

# Technical Assessment of Emissions and Discharges Port Hedland Concrete Plant

January 2013

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Prepared for  
Hanson Construction Materials Pty Ltd



**Astron Environmental Services**

129 Royal Street

East Perth WA 6004

Phone: (08) 9421 9600

Fax: (08) 9421 9699

Email: [perth@astron.com.au](mailto:perth@astron.com.au)

Report Reference: 21075-12ADO-01 Rev0

# Technical Assessment of Emissions and Discharges Port Hedland Concrete Plant

Prepared for  
Hanson Construction Materials Pty Ltd

Job Number: 21075-12

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## Revision Status

Rev	Date	Description	Author(s)	Reviewer
A	17/01/13	Issued for internal review	C. Wilson	C. Bateman / P. Aylmore
0	18/01/13	Issued for Client review	C. Wilson	J. Symonds
1	24/01/13	Issued for Distribution	C. Bateman	J. Symonds

## Approval

Rev	Date	Issued to	Authorised by	
			Name	Signature
0	18/01/2013	P. Aylmore	P. Aylmore	



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## Abbreviations

Abbreviation	Definition
Astron	Astron Environmental Services Pty Ltd
FEL	Front end loader
Hanson	Hanson Construction Materials Pty Ltd
km	Kilometre
L	Litres
m	Metre
m <sup>2</sup>	Square metres
TPS5	Port Hedland Town Planning Scheme No. 5
WA	Western Australia

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## 1 Introduction

Hanson Construction Materials Pty Ltd (Hanson) are proposing to undertake upgrades to their concrete plant in Wedgefield, Western Australia (WA). Hanson is required by the Town of Port Hedland to submit a Technical Assessment of Emissions and Discharges, as part of the building application for the upgrades. This is in accordance with Clause 7.5.4 of the Port Hedland Town Planning Scheme No. 5 (TPS5).

Hanson provides concreting, aggregate and construction services to industries throughout Port Hedland and the Pilbara region. The Port Hedland Concrete Batching Plant first underwent a Stage 1 upgrade in 2010. The upgrade referred to in this document will be considered Stage 2, and is set to commence in 2013.

Astron Environmental Services (Astron) have been contracted by Hanson to develop a Technical Assessment of Emissions and Discharges, which fulfils the requirements of the Town of Port Hedland.

### 1.1 Purpose

The purpose of this document is to identify the possible emission and discharge risks and hazards on existing or potential caretaker dwellings within proximity of the concrete plant and identify management actions to minimise any effects.

## **2 Premises Details**

### **2.1 Location**

The premises are located on Lot 987 Peawah Street in Wedgefield, WA. Wedgefield is an industrial area, located approximately two kilometers (km) from South Hedland, and adjacent to the Great Northern Highway (Figure 1). The premises are subject to the jurisdiction of the Town of Port Hedland.

### **2.2 Surrounding Environment**

The premises are surrounded by other industrial land uses, which provide industrial resources to Port and South Hedland and their surrounds. The Wedgefield industrial area is classified under the Town of Port Hedland Planning Scheme No. 5 as the Wedgefield Special Control Area. This area is zoned as such to recognise the emergence of caretaker's dwellings and their relationship with industry within Wedgefield, and to outline the considerations for these developments which do not apply elsewhere in the Scheme Area. Figure 2 indicates the presence, absence or potential for caretaker dwellings within a 300 meter (m) radius of the premises.

