Holroyd City
Built Around People

N
W E
S

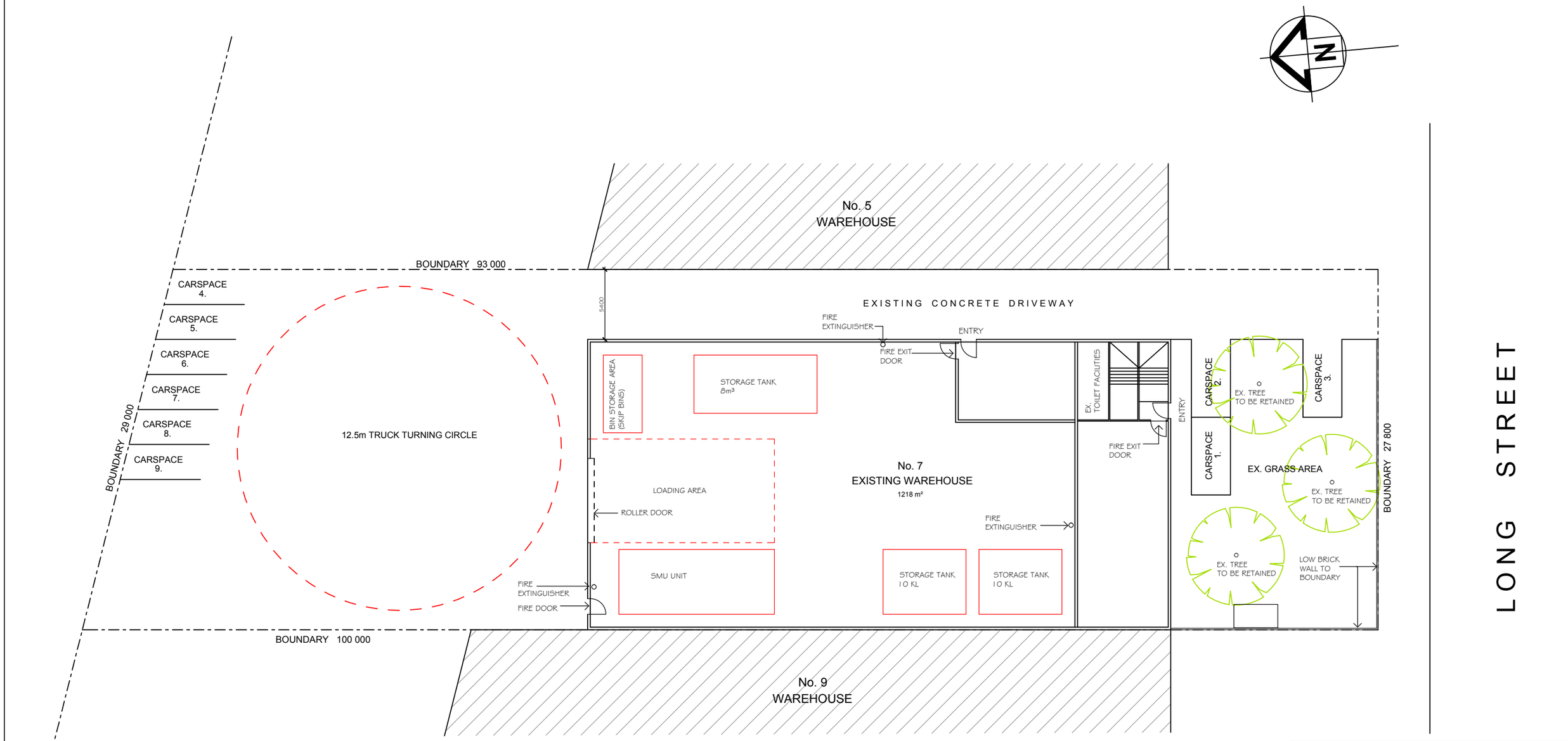
This diagram only indicates the location of Council's and some privately owned stormwater drainage infrastructure. The position of any structures and diameters shown on this diagram are approximate only and need to be confirmed on site.

Title:

Printed by:

Date: 07:09:2016

Scale 1: 2000



Proposed Change of Use

APPLICANT: DEMAST PTY LTD
7 LONG STREET, SMITHFIELD

d'Riva Designs
P.O. Box 103 RAMSGATE 2217
0448 245 634

Site Plan

Date:	Sept 2015 (A3 DWG)	Dwg No.	DA-01
Job No.:	0332	Scale: 1:300	Issue for DA/CC

ENVIRONMENTAL IMPACT STATEMENT
FOR PROPOSED SLUDGE DE-WATERING PLANT
7 LONG STREET, SMITHFIELD
LOT 16, DP238072

Prepared for: DEMAST Pty Ltd
Department of Planning & Environment
NSW EPA
Holroyd City Council

