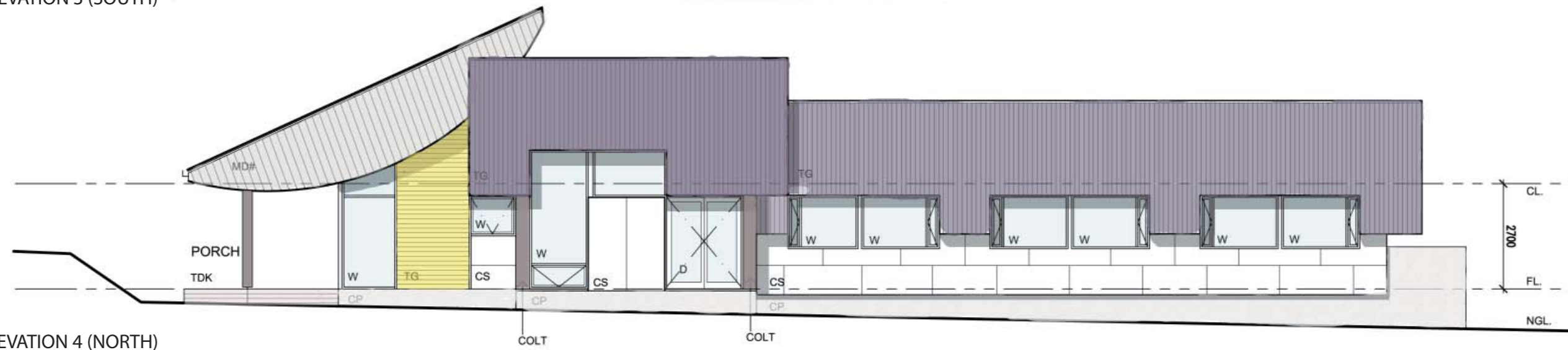
ELEVATION 1 (EAST)



ELEVATION 2 (WEST)

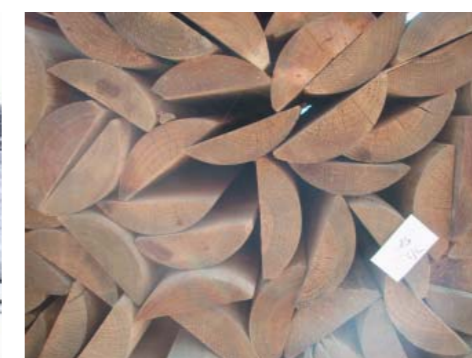
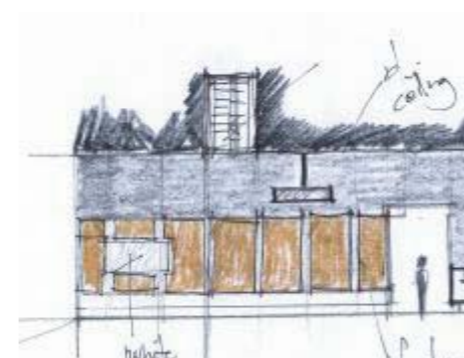
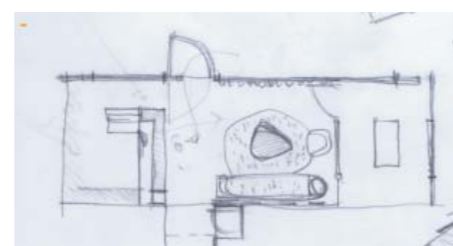


ELEVATION 3 (SOUTH)

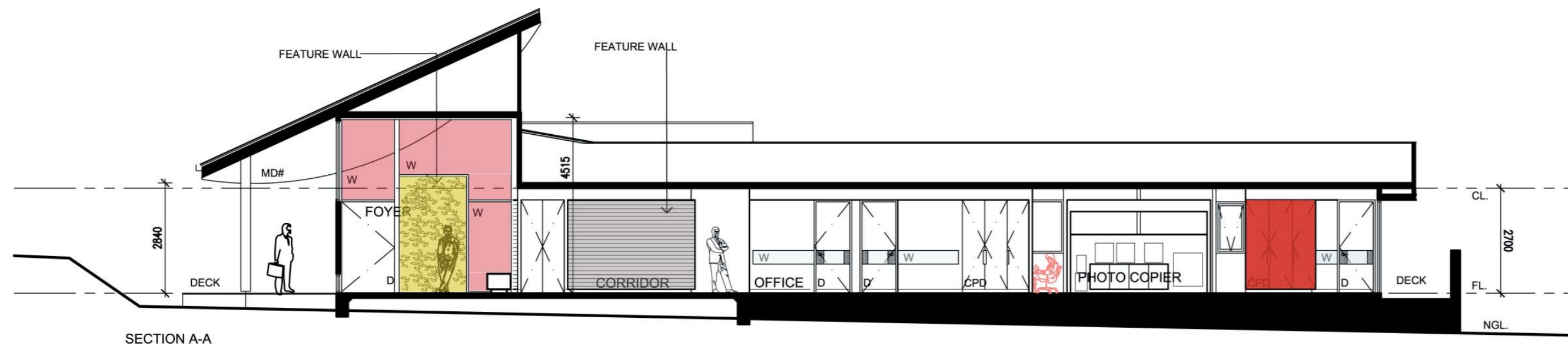


ELEVATION 4 (NORTH)