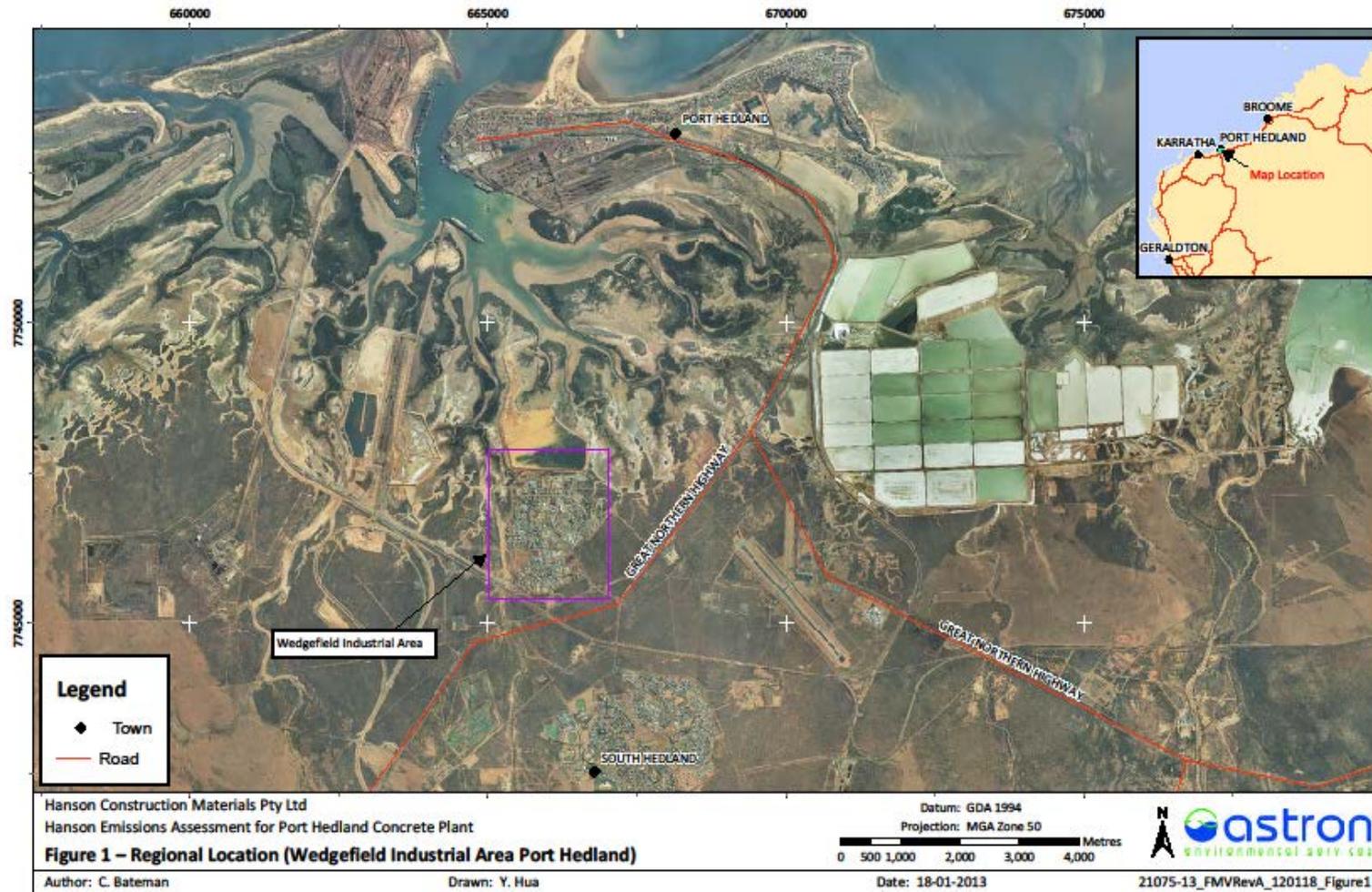


Figure 1: Regional Location



Figure 2: Presence, absence or potential for caretaker dwellings within 300 m of the premises (TOPH 2012).

## 2.3 Climate

Wedgefield and most of the Pilbara region of Western Australia lie within the bioclimatic region of semi-desert: tropical as classified by Van Vreeswyk et al. (2004). This is characterised by nine to eleven months of dry weather and two to three months of wet weather associated with cyclonic and monsoonal activity. Cyclonic activity is significant, with systems affecting the Port Hedland coast and hinterland annually (Kendrick and Stanley 2001).

Data from the nearest weather station, the Port Hedland Airport, indicates a mean annual maximum temperature of 33.2°C and a mean annual minimum temperature of 19.4°C. Annual rainfall averages 315.9 mm with most of this falling during cyclone season between November and May (BOM 2012).

## 2.4 Topography

The topography of the premises is flat as it has been previously cleared in preparation for building construction. The Wedgefield industrial area is gently sloping towards the north, with elevation slightly higher to the south (approximately 10 m). The elevation to the north of the area decreases from 5 m to 3 m as it approaches the salt flats and coastal mangroves (Landgate 2012).

## 2.5 Surface Water Run-off

Run-off in the stockpile area is currently collected in a small pit. During major rainfall events, water overflows from the pit into the open drain that runs adjacent to Peawah Street.

On the western side of the site, run-off from the concreted area flows into either the slump stand collection pit near the north western corner or the storm water sump in the south western corner. This is then pumped into a recycled water tank for use on the aggregate bins. The run off from the aggregate bins is then collected in another pit adjacent to the truck wash down bay located near the south boundary fence for re-use.

## 2.6 Flora and Vegetation

As the premises are situated within the Wedgefield industrial area, the area has been previously cleared of vegetation. However, under the Town of Port Hedland Planning Scheme No. 5, landscaped areas have been allocated on both the Pinga Street and Peawah Street sides of the premises. All aspects of the landscaping will be to the satisfaction of the Town of Port Hedland Council.

## 2.7 Fauna

The premises are fully fenced, which will assist in preventing any fauna from entering the area. As Lot 987 is located within the Wedgefield industrial area, the presence of fauna is significantly reduced.

### 3 Proposal Description

Hanson proposes to undertake upgrades to their concrete plant at Lot 987 Peawah Street, as Stage 2 of the 2010 upgrade. The upgrade project will focus on improved aggregate handling, traffic management and stockpile containment.

Aspects of the upgrade include:

- Additional landscaping of two allocated areas.
- Installation of a concrete wall to prevent materials spillage into neighboring caretaker dwellings.
- Installation of precast panels for existing materials storage.
- Installation of precast panels for proposed materials storage.
- Installation of new storage bin panels for proposed materials storage.
- Lay-down of concrete pavement for the remainder of the site (3364m<sup>2</sup>).
- Installation of an additional water catchment pit (600 mm deep).
- Installation of sprinklers for aggregate conditioning.
- Installation of five live storage bins.
- Removal of existing bin panels and materials storage for the installation of a concreted front end loader (FEL) ramp.
- Installation of a new materials hopper and conveyor.

There will be no changes to volume of production or increase in traffic movements due to this upgrade and a more efficient materials handling process will result.

An overall site plan, traffic management plan and site elevations are provided in Appendix A.

#### 3.1 Upgrade Details

##### Landscaping & Site Development

In addition to previous landscaping activities, Hanson has allocated two new areas for landscaping to be undertaken as a part of this upgrade. A total of 417 m<sup>2</sup> has been identified as suitable area on the south eastern and eastern border of the site.

During the 2010 upgrade, the western half of the site was concreted. This upgrade proposes to concrete the remainder of the site, which will reduce soil contamination and airborne dust.

##### Materials Storage

The upgrade will include partial removal of existing materials storage for the construction of a FEL concrete ramp, which will allow access to the proposed conveyor belt. To compensate the loss of materials storage, installation of pre-cast concrete panels for the remaining materials storage will occur, as well as the installation of new pre-cast concrete panels for new materials storage. This will increase onsite storage and reduce:

- cross-contamination between aggregate,
- loss of aggregate by wind and
- the amount of airborne dust.

Five new live material bins will be installed with a self-weighing ability. This will reduce operational costs, with the FEL serving to only refill the storage bins.

### **Traffic Management**

Trucks will continue to enter and exit the site from Pinga Street, with materials unloaded in the new allocated materials storage. With increased onsite storage capacity, truck movement during peak hour traffic will be reduced. No additional employees will be required onsite as a result of this upgrade and therefore the number of allocated parking bays will remain the same.