Prepared by: Katie Trahair, Environmental Scientist
Emma Hansma, Acoustic Engineer
Linda Zanotto, Senior Environmental Engineer
David Sallak, Acoustical Engineer
Daniele Albanese, Senior Acoustical and Environmental Consultant
R T Benbow, Principal Consultant

Report No: 151121_EIS_Rev3
November 2015
(Released: 6 November 2015)

Benbow ENVIRONMENTAL

Engineering a Sustainable Future for Our Environment

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Form 2

Submission of
environmental impact statement (EIS)
prepared under the Environmental Planning and Assessment Act 1979 Section 78(A)

EIS prepared by

name	Richard T Benbow
qualifications	Bachelor of Science (Engineering) With Merit
address	Benbow Environmental
	13 Daking Street
	North Parramatta NSW 2151

in respect of

development application

applicant name	DEMAST Pty Ltd
applicant address	80a Long Street, Smithfield NSW 2164
land to be developed: address	7 Long Street, Smithfield NSW
lot no, DP/MPS, vol/fol etc	Lot 16 in DP238072
proposed development	Installation and operation of a sludge de-watering plant.

or
☐ map(s) attached

environmental impact statement

☑ an environmental impact statement (EIS) is attached

certificate

I certify that I have prepared the contents of this Statement and to the best of my knowledge

- it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000,
- contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and
- the information contained in the statement is neither false nor misleading.

signature

Xx R T Benbow

name	Richard T Benbow
date	Xx 06 November 2015

LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use of DEMAST Pty Ltd, as per our agreement for providing environmental services. Only DEMAST Pty Ltd is entitled to rely upon the findings in the report within the scope of work described in this report. Otherwise, no responsibility is accepted for the use of any part of the report by another in any other context or for any other purpose.

Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that otherwise required by law) in relation to any of the information contained within this document. We accept no responsibility for the accuracy of any data or information provided to us by DEMAST Pty Ltd for the purposes of preparing this report.

Any opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal advice.

DOCUMENT CONTROL

Prepared by:	Position:	Signature:	Date:
R T Benbow	Principal Consultant		06 November 2015
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Katie Trahair	Environmental Scientist		06 November 2015
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Approved by:	Position:	Signature:	Date:
R T Benbow	Principal Consultant		06 November 2015

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1	23-10-2015	Draft / Rev1	R T Benbow	R T Benbow
2	27-10-2015	Draft / Rev2	R T Benbow	R T Benbow
3	06-11-2015	Final / Rev 3	R T Benbow	R T Benbow

DOCUMENT DISTRIBUTION

Revision	Issue Date	Issued To	Issued By
1	23-10-2015	DEMAST Pty Ltd	Benbow Environmental
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3	06-11-2015	DEMAST Pty Ltd	Benbow Environmental

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STUDY TEAM

R.T. Benbow	Benbow Environmental	Project Manager Consultation, Justification, Alternatives, Description of Proposal, Environmental Impact Statement Compilation
Linda Zanotto	Benbow Environmental	Executive Summary, Introduction, Description of Proposal, Water, Soil, Flora & Fauna, Waste, Health, Visual, Greenhouse Gas Assessment, ESD, Cumulative Impacts, Summary of Impacts & Mitigation Measures, Environmental Impact Statement Compilation
Katie Trahair	Benbow Environmental	Air Quality Assessment, Description of the Surrounding Environment
Daniele Albanese David Sallak Emma Hansma	Benbow Environmental	Noise Impact Assessment
Geoff Morris	Transport and Urban Planning	Traffic Impact Assessment

ABBREVIATIONS

ABL	Assessment background level
ABS	Australian Bureau of Statistics
AHD	Australian Height Datum
AMMAAP	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW
BOM	Bureau of Meteorology
DA	Development Application
DCP	Development Control Plan
DECC	Department of Environment and Climate Change (now NSW EPA)
DEWHA	Department of the Environment, Water, Heritage and the Arts
DPI	Department of Primary Industry
DNR	Department of Natural Resources
DoP	Department of Planning
DoP&E	Department of Planning and Environment
DoPI	Department of Planning and Infrastructure
DWE	Department of Water and Energy
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cmth)
EPL	Environment Protection Licence
ESD	Ecological Sustainable Development
GDE	Groundwater Dependent Ecosystem
GRS	Glass Recovery Service Pty Ltd
Ha	Hectares
INP	Industrial Noise Policy (guidelines developed by the EPA)
KT	Kilo Tonnes
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
Mbgl	Metres below ground level
Mt	Million tonnes
NES	National Environmental Significance
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
NSW RNP	New South Wales Road Noise Policy
O-I	Owens Illinois
PM_{10}	Particulate matter of size 10 μm
RBL	Rating background level
RMS	Roads and Maritime Services
RNP	NSW EPA Road Noise Policy
ROW	Right of Way
RSD	Roller Shutter Door
RTA	Roads and Traffic Authority
SEPP	State Environmental Planning Policy
T	Tonne (1000kg)
TMP	Traffic Management Plan
Tpa	Tonnes per annum
TSC Act	Threatened Species Conservation Act 1995
TSP	Total suspended particulates
VENM	Virgin Excavated Natural Material

EXECUTIVE SUMMARY

DEMAST Pty Ltd propose to establish a permanent site to process slurry material from road and construction sites across Sydney. The development would involve installation and operation of a sludge dewatering plant within the existing building at 7 Long Street, Smithfield (Lot 16 in DP238072). DEMAST currently hold an Environment Protection Licence EPL #20519 for their mobile Sludge Management Units (SMU) sludge dewatering plants which currently service road and construction sites.