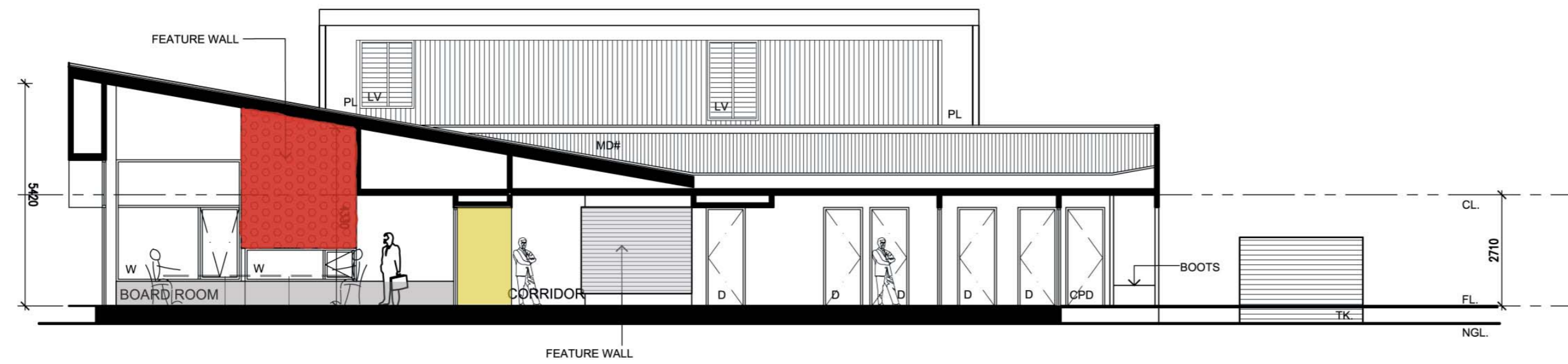
- legend
- ac - air conditioner split unit
 - bal. - balustrade refer to section details
 - cl - ceiling line
 - co... - custom orb roofing + roof angle
 - colt - 250-300 sq. timber column
 - cp - exposed concrete plinth
 - cs - 9mm compressed sheet, paint finish
 - d - door
 - dp - down pipe
 - el. - eaves lining, cement sheet, painted
 - elec. - electrical meter and switchboard
 - fa. - timber fascia, paint finish
 - fl - floor line
 - lv - glass louvre on timer for night flushing
 - fla - folded metal flashing
 - hr - hand rail to detail
 - md# - colourbond metal deck roof # degree fall
 - op - open
 - par - parapet folded metal capping over
 - pl - plywood, paint finish
 - rb - roof behind
 - rg - gutter to fascia
 - ro - roof over
 - rt - retainer wall, refer to structural and civil engineers drawings
 - rwh - rain water head
 - sl - slider
 - tdk - timber deck
 - tg - tongue & groove board, applied stain finish
 - tk - water tank
 - w - window, aluminium frame