### **Water Management**

The upgrade allows for the installation of an additional water catchment pit on the eastern boundary of the site. The proposed concreting of the remainder of the site will allow for increased water run-off into the pit. All captured water will be re-used via a sprinkler system for conditioning the aggregate..

### **Concrete Wall Installation**

Hanson proposes to install a concrete wall along the north eastern corner of the site, to reduce windblown aggregate and airborne dust impacts to the neighbouring caretaker's residence.

## **4 Other Approvals**

### **4.1 Part V EP Act**

This site operates under a Registration under the Environmental Protection Regulations 1987. This Registration was issued by the DEC on the 1<sup>st</sup> October 1996. As stated on the Registration, the premises is classified under the regulations as Category 77 – Concrete batching or cement products manufacturing. As a result of this Registration, the concrete plant is currently being managed under the Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998. A copy of the registration is provided in Appendix B.

### **4.2 Native Vegetation Clearing Permit**

As the site is located within an industrial zone, and it has been previously cleared, a Native Vegetation Clearing Permit is not required for the upgrade.

### **4.3 Town of Port Hedland**

Hanson will seek a building permit from the Town of Port Hedland, in addition to this technical assessment of emissions and discharges which forms part of the Application for Development to the Town of Port Hedland Planning Unit.

## **5 Stakeholder and Community Consultation**

The neighbour (caretaker dwelling) on the north eastern boundary has requested that Hanson construct a concrete wall to prevent sand blowing into their yard. The Hanson site manager has agreed that this is the best solution and has reviewed the manner in which materials are delivered, stored and conditioned to further reduce any impacts. Hanson has identified that there will be no changes to emissions as a result of the upgrade, which should offer no hindrance to existing or potential caretaker dwellings within a close radius of the concrete plant.

## 6 Environmental Assessment of Emissions and Discharges

### 6.1 Legislation and Guidelines

All concrete batching plants operating in Western Australia are required to comply with the following legislation and subsidiary regulations:

- *Environmental Protection Act 1986*
- Environmental Protection Regulations 1987
- Environmental Protection (Unauthorised Discharges) Regulations 2004
- Environmental Protection (Controlled Waste) Regulations 2004
- Environmental Protection (Noise) Regulations 1997
- Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998
- *Dangerous Goods Safety Act 2004*
- *Waste Avoidance and Resource Recovery Act 2007*
- Waste Avoidance and Resource Recovery Regulations 2008.

A risk assessment was undertaken for the proposed upgrade in accordance with *AS/NZS 31000:2009 Risk Management - Principles and Guidelines*. The Astron Environmental Risk Assessment Matrix was used to determine environmental hazards and the associated risks of the proposed site activities. The risk assessment is attached as Appendix C.

### 6.2 Air Emissions

There is expected to be no increase in air emissions as a result of this upgrade. Small amounts of air emissions are expected to occur from the concrete plant, light vehicles, front end loader, trucks and other equipment. Equipment will be maintained and serviced regularly, in accordance with the manufacturer's recommendations, to maintain efficiency and minimise emissions.

Given these safeguards, air emissions are considered to have a very low risk for this proposal.

### 6.3 Dust Emissions

Dust emissions from the premises will be reduced as a result of this upgrade, as:

- The remainder of the site will be concreted, reducing the amount of exposed soil.
- Installation of the concrete wall along the north-eastern corner will prevent any dust or aggregate spreading into nearby caretaker dwellings.
- Upgrading and installing pre-cast panels for materials storage will reduce airborne dust from stockpiles.
- Installing a sprinkler system to condition aggregate and prevent air-borne dust from stockpiles.

Given these safeguards, dust emissions are considered to have a very low risk for this proposal.

### 6.4 Odour Emissions

There will be no odour emissions as a result of this upgrade.

## 6.5 Noise Emissions

The installation of the concrete wall on the north-eastern boundary shall act to further reduce noise travelling to the nearby caretaker's dwelling. The site operates only during daylight hours with normal operating hours being between 0500 and 1500 hours. If Hanson wishes to operate outside these hours they will do so under the Environmental Protection (Noise) Regulations 1987.

Given these safeguards, noise emissions are considered to have a low risk for this proposal.

## 6.6 Light Emissions

Site works will only be undertaken during daylight hours and within normal operating hours. Lighting has been installed in the crib and batch offices, as well as security lighting around the batching plant. All lights will be switched off at the end of each working day with exception of the security lights around the concrete silos.

The installation of the concrete wall on the north-eastern boundary shall act to block light travelling to the nearby caretaker's dwelling.

Given these safeguards, noise emissions are considered to have a very low risk for this proposal.

## 6.7 Discharges to Water

There will be no direct discharges to water as a result of this upgrade. An additional water catchment pit will be installed on the eastern boundary of the site. This should prevent the existing water catchment pit from overflowing into the open drain along Peawah Street, however; catchment pits may still overflow during heavy rainfall periods. All water captured in these pits will then be used to condition stockpiles via a sprinkler system which will be installed during this upgrade.

By concreting the remainder of the site during the upgrade, run-off into adjacent nearby drains during rainfall events may increase. There is a low risk of small oil, fuel or chemical spills from vehicles or machinery during construction or operation which has the potential to cause discharges to water, however, the majority of water will be captured in the water catchment pits and re-used on site.

Given these safeguards, discharges to water are considered to have a low risk for this proposal.

## 6.8 Discharges to Land

No oil wastes or other liquid wastes are to be stored on site. All solid wastes including spill response wastes, general rubbish and concreting wastes will be stored on site in allocated bins and wastes pits and removed offsite by licenced contractors to an approved waste facility.

Diesel will be stored in a bunded fuel tank. Refueling of trucks and machinery will occur from this tank on a concreted hard-stand area.

Only minor and intermittent servicing of vehicles, machinery or other equipment will be performed on site. Any servicing will be carried out in a designated concrete hard-stand area. Engine and hydraulic oils to be used for servicing or maintenance will be stored in a designated concrete, bunded storage area.