Approval is sought to treat around 140,000 Litres per day of sludge from road and construction sites. This equates to approximately 50,000 tonnes per year. The sludge dewatering plant is an innovative environmental solution to the processing and cleaning of slurry waste by way of separation of sediments and liquids through containerised vibrating dewatering screens and high pressure filtering technologies. There are no contaminants or hazardous by-products created and the process does not generate significant noise emissions. The resulting by-products would be filter cake (inert soil) and treated water, both would be sent back at the site of origin for reuse or recycled at construction sites for dust suppression or similar uses.

The site is currently developed and is zoned IN1 - "General Industrial" under the Holroyd Local Environmental Plan 2013.

The local and regional area of the subject site location is predominantly populated by industrial premises with the nearest residential area approximately 370m to the south of the site. An industrial building, hardstand areas, driveways, grassed areas exist at the site. Prospect Creek is located 240m to the South.

This Environmental Impact Statement (EIS) has been project managed and compiled for the proponent by Richard T Benbow and Linda Zanotto of Benbow Environmental after consultation with the following persons and Government bodies:

- Adjoining industrial plants;
- Holroyd City Council;
- NSW Department of Planning;
- NSW EPA; and
- Service Providers.

The EIS addresses issues raised through the consultation process with the local government, statutory authorities, the proponent and adjoining premises. The assessment process has given strong consideration to cumulative issues associated with the existing activities in the area.

The proposed development is designated development and is also integrated as the activities would need to be licensed by the NSW EPA.

Outline of the Proposal

The site is proposed to be developed to accommodate the following built assets and activities:

- Two sludge dewatering machines called an SMU – Sludge Management Unit – which is a filter press that dewaters sludge producing a filter cake.

- Two 10 kL aboveground water storage tanks within a bunded area inside the existing building. These would hold the water removed from the sludge.
- A conveyor to transfer the dewatered sludge into skip bins for loading the dewatered sludge onto a truck. The truck would remove the dewatered sludge either back to the source site or to off-site disposal.
- The removed water would usually be discharged to sewer, although there will be opportunities for the water to be reused on construction sites for dust suppression.

The plant would have the capacity to treat around 140,000 litres per day. The treatment processes would require limited use of chemicals if the pH of the water needed to be adjusted. The activities would principally be undertaken inside the building.

The operation of the plant can be summarised as the following:

- Sludge is removed from a construction site and transported in trucks using sealed bins or in bulk tankers.

- At the plant, there would be an external hopper with roof over. The sludge is emptied into this hopper. The hopper would have a dewatering screen that allows material less than 0.5–3 mm to pass through into the Sludge Management Unit (SMU). There would be up to two of these units. The plan provided shows only one.

- The SMU is a filter press and uses pressure to filter the sludge through a filter cloth. The cloth enables the water to be cleaned of solids such that the moisture level of the sludge is reduced so that it is spadeable – often referred to as filter cake.

- The cake is transferred to skip bins and would usually be transported back to the site of origin or disposed of off site as a general solid waste.

- The cleaned water is tested for turbidity and pH level as well as per requirements of the Trade Waste Agreement. It may be reused for dust suppression on construction sites or disposed of to sewer.

The proposed facility will be designed to operate 24 hours per day, 365 days per year.

It is well situated away from residential areas and trucks access the site a short distance off an arterial roadway – Cumberland Highway.

The proposed plant will provide employment for approximately 9–12 full-time employees.

The construction phase of the development would involve minor alterations to the layout of the site to facilitate on-site parking. The existing building is well suited to the proposed use and would not require any structural changes.

The proposed development would be required to operate in accordance with conditions of consent and Environment Protection Licence conditions. The consent, licence conditions and the statement of commitments presented in the EIS establish an ongoing compliance monitoring program.

The Study Area

The EIS addresses a study area that encompasses the immediate neighbouring properties within a 3 km radius from the subject site.

Consultation

Individual meetings were held with the nearest local community on a one-on-one basis and statutory authorities. These provided the forum to identify issues and to include these in the EIS. Appropriate guidelines and criteria to be satisfied were advised at this time.

Justification

The proposed development addresses an environmental by-product associated with many construction projects in the Sydney area by providing a permanent site to process this waste. It provides an environmental solution to the processing of slurry while achieving water positive recycling activities.

Community Benefits

There are a number of community benefits including local employment that will receive a boost and an economic flow on to businesses extending beyond the Holroyd City Council area.