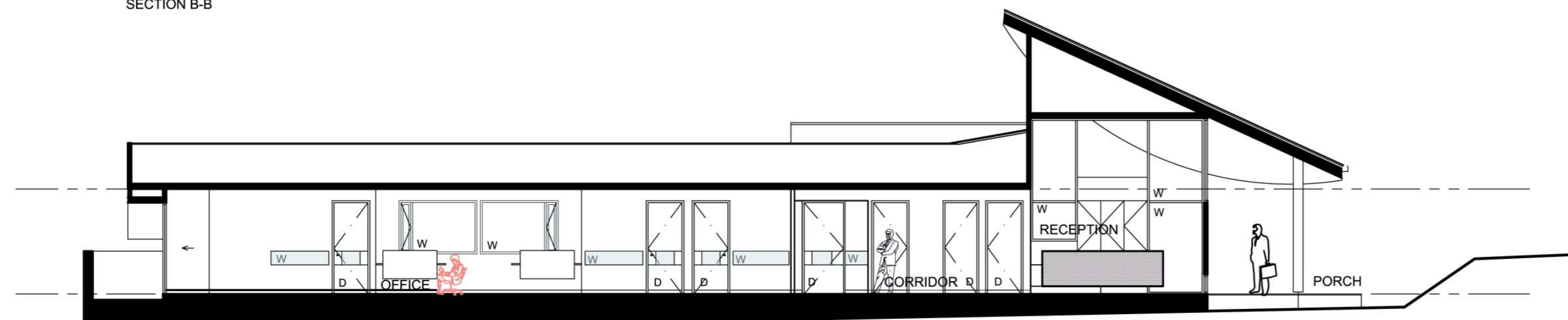
Sections



SECTION A-A



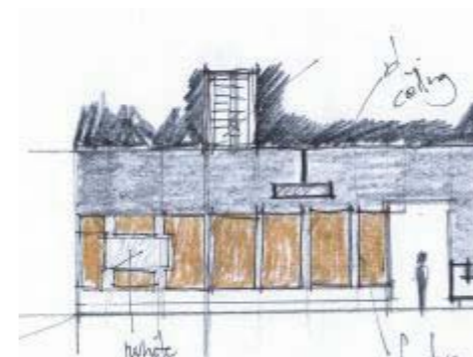
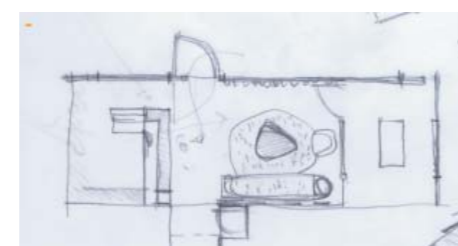
SECTION B-B