There is a minor risk of oil, fuel or chemical spills occurring during construction. However these are likely to be of minimal quantity and cover only small localised areas. As the remainder of the site will be concreted during the upgrade, this will further prevent any spills from contaminating soils beneath the concreted areas.

Any fuel, oil or chemical spills will be cleaned up immediately using the spill kits on site which are located adjacent to the fuel and oil storage areas. Spill kits will be re-stocked after any spill event.

Given these safeguards, discharges to land are considered to have a low risk for this proposal.

## 6.9 Hydrocarbon/Chemical Storage

Hydrocarbons and chemicals to be stored on site include:

- Diesel fuel, to be stored in a bunded 10 000 L diesel fuel tank.
- Engine and hydraulic oils, to be stored in a concrete, bunded oil storage area.
- Barrel Kleen, used to remove concrete splash and cement dust residues, to be stored on site in a bunded area.

All storage areas will conform with the relevant Australian Standards.

Given these safeguards, hydrocarbon/chemical storage is considered to have a low risk for this proposal.

## 6.10 Solid Waste Management

General rubbish produced on site will be stored in closed rubbish bins and will be removed offsite for disposal at a licenced facility.

Solid concrete wastes will be stored on site in an existing concrete waste pit. They will be removed off site for disposal at an appropriate landfill site or waste treatment facility, the occupier of which will hold a licence under Part V of the *Environmental Protection Act 1986*.

Any wastes from oil or fuel spill clean ups will be stored on site in appropriately labelled hydrocarbon bins and disposed of off site by a licenced contractor at an appropriate facility.

Given these safeguards, solid waste management has a low risk for this proposal.

## 6.11 Liquid Waste Management

No liquid wastes will be produced or stored on site as a result of the upgrade. If any liquid wastes are produced, they will be removed off site and disposed of by a licenced contractor.

Given these safeguards, liquid waste management has a very low risk for this proposal.

## 7 Conclusions

The risk assessment determined that there is an overall low level of risk for emissions and discharges on nearby caretaker dwellings (proposed and existing) for this proposal. Hanson has effectively liaised with the nearby caretaker and come to a solution: the installation of a concrete wall in the north eastern corner of the site. The wall, combined with installation of pre-cast panels for materials storage, should effectively prevent any wind-blown or spilled aggregate from spreading into caretaker dwellings.

Dust emissions from the site should be negligible once the remainder of the site is concreted and the sprinkler system used to condition the aggregate is installed. Light and noise emissions from the site should be reduced or prevented from reaching the nearby dwelling by the installation of the wall. Other caretaker dwellings in the vicinity should not be affected by light and noise as the site will only operate during daylight hours and within the requirements of the Town of Port Hedland.

Any fuel, oil or chemical spills will be cleaned up immediately using spill kits. All solid wastes including spill response wastes, general rubbish and concreting wastes will be stored on site in allocated bins and wastes pits and removed off site by licenced contractors to an approved waste facility.

It has been determined that this proposal will have a low level of impact on current and future caretaker dwellings within a 300 m radius of the site.