DEMAST accepts the by-products and waste of the road and construction industry and this facility is required by this industry to operate. DEMAST is taking waste and converting these into inert products which can be reused.

Alternatives

There are alternatives and these relate to the type of development that is proposed, the type of processes undertaken and the location of the site.

The usual alternatives that exist are to choose another site or choose another process or do nothing.

The site suits DEMAST as it is readily accessible to a major arterial roadway, it is already fully developed and is well separated from residential areas so that a 24/7 operation readily complies with noise criteria.

Alternative sites in other local government areas would also be suitable.

Alternative processes also exist in terms of dewatering sludge such as a vacuum press rather than a filter press. However a filter press is ideally suited to sludge dewatering and is less prone to malfunction.

The ‘do nothing’ alternative does not warrant detailed discussion as it deprives the community of a more sustainable solution to dewatering construction sites and being able to do this at a central facility rather than solely relying on mobile units to assist infrastructure projects and building construction activities.

Objectives of the Proposal

The objectives of the proposal are:

- To establish a permanent site to process slurry material from infrastructure, rail, road and construction sites across Sydney;
- To provide an innovative environmental solution to the management of slurry waste by way of separation of sediments and liquids through containerised vibrating dewatering screens and high pressure filtering technologies; and
- To use a technology that allows by-products of the treatment process to be reused, recycled or returned to the environment. This results in less truck movements, less material ending up in landfill, improvements in resource recovery, water savings and reduction in costs to businesses.

Land Use Zoning

The land is zoned as IN1 - "General Industrial" under the Holroyd Local Environmental Plan 2013 and the development is permissible with consent. The development as designed is consistent with the objectives of this zoning.

Planning Requirements

Under the Environmental Planning and Assessment Regulation 2000, Schedule 3, Part 1 "What is designated development", the following definition is relevant:

> ***32 Waste management facilities or works***
>
> *(1) Waste management facilities or works that store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste and:*
>
> *(a) that dispose (by landfilling, incinerating, storing, placing or other means) of solid or liquid waste:*
>
> *(i) that includes any substance classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or*
>
> *(ii) that comprises more than 100,000 tonnes of "clean fill" (such as soil, sand, gravel, bricks or other excavated or hard material) in a manner that, in the opinion of the consent authority, is likely to cause significant impacts on drainage or flooding, or*
>
> ***(iii) that comprises more than 1,000 tonnes per year of sludge or effluent,*** *or*
>
> *(iv) that comprises more than 200 tonnes per year of other waste material, or*
>
> *(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:*
>
> *(i) that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or*
>
> *(ii) that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or*
>
> *(iii) that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or*

(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or

(d) that are located:

(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally *sensitive area, or*

(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or

(iii) within a drinking water catchment, or

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or

(v) on a floodplain, or

(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

(2) This clause does not apply to:

(a) development comprising or involving any use of sludge or effluent if:

(i) the dominant purpose is not waste disposal, and

(ii) the development is carried out in a location other than one listed in subclause (1) (d), above, or

(b) development comprising or involving waste management facilities or works specifically referred to elsewhere in this Schedule, or

(c) development for which State Environmental *Planning Policy No 52-Farm Dams and Other Works in Land and Water Management Plan Areas requires consent.*

Under Clause 8 (1) of the *State Environmental Planning Policy (State and Regional Development) 2011*, development is declared to be state significant development if it is specified in Schedule 1 or 2.

Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 applies to the development. Clause 23 (6) (b) is relevant to the proposed activities:

23 Waste and resource management facilities

(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:

(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or

(b) has a capacity to receive more than 650,000 tonnes per year of putrescible waste over the life of the site, or

(c) is located in an environmentally sensitive area of State significance.

(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:

(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or
(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

As the sludge is not an industrial waste, this Clause is not relevant and the project is not state significant.

Approval for 50,000 Tonne of sludge per year will be sought. The site is also within 500m of a residential zone. Therefore, the proposed development constitutes designated development.

Identification and Prioritisation of Issues

The identification and prioritisation of the potential environmental impacts of the proposed development was a fundamental step in preparing the EIS. The statutory requirements and government guidelines in conjunction with the government consultation process resulted in determination of key issues including:

- Strategic context;
- Waste management;
- Hazards and risk;
- Air quality and odour;
- Noise and vibration;
- Soil and water;
- Traffic and transport;
- Incident management;
- Biodiversity;
- Visual amenity; and
- Heritage – including Aboriginal and non-Aboriginal heritage.

Assessment of the Impacts

The preparation of the EIS has considered impacts to the surrounding community and deliberate steps have been taken in the design of the proposal to minimise off-site environmental impacts.

Engineered controls to minimise potential impacts have been considered as inherent design features to be incorporated into the proposed development.

A brief summary of the main environmental impacts is presented below.

Strategic context

The project is needed by several industries that provide construction activities to Sydney. The projects cover a wide range of activities that are not well known to the community as the site is usually isolated from access.