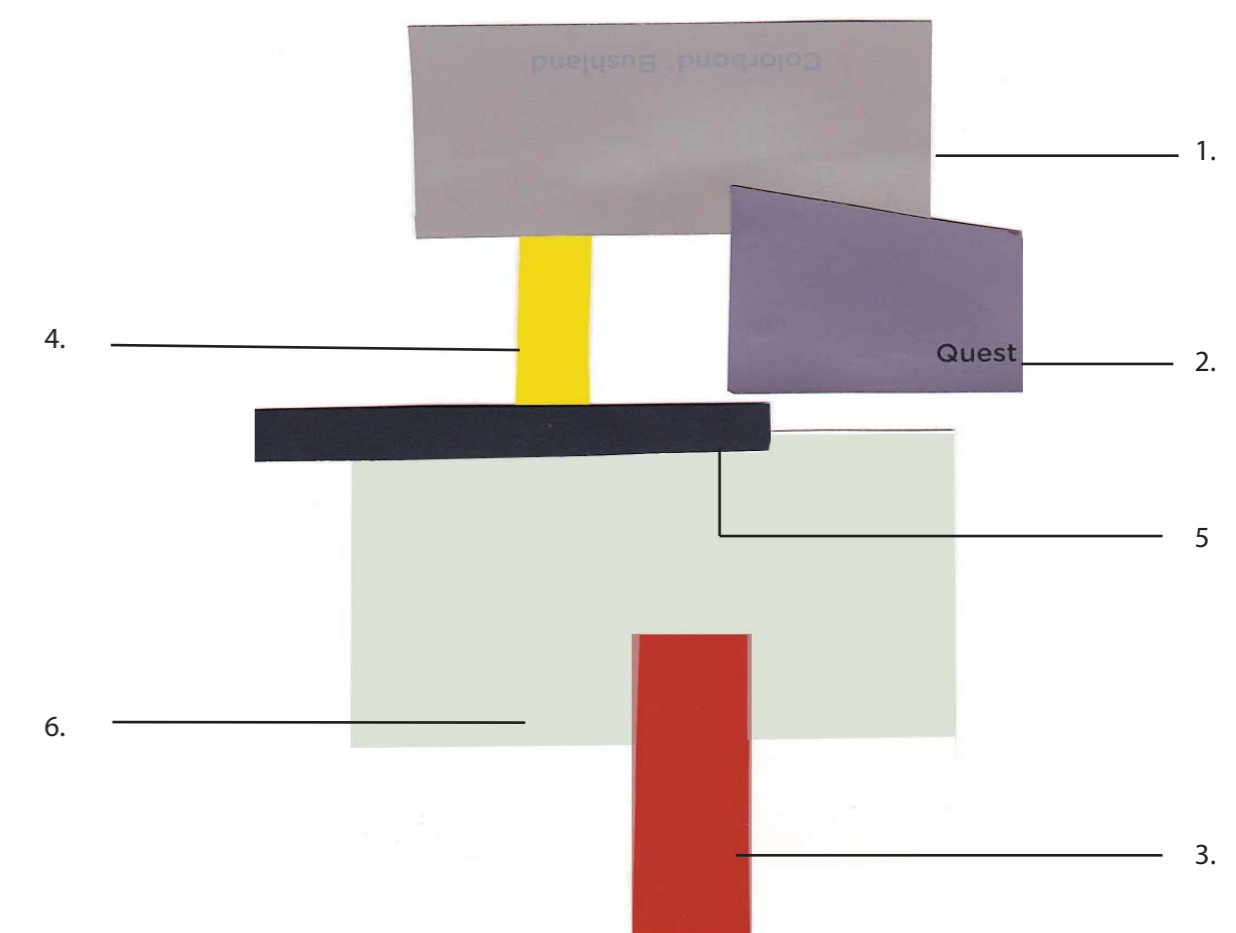
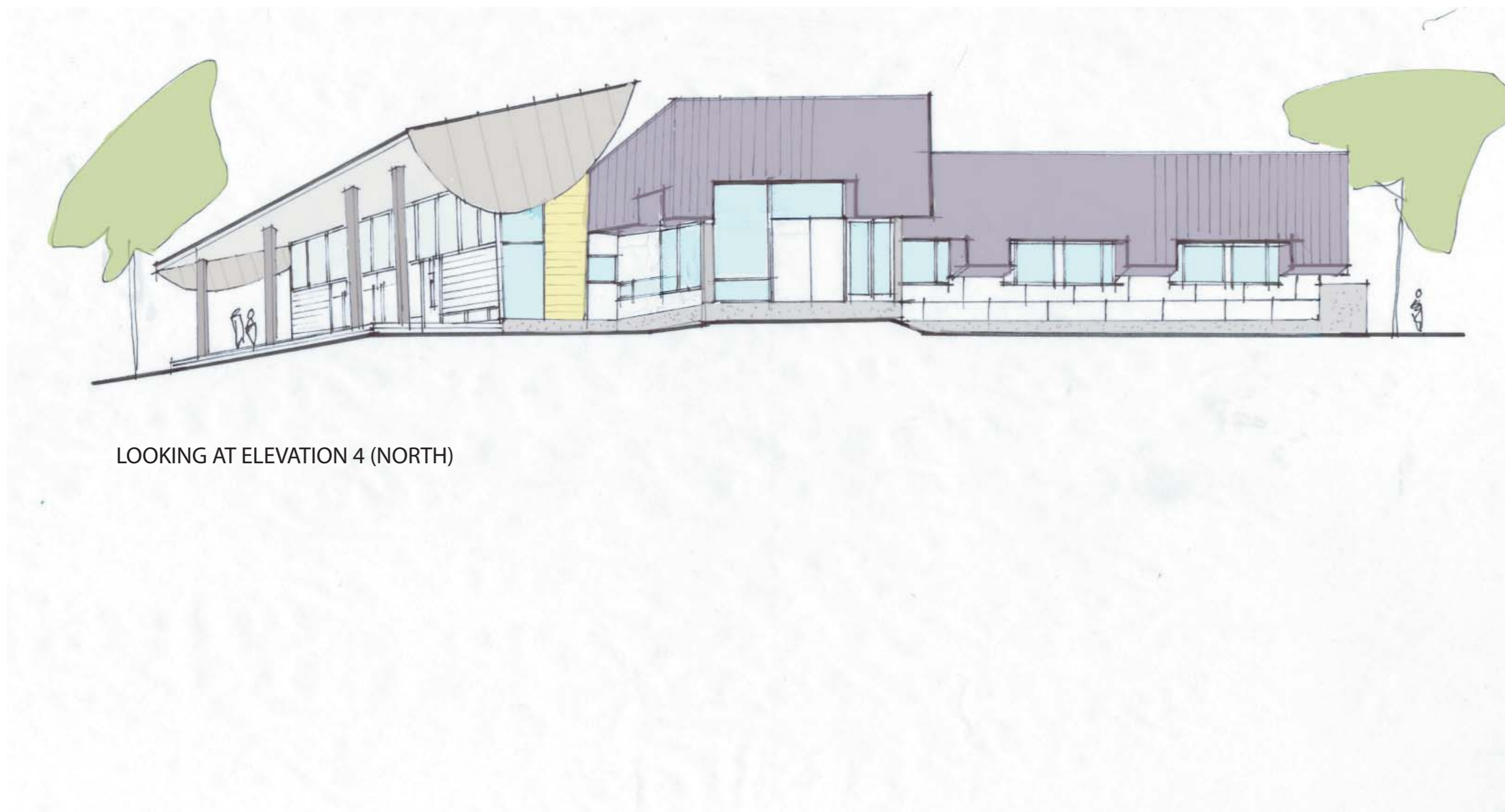
SECTION C-C

legend

- ac - air conditioner split unit
- bal - balustrade refer to section details
- cl - ceiling line
- co..... - custom orb roofing + roof angle
- colt - 250-300 sq. timber column
- cp - exposed concrete plinth
- cs - 9mm compressed sheet, paint finish
- d - door
- dp - down pipe
- el - eaves lining, cement sheet, painted
- elec. - electrical meter and switchboard
- fa - timber fascia, paint finish
- fl - floor line
- lv - glass louvre on timer for night flushing
- fla - folded metal flashing
- hr - hand rail to detail
- md# - colourbond metal deck roof # degree fall
- op - open
- par - parapet folded metal capping over
- pl - plywood, paint finish
- rb - roof behind
- rg - gutter to fascia
- ro - roof over
- rt - retainer wall, refer to structural and civil engineers drawings
- rwh - rain water head
- sl - slider
- tdk - timber deck
- tg - tongue & groove board, applied stain finish
- tk - water tank
- w - window, aluminium frame