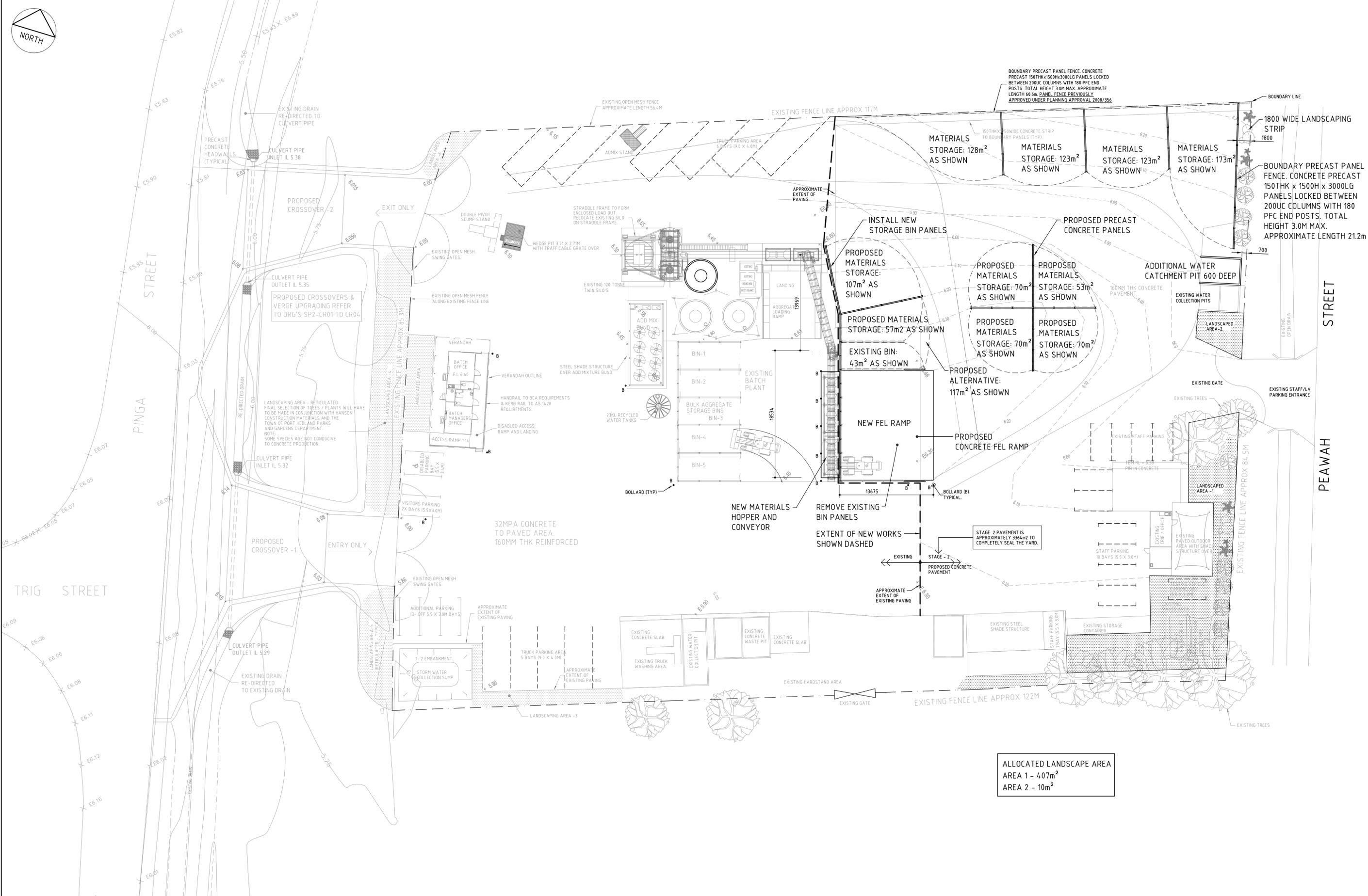
## 8 References

Bureau of Meteorology 2012. Climate Statistics for Australian Locations: Derby Aero  
[http://www.bom.gov.au/climate/averages/tables/cw\\_003032.shtml](http://www.bom.gov.au/climate/averages/tables/cw_003032.shtml)

Kendrick P and Stanley F 2001, Pilbara 4 (PIL4 – Roebourne synopsis).A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002, CALM, Western Australia.

Landgate 2012 WA Atlas. Accessed online June 2012 Various GIS Datasets  
<https://www2.landgate.wa.gov.au/bmvf/app/waatlas/>

## **Appendix A: RSA Construction Design Drawings**



ALLOCATED LANDSCAPE AREA  
 AREA 1 - 407m<sup>2</sup>  
 AREA 2 - 10m<sup>2</sup>

REV	DATE	DESCRIPTION
A	03/09/12	ISSUED FOR PLANNING APPROVAL



**CONSULTING ENGINEERS  
 DESIGNERS & PROJECT MANAGERS**

Unit 6 / 9 Playle Street Myaree 6154 WA  
 P 08 9317 3331 F 08 93173337 E info@rsaperth.com.au

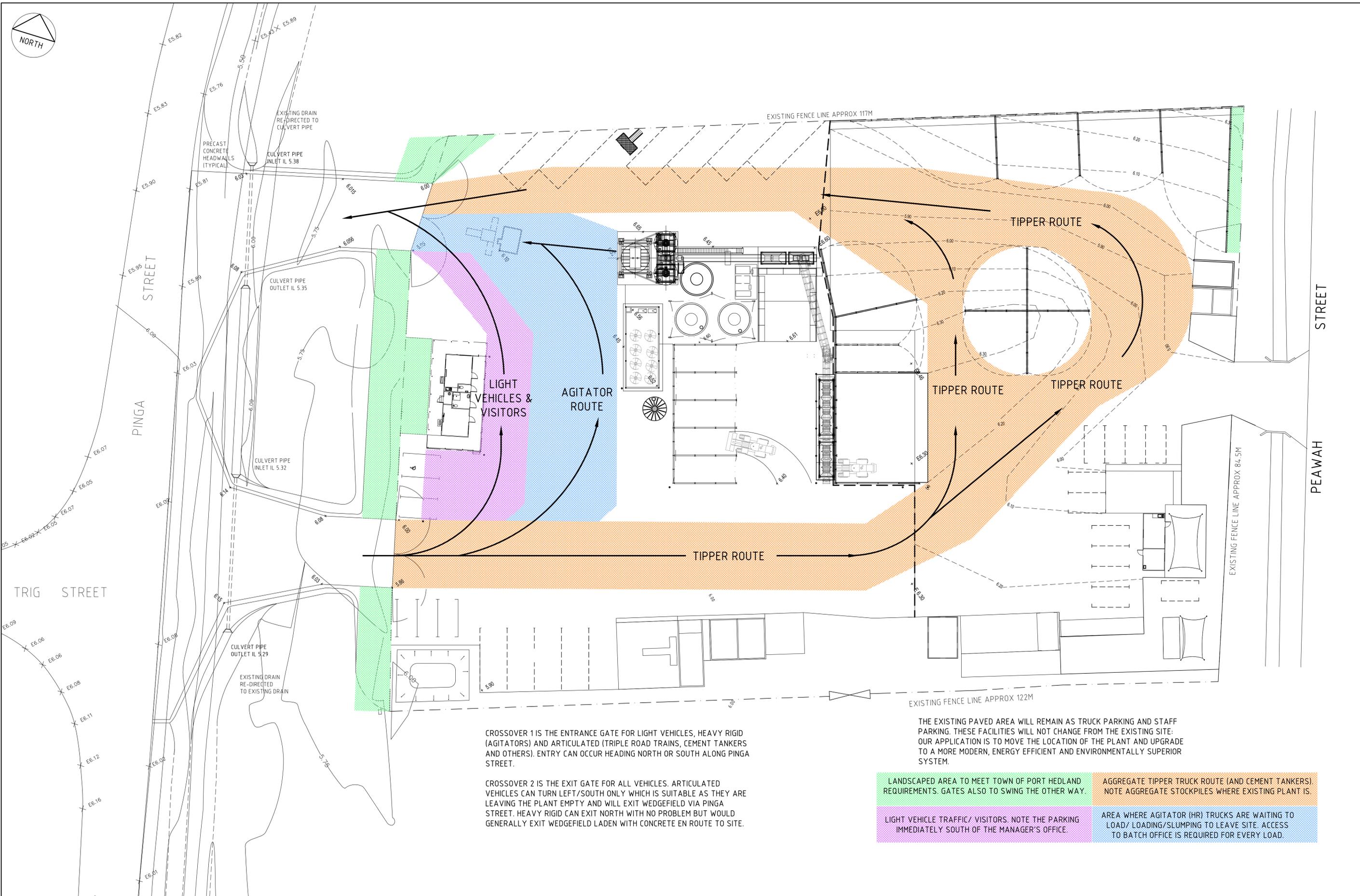
**RSA**

ALL DIMENSIONS SHALL BE VERIFIED BEFORE COMMENCING ANY WORK OR SHOP DRAWINGS  
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PROJECT **HANSON PORT HEDLAND - STAGE 2 WORKS  
 PEAWAH STREET, PORT HEDLAND**