An example is used to illustrate the importance of this project in the strategic context of Sydney's growth.

Construction sites for buildings in the CBD involve deep excavations. Entry of rainwater or groundwater results in sludge which needs to be removed so that construction is not delayed.

The sludge can be removed by tanker and taken to landfill or more usefully taken to a plant where the sediment can be readily removed from the sludge. This process is well known and involves filtering the sediment from the sludge so that the water is free of non-filterable residues and turbidity.

The water can be reused or disposed of to sewer.

Waste management

The facility uses waste as a raw material. This waste is the slurry generated from non-destructive excavation undertaken at construction sites throughout Sydney. Waste generated from the processes on site would consist of filter cake (inert soil), treated wastewater and some office waste. All process waste would be recyclable.

All waste has been appropriately classified in accordance with the NSW EPA *Waste Classification Guidelines*. There are expected to be negligible risks associated with waste generation from the proposed development.

Air Quality

The air quality issues are minimal as the waste liquid is sludge that is not organic in nature and therefore is not biodegradable and no dust is able to be generated. No air pollution controls are needed.

Soil & Water

Sludge is stored within a tank that is bunded. The sludge dewatering operations are within a building that is bunded.

The opportunity for sludge to escape the process is assessed in the Water Assessment.

Noise Amenity

The operations are wholly conducted within the existing buildings on site. Noise levels generated are relatively low and over the separation distances that exist, noise levels would not be audible.

Traffic

It is anticipated the proposed development would generate 1-2 truck movements per hour. This level of traffic would not be excessive. A Traffic Impact Assessment has been undertaken to address issues raised by the Roads and Maritime Services (RMS) and is provided as an Appendix to this EIS. The Traffic Report concluded that:

> *"…the proposed development will be a low traffic generator and there will be a very low traffic impact on the surrounding road system. The access driveway and internal manoeuvring areas are satisfactory for the size and volume of vehicles that will access the site. Sufficient on site car parking is available for all staff and visitors."*

Road Traffic Noise

The number of truck movements and distance from residences means that traffic generated noise is not an issue and is not evaluated.

Environmental Risk Analysis

The environmental risks that exist are from the handling of sludge on-site. A detailed hazard analysis was undertaken and this generated a number of basic safeguards that DEMAST had already included in their design of the site.

The level of environmental risk with the safeguards in place is very low.

Chemical Management

There would be no storage of chemicals exceeding the threshold quantities in Applying SEPP 33.

There would be no storage of chemicals that would require notification or a manifest under the Work, Health and Safety Regulations 2011.

There would be minor quantities of dangerous goods being LPG gas cylinders and pH adjusting acid and alkali in 20 L containers. Cleaning chemicals may be on site again in minor quantities.

Ecological Sustainable Development

Ecological Sustainable Development (ESD) is growing in its acceptance amongst the community.

The Department of Environment and Heritage website defines ESD as "*development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs*".

The proposed development would benefit the community as it reduces the need to dispose of this material to a landfill.

The process enables the water to be free of the majority of any suspended solids (non-filterable residue) and the water can be reused or disposed of to sewer. The dewatered sludge (referred to as filter cake) is spadeable and is able to be returned to the site or used in construction materials.

These aspects provide positive benefits to our management of wastes in Sydney.

The main environmental safeguards to be implemented so that the environment is maintained and protected include:

- Bunding of the building;
- No sludge, water or the filter cake would be stored outside of the building without protection from the weather;
- An Environmental Management Plan would be in place; and
- An emergency Plan and Pollution Incident Risk Management Plan.

Greenhouse Gas Emissions

Greenhouse gas emissions would be minimal. A greenhouse gas assessment has been undertaken for Scope 1, 2 and 3 emissions. Opportunities for reduction of GHG's would be implemented at the site as part of the Environmental Management Plan.

Concluding Remarks

The EIS has undertaken detailed consideration of potential issues related to the proposed development and designed methods of solving any issues that may arise.

The studies undertaken have addressed the issues raised by the Department of Planning and Infrastructure, Holroyd City Council, and the NSW Environment Protection Authority.

Approval of the development is requested.

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Attachment 2: Noise QA/QC Procedures
Attachment 3: Calibration Certificates
Attachment 4: Noise Logger Charts
Attachment 5: Waste Management Plan

Appendices

Appendix 1: SEARS
Appendix 2: Traffic Impact Assessment
Appendix 3: Sydney Water Application #37990

1. INTRODUCTION

Benbow Environmental were engaged to prepare an Environmental Impact Statement to support a development application for the installation and operation of a sludge dewatering plant to be located at 7 Long Street, Smithfield (Lot 16 in DP238072). The plant would treat around 50,000 tonnes per annum of sludge from infrastructure, rail, road and construction sites. The resulting by-products would be filter cake (inert spadeable soil) and treated water, both would be sent back to the site of origin for reuse or the water recycled at construction sites for dust suppression or similar uses.