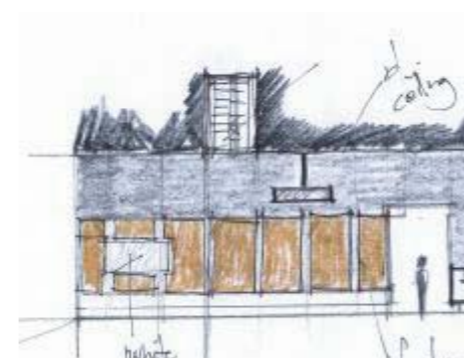
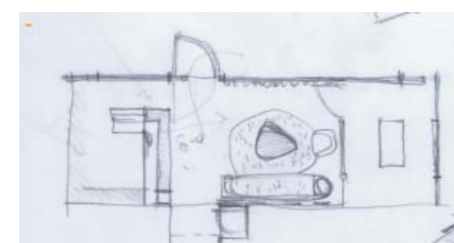


External Colours



Colours

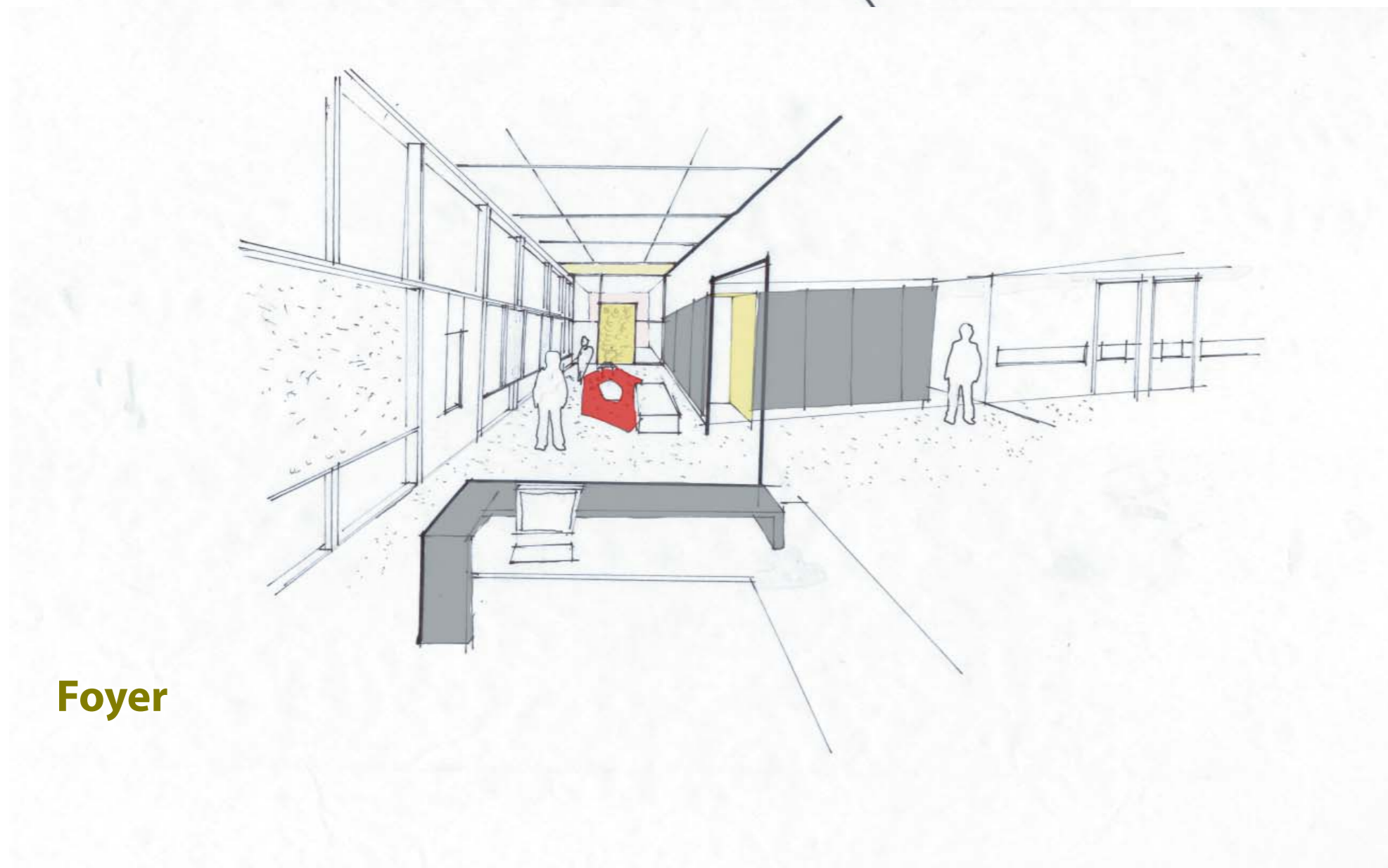
1. Colour bond, Bushland
2. Tongue & Groove Timber cladding, Dulux Quest
3. Accent Colour, Colour bond Headland
4. Accent Colour, Dulux 'Viagra'
5. Colours and fascia, Dulux 'Cumberland'
6. Compressed sheet cladding, Watty! 'Graceful White'