TITLE **OVERALL SITE PLAN**

CLIENT	<b>HANSON</b>		
SCALE	1:250	PROJECT No.	<b>2012-566</b>
DATE	AUG '12	DRG No.	<b>S1.01</b>
DESIGNED	BS	DRAWN	RB
CHECKED			A1
		REV	<b>A</b>



CROSSOVER 1 IS THE ENTRANCE GATE FOR LIGHT VEHICLES, HEAVY RIGID (AGITATORS) AND ARTICULATED (TRIPLE ROAD TRAINS, CEMENT TANKERS AND OTHERS). ENTRY CAN OCCUR HEADING NORTH OR SOUTH ALONG PINGA STREET.

CROSSOVER 2 IS THE EXIT GATE FOR ALL VEHICLES. ARTICULATED VEHICLES CAN TURN LEFT/SOUTH ONLY WHICH IS SUITABLE AS THEY ARE LEAVING THE PLANT EMPTY AND WILL EXIT WEDGEFIELD VIA PINGA STREET. HEAVY RIGID CAN EXIT NORTH WITH NO PROBLEM BUT WOULD GENERALLY EXIT WEDGEFIELD LADEN WITH CONCRETE EN ROUTE TO SITE.

THE EXISTING PAVED AREA WILL REMAIN AS TRUCK PARKING AND STAFF PARKING. THESE FACILITIES WILL NOT CHANGE FROM THE EXISTING SITE. OUR APPLICATION IS TO MOVE THE LOCATION OF THE PLANT AND UPGRADE TO A MORE MODERN, ENERGY EFFICIENT AND ENVIRONMENTALLY SUPERIOR SYSTEM.

- LANDSCAPED AREA TO MEET TOWN OF PORT HEDLAND REQUIREMENTS. GATES ALSO TO SWING THE OTHER WAY.
- AGGREGATE TIPPER TRUCK ROUTE (AND CEMENT TANKERS). NOTE AGGREGATE STOCKPILES WHERE EXISTING PLANT IS.
- LIGHT VEHICLE TRAFFIC/ VISITORS. NOTE THE PARKING IMMEDIATELY SOUTH OF THE MANAGER'S OFFICE.
- AREA WHERE AGITATOR (HR) TRUCKS ARE WAITING TO LOAD/ LOADING/SLUMPING TO LEAVE SITE. ACCESS TO BATCH OFFICE IS REQUIRED FOR EVERY LOAD.

REV	DATE	DESCRIPTION
A	03/09/12	ISSUED FOR PLANNING APPROVAL



**CONSULTING ENGINEERS  
DESIGNERS & PROJECT MANAGERS**

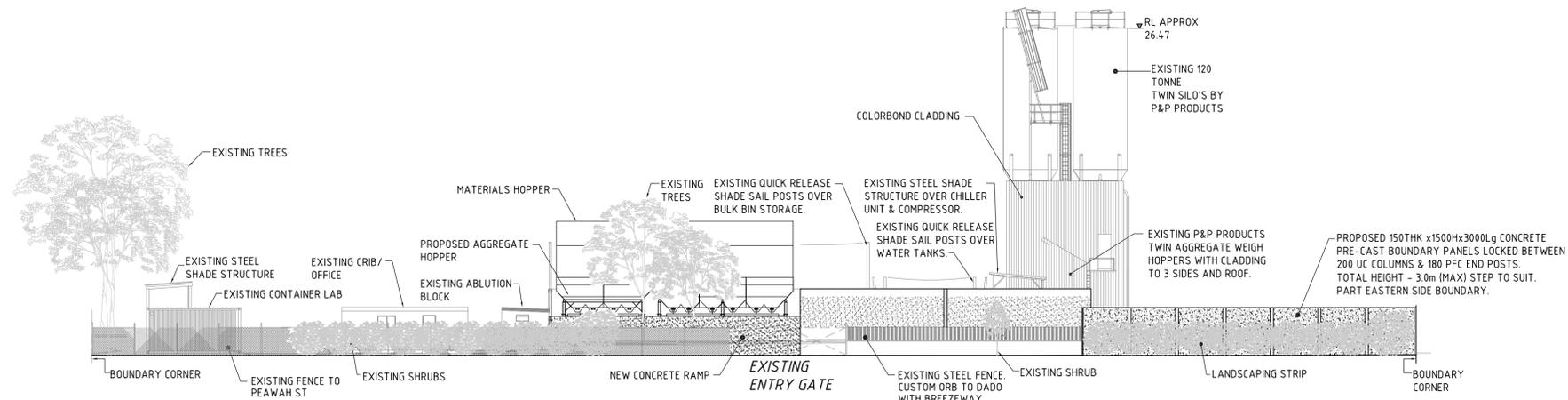
Unit 6 / 9 Playle Street Myaree 6154 WA  
P 08 9317 3331 F 08 93173337 E info@rsaperth.com.au