The treatment processes would require limited use of chemicals if the pH of the water needed to be adjusted. The activities would principally be undertaken inside the building.

The plant would require the following built assets and activities:

- Two sludge dewatering machines called an SMU – Sludge Management Unit – which is a filter press that dewaters sludge producing a filter cake.
- Two 10 kL aboveground water storage tanks within a bunded area. These would hold the water removed from the sludge.
- A conveyor to transfer the dewatered sludge into skip bins for loading the dewatered sludge onto a truck. The truck would remove the dewatered sludge either back to the source site or to off-site disposal.
- The removed water would usually be discharged to sewer under a Trade Waste Agreement, although there will be opportunities for the water to be reused on construction sites for dust suppression.
- A testing regime would be in place to ensure water quality, pH, is known and recorded. This would be addressed in an Environmental Management Plan for the site.

The plant would operate 24 hours a day, 7 days a week and would create 9 – 12 new employment positions.

The proposed development requires an Environment Protection Licence under the *Protection of the Environment Operations Act, 1997* and therefore constitutes integrated development.

The proposed development as described in this Environmental Impact Statement is not state significant development under Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* as the sludge is not industrial waste. The following would otherwise apply:

> ***23 Waste and resource management facilities***
>
> *(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:*
>
> *(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or*
> *(b) has a capacity to receive more than 650,000 tonnes per year of putrescible waste over the life of the site, or*
> *(c) is located in an environmentally sensitive area of State significance.*

(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:

(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or
(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

As the sludge is not an industrial waste, this Clause is not relevant and the project is not state significant.

Under the Environmental Planning and Assessment Regulation 2000, Schedule 3, Part 1 "What is designated development", the following definition is relevant:

32 Waste management facilities or works

(1) Waste management facilities or works that store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste and:

(a) that dispose (by landfilling, incinerating, storing, placing or other means) of solid or liquid waste:

(i) that includes any substance classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that comprises more than 100,000 tonnes of "clean fill" (such as soil, sand, gravel, bricks or other excavated or hard material) in a manner that, in the opinion of the consent authority, is likely to cause significant impacts on drainage or flooding, or

(iii) that comprises more than 1,000 tonnes per year of sludge or effluent, *or*

(iv) that comprises more than 200 tonnes per year of other waste material, or

(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:

(i) that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or

(iii) that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or

(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or

(d) that are located:

(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally *sensitive area, or*

(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or

(iii) within a drinking water catchment, or

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or

(v) on a floodplain, or

(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

(2) This clause does not apply to:

(a) development comprising or involving any use of sludge or effluent if:

(i) the dominant purpose is not waste disposal, and

(ii) the development is carried out in a location other than one listed in subclause (1) (d), above, or

(b) development comprising or involving waste management facilities or works specifically referred to elsewhere in this Schedule, or

(c) development for which State Environmental *Planning Policy No 52-Farm Dams and Other Works in Land and Water Management Plan Areas requires consent.*

Approval for 50,000 Tonne of sludge per year will be sought. The site is also within 500m of a residential zone. Therefore, the proposed development constitutes designated development.

This EIS addresses the requirements of the Department of Planning and Environment, Holroyd City Council and the NSW Environment Protection Authority.

The EIS results in a compilation of environmental safeguards recommended for the proposed development.

A Statement of Commitments is provided in Section 9. The Statement of Commitments summarises the commitment made by the proponents to the environmental controls designed into the development. This statement bears the signatures of the proponents.

1.1 INTRODUCTION TO THE PROPONENT

The proponent and operator of the facility is **DEMAST Pty Ltd** (ACN 168 661 514).

DEMAST hold an Environment Protection Licence for their mobile SMU sludge dewatering plants which currently service the road and construction sites – EPL #20519. This process is a mobile waste processing activity that allows DEMAST to carry out the process at various sites across Sydney provided it does not operate at any one site for more than six (6) months.

1.2 BACKGROUND

Excavation techniques have changed in recent times with the ever increasing presence of buried services such as fibre optic cables, water services and electricity. The preferred method of excavation by most councils and major contractors is non-destructive excavation.

Non Destructive Digging is a safe solution to avoid hitting or breaking existing services underground. This technology uses high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank. This vehicle is known as a sucker truck and is no bigger than a garbage truck. This method of excavating is fast becoming the preferred method of excavating for authorities such as councils to avoid damaging services.

The result of the above process is that a mixture of soils and clean water combine, essentially creating mud or sludge. The SMU provides an environmental solution to separating the water from the soil allowing the two products to be reused, recycled or returned to the environment.

Under the existing Environmental Protection Licence (No: 20519) only acceptance of uncontaminated classified material which is produced through Non Destructive Excavation is permissible. The current licence allows a mobile waste processing of the slurry to be carried out at the construction site.

1.3 PROJECT OUTLINE

This section of the EIS outlines the project. This includes the objectives of the project, the need for the project, purposes of the EIS, structure of the document, and statutory requirements.