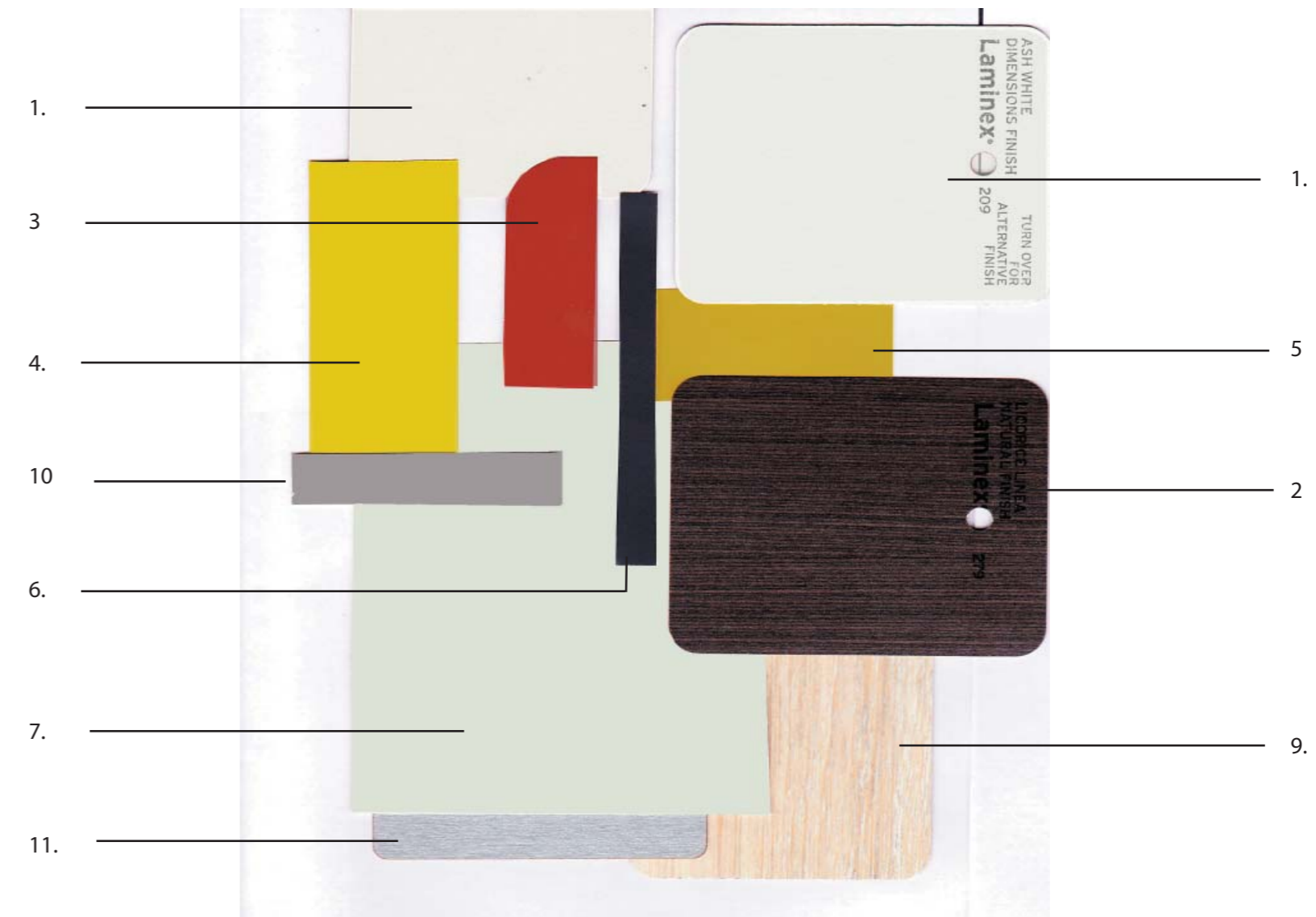
Internal Colours



Board Room

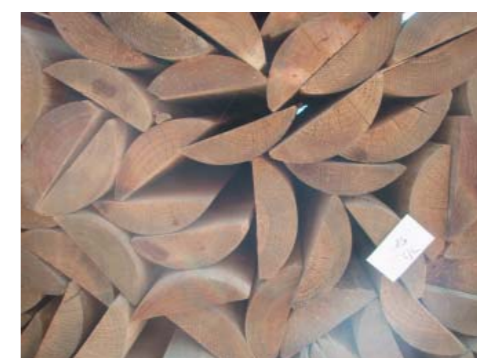
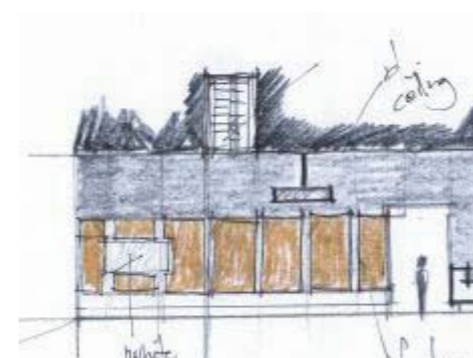
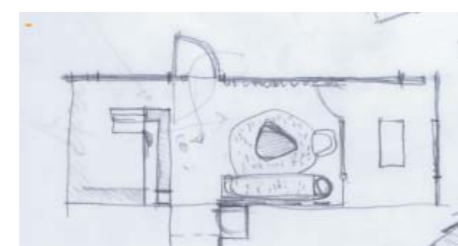


Foyer



Colours

1. Under bench cupboards, Laminate 'Ash White'
2. Reception & Board Room, Timber veneer, 'Dark'
3. Accent colour, Colour bond Headland
4. Accent colour, Dulux 'Viagra'
5. Main door reveals, Watty, 'Oracle Bone'
6. External window Frames, Dulux 'Cumberland'
7. Base wall colour, Dulux 'Antique White USA'
8. Work station cupboards, Laminate 'Moleskin'