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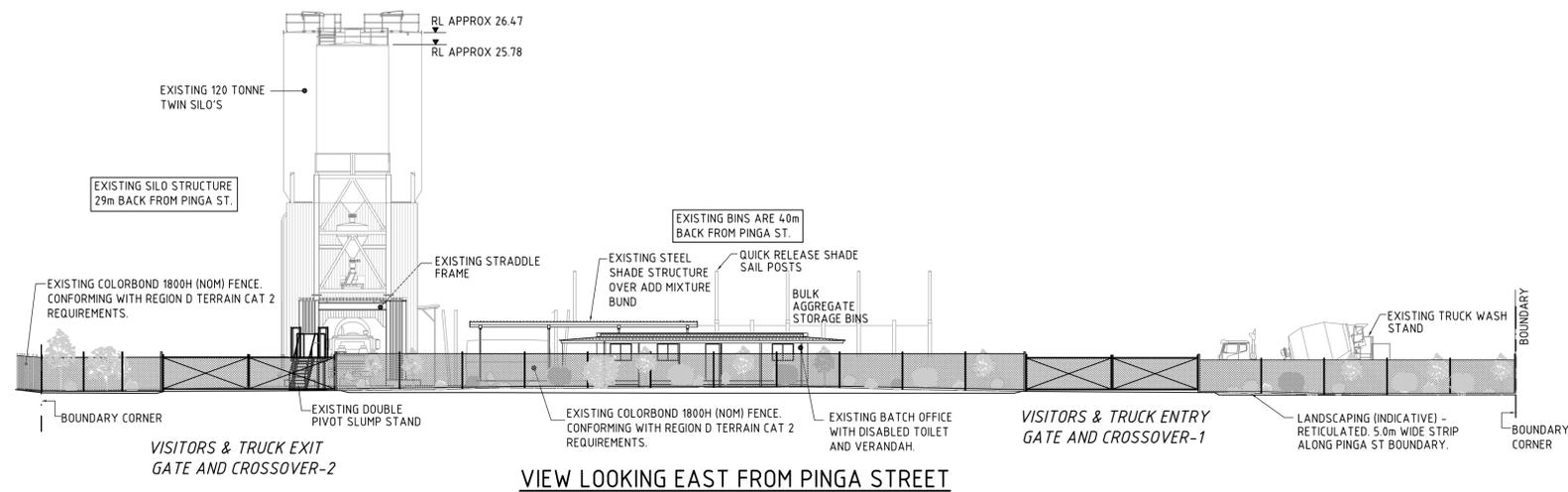
PROJECT **HANSON PORT HEDLAND - STAGE 2 WORKS  
PEAWAH STREET, PORT HEDLAND**

TITLE **TRAFFIC MANAGEMENT PLAN**

CLIENT	<b>HANSON</b>		
SCALE	1:250	PROJECT No.	<b>2012-566</b>
DATE	AUG '12	DRG No.	<b>S0.01</b>
DESIGNED	BS	DRAWN	RB
CHECKED			
	A1		<b>A</b>



VIEW LOOKING WEST FROM PEAWAH STREET



VIEW LOOKING EAST FROM PINGA STREET

REV	DATE	DESCRIPTION
A	03/09/12	ISSUED FOR PLANNING APPROVAL



CONSULTING ENGINEERS  
DESIGNERS & PROJECT MANAGERS  
Unit 6 / 9 Playle Street Myaree 6154 WA  
P 08 9317 3331 F 08 93173337 E info@rsaperth.com.au  
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PROJECT	HANSON PORT HEDLAND - STAGE 2 WORKS PEAWAH STREET, PORT HEDLAND	
TITLE	SITE ELEVATIONS	

CLIENT	HANSON		
SCALE	1:200	PROJECT No.	2012-566
DATE	AUG '12	DRG No.	S2.01
DESIGNED	BS	DRAWN	RB
CHECKED			
			REV A

## **Appendix B: DEC Registration for Premises**



Department of  
Environment

Your ref:

Our ref: R93

Enquiries: *Karratha Office*

9144 2000

Direct tel:

The Manager  
Hanson Construction Materials Pty Ltd  
PO Box 187  
Victoria Park Private Boxes WA 6979

Dear Sir/Madam

**ENVIRONMENTAL PROTECTION ACT 1986  
AMENDED REGISTRATION, NUMBER 93**

**Hanson Construction Materials Pty Ltd - South Hedland  
Lot 987 Peawah Street  
Victoria Park Private Boxes WA Hanson Construction Materials Pty Ltd - South  
Hedland**

Please find enclosed your amended Registration, under the *Environmental Protection Regulations 1987* for the above premises.

Should any details of the Registration be incorrect, please advise the Department of the correct details as soon as possible.

If you have any questions relating to your Registration or the above information, please contact Licensing Administration at the North West Regional office on 9144 2000.

Yours faithfully

SUSAN WORLEY  
MANAGER, NORTH WEST REGION  
REGIONAL OPERATIONS DIVISION

Thursday, 4 August 2005

enc

copy to: Local Government Authority: Town of Port Hedland



North West Region  
Lot 1608 Cherratta Road KIE  
Karratha Western Australia 6714  
PO Box 836 Karratha Western Australia 6714  
Telephone (08) 9144 2000 Facsimile (08) 9144 2610  
[www.environment.wa.gov.au](http://www.environment.wa.gov.au)

WESTERN AUSTRALIA  
DEPARTMENT OF ENVIRONMENT  
*Environmental Protection Act 1986*  
AMENDED REGISTRATION

REGISTRATION NUMBER: 93

FILE NUMBER: R10/73

**NAME OF OCCUPIER:**

Hanson Construction Materials Pty Ltd

**ADDRESS OF OCCUPIER:**

PO Box 187  
Victoria Park Private Boxes WA 6979

**NAME AND LOCATION OF PREMISES:**

Hanson Construction Materials Pty Ltd - South Hedland  
Lot 987 Peawah Street  
South Hedland

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*Environmental Protection Regulations 1987*

**CLASSIFICATION(S) OF PREMISES:**

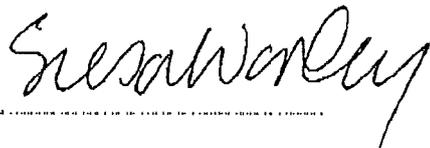
Schedule 1, Part 2, Category 77 - Concrete batching or cement products manufacturing

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**COMMENCEMENT DATE OF REGISTRATION:** Tuesday, 1 October 1996

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Receipt No: 015628  
Receipt Date: 06/05/2005  
Amendment Fee: \$30.00



Date of Issue: Tuesday, 1 October 1996  
Date of Amendment: Thursday, 4 August 2005