1.3.1 Objectives of the Proposal

The objectives of the proposal are:

- To establish a permanent site to process slurry material from road and construction sites across Sydney;
- To provide an innovative environmental solution to the management of slurry waste by way of separation of sediments and liquids through containerised vibrating dewatering screens and high pressure filtering technologies; and
- To use a technology that allows by-products of the treatment process to be reused, recycled or returned to the environment. This results in less truck movements, less material ending up in landfill, improvements in resource recovery, water savings and reduction in costs to businesses.

1.3.2 Need for Development

The proposal is needed by the proponents to provide a permanent site for the processing of slurry material generated by the infrastructure and construction industry across Sydney. The resulting dry filter cake would be returned to the original site for reuse where practical and the treated water to be reused, recycled or disposed to sewer. Implementation of the development would result in less truck movements, less material requiring landfilling, improvements in resource recovery, water savings and a reduction in waste disposal costs.

The proponent currently specialises in providing this innovative environmental solution as a mobile service. The facility aims at achieving best practice recycling outcomes at a permanent site.

The design inherently follows the principles of cleaner production and sustainability, and has established the principles of ecologically sustainable development. In addition, the proposal is relevant to targets 1, 2 and 4 within the *NSW Waste Avoidance and Resource Recovery Strategy 2007*, including:

Target 1 – Preventing and avoiding waste – The proposal is relevant to target 1 as it will converts waste into usable by-products.

Target 2 – Increasing recovery and use of secondary materials – The proposal is relevant to target 2 as it will provide the infrastructure to enable treatment of waste slurry from the road construction industry into by-products that can be reused or recycled.

Target 4 – reducing litter and illegal dumping – The proposal is relevant to target 4 as it provides a recycling infrastructure and therefore allows recycling of waste slurry as opposed to dumping.

1.3.3 Purpose of the EIS

The purpose of this EIS is to document the existing environment, assess the environmental impacts from the facility and recommend any additional safeguards as required.

The EIS process for the proposed development has identified the constraints on the development and the engineered controls needed to achieve compliance with the criteria that have been applied.

The purpose of the EIS is also to provide the consent authority, the community, government authorities, and the applicant with sufficient information to make informed decisions in relation to the proposed development.

The consent authority is the Holroyd City Council. The site contains an existing industrial building and associated offices, car parking, hardstand areas and infrastructure to carry out the recycling operations.

The site is similar to the industrial premises residing in the area, which would have equal or larger capacities compared to the proposal's production capacity. Formalisation of the facility and the processes on site is enabled by the EIS.

1.3.4 Structure of the EIS

The EIS is organised into the following three main sections:

- **Executive Summary**
  This summarises the proposed development, justification and the environmental assessment of the proposal.

- **Main Contents of the EIS**
  The main contents of the EIS describe the development in detail, the environmental assessment of the issues, the impacts, and safeguard measures.

- **Appendices**
  The Appendices contain the requirements of the Secretary's Environmental Assessment Requirements (SEARs), and technical support documents.

1.3.5 Statutory Requirements

The statutory requirements to be satisfied are those contained within the Environmental Planning and Assessment Act 1979 and the associated Environmental Planning Instruments and Regulations.

The report also addresses the Secretary's Environmental Assessment Requirements (SEARS Reference No. 958) relating to applicable environmental planning instruments that apply to the site.

The key environmental planning issues that were raised in these requirements included the following:

- Strategic context;
- Waste management;
- Hazards and risk;
- Air quality and odour;
- Noise and vibration;
- Soil and water;
- Traffic and transport;
- Incident management;
- Biodiversity;
- Visual amenity; and
- Heritage – including Aboriginal and non-Aboriginal heritage.

A copy of the requirements has been included in Appendix 1 to the EIS and includes EPA and Council requirements. All the SEARS have been considered in the preparation of the EIS.

The Statement of Compliance is listed in Section 2.3 and titled "Compliance with Secretary's Environmental Assessment Requirements". There are three (3) tables that list the section and page where required information has been provided.

1.4 DEVELOPMENT ALTERNATIVES

This section of the EIS discusses alternatives to the development in regard to both the site and proposed methods of operation. The criteria for selection are firstly discussed.

1.4.1 Criteria for Selection

This site has been selected for several reasons:

- The existing site has sufficient room available to house the operations.
- The site is not in a sensitive land use area.
- The development is a permitted use with consent.
- The development is a beneficial use which would fulfil the principles of ecologically sustainable development and is to be encouraged.
- The development generates local employment.
- Transport routes are readily available.
- The site has ample room for on-site parking and truck manoeuvring.

1.4.2 Alternative Sites

Several other sites were examined:

- In nearby industrial estates.
- Adjoining major roadways such as Eastern Creek.

An older industrial area was considered to be more suited and without a high standard of presentation as the business does not sell products.

There would be other landholdings available with similar advantages as the current site. The selected site is very well suited to the proposed activity.