9. Work Station bench tops & meeting room table, Laminate 'Seasoned Oak'
10. Accent wall colour, Dulux 'Barn floor'
11. Skirting, Natural Anodised Aluminium



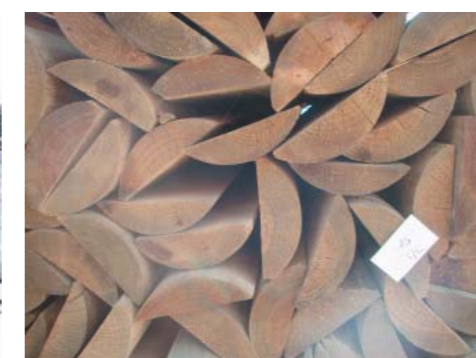
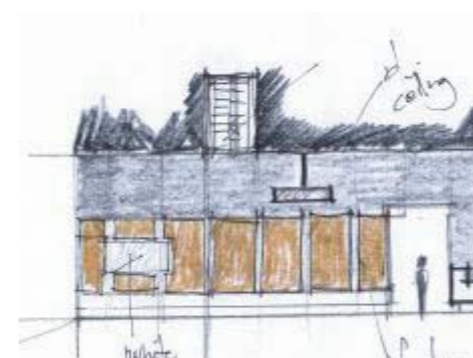
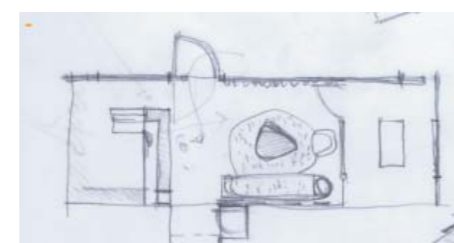
External Perspectives



LOOKING AT ELEVATION 1 (SOUTH EAST)



LOOKING AT ELEVATION 1 (NORTH EAST)



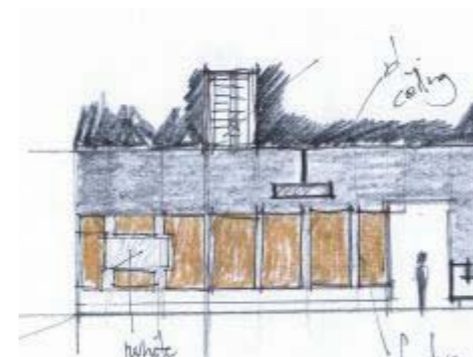
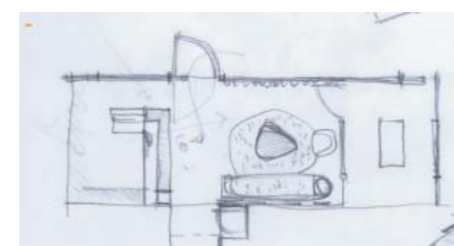
External Perspectives



LOOKING AT ELEVATION 3 & 1 (SOUTH EAST)



LOOKING AT ELEVATION 4 (NORTH EAST)