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## **Appendix C: Risk Assessment**

## ASTRON ENVIRONMENTAL RISK ASSESSMENT MATRIX

Consequence \ Likelihood	Negligible	Minor	Significant	Critical	Catastrophic
Very Likely	Yellow	Light Orange	Orange	Red	Dark Red
Likely	Yellow	Light Yellow	Light Orange	Orange	Dark Red
Moderate	Light Green	Yellow	Light Orange	Orange	Dark Orange
Unlikely	Green	Light Green	Yellow	Light Orange	Orange
Very Unlikely	Green	Light Green	Light Green	Yellow	Light Orange

## RISK CODE

Keyword	Code	Action
Critical	Dark Red	This activity is prohibited.
High	Orange	While generally disallowed, important high risk activities may be permitted if specific procedures are written, face-to-face training occurs and only after approval of a Company Director.
Significant	Light Orange	All Significant Risk activities shall have specific Procedures prepared.
Moderate	Yellow	Activities shall be specifically considered in Company standard safety procedures while more critical activities require specific procedures.
Low	Light Green	Activities may need to be considered in Company standard safety procedures.
Very Low	Green	No action necessary: existing procedures cover these activities.

## Hanson Construction Materials Pty Ltd

### Port Hedland Concrete Batching Plant -Technical Assessment of Emissions and Discharges

#### Project Environmental Aspects and Impacts Summary

Aspect	Likelihood	Consequence	Risk Rating	Safeguards
Air emissions	Unlikely	Negligible	Very low	<ul style="list-style-type: none"> <li>The concrete plant, light vehicles, front end loader, trucks and other equipment will be maintained and serviced regularly, in accordance with the manufacturer's recommendations, to maintain efficiency and minimise emissions.</li> </ul>
Dust emissions	Unlikely	Negligible	Very low	<ul style="list-style-type: none"> <li>The remainder of the site will be concreted, reducing the amount of bare-ground.</li> <li>Installing the concrete wall along the north-eastern corner, preventing any dust or aggregate spreading into nearby caretaker dwellings.</li> <li>Upgrading or installing pre-cast panels for materials storage, reducing airborne dust from stockpiles.</li> <li>Installing a sprinkler system to condition aggregate and prevent air-borne dust from stockpiles.</li> </ul>
Odour emissions	-	-	-	Not applicable
Noise emissions	Unlikely	Minor	Low	<ul style="list-style-type: none"> <li>The site operates only during daylight hours with normal operating hours being between 0500 and 1500 hours. If Hanson wishes to operate outside these hours they will do so under the Environmental Protection (Noise) Regulations 1987.</li> <li>The installation of the concrete wall on the north-eastern boundary shall act to further reduce noise travelling to the nearby caretaker's dwelling.</li> </ul>
Light emissions	Unlikely	Negligible	Very low	<ul style="list-style-type: none"> <li>Site works will only be undertaken during daylight hours and within normal operating hours.</li> <li>All lights will be switched off at the end of each working day with the exception of the security lights around the concrete silos.</li> <li>The installation of the concrete wall on the north-eastern boundary shall act to block light travelling to the nearby caretaker's dwelling.</li> </ul>
Discharges to water	-	-	-	<ul style="list-style-type: none"> <li>There will be no direct discharges to water as a result of this upgrade.</li> <li>An additional water catchment pit will be installed on the eastern boundary of the site, which should prevent the existing water catchment pit from overflowing into the open drain along Peawah Street.</li> </ul>

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				<ul style="list-style-type: none"> <li>Hanson will install a sprinkler system during the upgrade. All water captured in these pits will then be used to condition stockpiles through the sprinkler system.</li> <li>There is a low risk of small oil, fuel or chemical spills from vehicles or machinery during construction or operation which has the potential to cause discharges to water, however; the majority of water will be captured in the water catchment pits and re-used on site.</li> </ul>
Discharges to land	Unlikely	Minor	Low	<ul style="list-style-type: none"> <li>No oil wastes or other liquid wastes are to be stored on site.</li> <li>All solid wastes including spill response wastes, general rubbish and concreting wastes will be stored on site in allocated bins and wastes pits and removed off site by licenced contractors to an approved waste facility.</li> <li>Diesel will be stored in a bunded fuel tank. Refueling of trucks and machinery will occur from this tank on a concreted hard-stand area.</li> <li>Only minor and intermittent servicing of vehicles, machinery or other equipment will be performed on site. Any servicing will be carried out in a designated concreted hard-stand area.</li> <li>Engine and hydraulic oils to be used for servicing or maintenance will be stored in a designated concrete, bunded storage area.</li> <li>Any spills are likely to be in minimal quantity and cover only small localized areas.</li> <li>Concreting the remainder of the site during the upgrade will further prevent any spills from contaminating soils below the concreted areas.</li> <li>Any fuel, oil or chemical spills will be cleaned up immediately using the spill kits on site which are located adjacent to the fuel and oil storage areas.</li> <li>Spill kits will be re-stocked after any spill event.</li> </ul>
Hydrocarbon storage	Unlikely	Minor	Low	<ul style="list-style-type: none"> <li>All storage areas will conform with relevant Australian Standards.</li> </ul>
Solid waste	Unlikely	Negligible	Very low	<ul style="list-style-type: none"> <li>General rubbish produced on site will be stored in closed rubbish bins and will be removed off site for disposal at a licenced facility.</li> <li>Solid concrete wastes will be stored on site and removed off site for disposal at an appropriate landfill site or waste treatment facility, the occupier of which will hold a licence under Part V of the <i>Environmental Protection Act 1986</i>.</li> </ul>
Liquid waste	Very unlikely	Negligible	Very low	<ul style="list-style-type: none"> <li>No liquid wastes are expected to be produced or stored on site as a result of the upgrade.</li> </ul>

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				<ul style="list-style-type: none"><li data-bbox="913 268 2018 296">• If any wastes are produced they will be removed off site and disposed of by a licenced contractor.</li></ul>