Application 07_0161 - Modification

Appendix K

Greenhouse gas emissions analysis

Bombala Sawmill Project

25 November 2011



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Dongwha Timbers Pty Ltd

Bombala Sawmill Project Updated Greenhouse Gas Emissions from Modification

	Current Operations	Originally Approved	This modification
FUEL COMBUSTION			
<i>Scope 1 - Consumption of natural gas distributed in a pipeline</i>			
Q = Quantity of natural gas consumed	0	518 767	549 967 GJ
EF(CO ₂) = CO ₂ Emission factor	51.2	51.2	51.2 kg CO ₂ -e/GJ
EF(CH ₄) = CH ₄ Emission factor	0.1	0.1	0.1 kg CO ₂ -e/GJ
EF(N ₂ O) = N ₂ O Emission factor	0.03	0.03	0.03 kg CO ₂ -e/GJ
a	0	26 628	28 230 t CO ₂ -e
<i>Scope 3 - Extraction and distribution of natural gas in a pipeline</i>			
Q = Quantity of natural gas consumed	0	518 767	549 967 GJ
EF(CO ₂) = CO ₂ Emission factor	15.7	15.7	15.7 kg CO ₂ -e/GJ
GHG emissions = Q x EF / 1,000	0	8 145	8 634 t CO ₂ -e
Total GHG emissions from natural gas consumption	0	34 773	36 864 t CO ₂ -e
<i>Scope 1 - Combustion of Dry Wood</i>			
Q = Quantity of wood consumed	5 703	5 703	0 tonnes
Energy content factor	16.2	16.2	16.2 GJ/tonne
EF(CH ₄) = CH ₄ Emission factor	0.08	0.08	0 kg CO ₂ -e/GJ
EF(N ₂ O) = N ₂ O Emission factor	1.2	1.2	0 kg CO ₂ -e/GJ
GHG emissions = Q x EF / 1,000	118	118	0 t CO ₂ -e
END-USE ELECTRICITY			
<i>Scope 2 and 3 - Electricity consumption, transmission and distribution</i>			
Q = Quantity of electricity purchased from grid	7 862 400	48 945 312	48 945 312 kWh
EF = Emission factor (latest estimate of full fuel cycle coefficient for NSW)	1.07	1.07	1.07 kg CO ₂ -e/kWh
GHG emissions = Q x EF / 1,000	8 413	52 371	52 371 t CO ₂ -e
TRANSPORT FUELS			
<i>Scope 1 - Transport to/from site to waste facilities</i>			
Q = Quantity of kilometres travelled	891 482	2 135 410	2 135 410 km
FCR = Fuel consumption rate (heavy trucks fuelled by diesel)	0.546	0.546	0.546 L/km
EC = Energy content of fuel (diesel)	38.6	38.6	38.6 GJ/kL
E = Energy value of fuel consumed (= Q x FCR x EC / 1000)	18 789	45 005	45 005 GJ
EF(CO ₂) = CO ₂ Emission factor (general transport - diesel oil)	69.2	69.2	69.2 kg CO ₂ -e/GJ
EF(CH ₄) = CH ₄ Emission factor (general transport - diesel oil)	0.2	0.2	0.2 kg CO ₂ -e/GJ
EF(N ₂ O) = N ₂ O Emission factor (general transport - diesel oil)	0.5	0.5	0.5 kg CO ₂ -e/GJ
GHG emissions = E x EF / 1,000	1 313	3 146	3 146 t CO ₂ -e
<i>Scope 3 - Transport to/from site to waste facilities</i>			
Q = Quantity of kilometres travelled	891 482	2 135 410	2 135 410 km
FCR = Fuel consumption rate (heavy trucks fuelled by diesel)	0.546	0.546	0.546 L/km
EC = Energy content of fuel (diesel)	38.6	38.6	38.6 GJ/kL
E = Energy value of fuel consumed (= Q x FCR x EC / 1000)	18 789	45 005	45 005 GJ
EF(CO ₂) = CO ₂ Emission factor (diesel oil)	5.3	5.3	5.3 kg CO ₂ -e/GJ
GHG emissions = E x EF / 1,000	100	239	239 t CO ₂ -e
Total GHG emissions from transport fuels	1 413	3 384	3 384 t CO ₂ -e
WASTE TO LANDFILL			
<i>Timber and timber related waste</i>			
Q = Quantity of waste to landfill	154	243	243 t
EF = Emission factor (dry wood)	2.7	2.7	2.7 t CO ₂ -e/tonne
GHG emissions = Q x EF	416	656	656 t CO ₂ -e
TOTAL GHG EMISSIONS	10 360	91 303	93 276 t CO₂-e
TOTAL GHG EMISSIONS (ENERGY RELATED)	8 531	87 263	89 236 t CO₂-e
Quantity of wood processed	100 000	372 000	372 000 m ³
SPECIFIC GHG EMISSIONS	104	245	t CO ₂ -e/1000 m ³ of timber processed
Project lifetime	20	20	years
TOTAL GHG EMISSIONS FOR PROJECT	1 826 060	1 865 526	t CO₂-e
Change in emissions			2.16%