1.4.3 Alternative Design and Methods

There are several alternatives available. Driving the selection are economies of scale, storage capacity of cleaned water, dryness of the filter cake and ease of operation. The sludge being collected contains water and sediment. It is free of industrial type contaminants as it is obtained from construction sites where groundwater or surface water forms a sludge in the bottom of a construction area.

The collection and transport would be in bulk tankers licensed for this purpose and having on board with the driver a pollution incident risk management plan that deals with the collection, transport and pumping out of the bulk tanker at the proposed site.

These activities have very little scope for credible alternatives.

Within the building there are at least two alternatives:

- Use a clarifier to settle the sediment.
  This will require a larger area as clarifiers use a defined velocity of water to achieve the forming of a sludge blanket. The sludge blanket once formed then needs time to settle. The sludge separated from clean water is then able to be removed by tanker to a landfill or waste water treatment plant.

  The cleaned water is able to be reused on site or reused for dust suppression as it is free of contaminants or unacceptable pH.

  This alternative does not provide the advantages needed.

- Use a different type of filter press.
  Filter presses are usually either a vacuum type or a pressure type.

  The vacuum type relies on a vacuum pump to place one surface of a fabric belt under vacuum which draws water through the fabric leaving the sediment on the upper surface of the belt where it is scraped off into a bin as a spadeable material. The other and preferred type uses the compression of a fabric belt which "squeezes" the water out of the sludge. This uses mechanical force to provide the pressure on the fabric belt.

  This type of press also produces a filter cake.

  The mechanical method is preferred over the vacuum type.

Environmentally there are no significant differences. The mechanical method is considered to be less prone to breakdowns.

1.4.4 The "No Project" Option

The consequences of not proceeding would reduce the commercial viability of the existing successful operations and cause difficulties for the generators to find recycling alternatives. This would likely see more of the sludge sent to landfill.

The "no project" option would deny the wider community of the benefits of recovering valuable materials from waste streams.

Not proceeding with the project would limit the consumers being able to receive lower cost products. The project would not contribute to the community's recycling programs nor generate employment that would have flow on financial benefits to the surrounding area.

The project provides skilled workers to opportunity for employment which are diminishing as manufacturing declines.

1.5 LICENCES AND APPROVALS

A number of approvals, permits and licences would be required prior to operations of the proposed development commencing on site. The following table identifies the majority of these approvals and the responsible regulatory/governing body.

Table 1-1: Approvals Required

Approval Required	Approving Body	Description/Comment
Development Consent	Holroyd City Council	Under Environmental Planning & Assessment Act 1979.
Environment Protection Licence	New South Wales Environment Protection Authority (NSW EPA)	Scheduled Activity under Schedule 1 of POEO Act 1997.
Tradewaste Agreement	Sydney Water	Required for disposal of industrial wastewater from the process where this cannot be recycled.

1.6 IDENTIFICATION AND PRIORITISATION OF ISSUES

As noted in the Executive Summary, the identification and prioritisation of the potential environmental impacts of the proposed development was a fundamental step in preparing the EIS.

This process involved the following stages:

- Inspection of the site and surrounding environment, identification of potential sensitive receptors and preparation of a scoping report;
- Identification of planning requirements;
- Consultation with Holroyd City Council and EPA requirements and expectations; and
- Assessment of requirements for the EIS from the DoP&E.

These steps led to the design and objectives of the Proposal.

The statutory requirements and government guidelines in conjunction with the government consultation process confirmed the presence of issues. The main ones warranting assessing based on the location of the site wholly within an industrial estate are the following:

- Waste management;
- Hazards and risk;
- Air quality and odour;
- Noise and vibration;
- Soil and water;
- Traffic and transport; and
- Incident management.

1.7 RELATIONSHIP WITH OTHER INDUSTRIES AND FACILITIES

There is a strong relationship between DEMAST and the road and construction sites across Sydney. The innovative environmental technology in dealing with the slurry generated from the non-destructive excavation activity provides a no waste solution for this industry.

2. DEVELOPMENT ISSUES

2.1 PLANNING

This section of the Environmental Impact Statement (EIS) provides an assessment of the proposed development in accordance with all relevant statutory planning controls.

2.1.1 Site Details

The subject land is situated to the west of the Cumberland Highway on Long Street within the suburb of Smithfield and Local Government Area of Holroyd City Council. The site is a single lot with legal description Lot 16 in Deposited Plan 238072 and is commonly known as No. 7 Long Street, Smithfield. Figure 2-1 indicates the location of the land.

The subject land is a slightly irregular rectangular shaped lot with a frontage of 27.8m to Long Street (southern boundary), a northern splayed (rear) boundary of 29m, 100m long to the western boundary adjoining No. 9 Long street and 93m long to the eastern boundary adjoining No. 5 Long Street.

The area of the land is 2700sqm.

Figure 2-1: Site Location

Source: Six Maps, NSW Government Land and Property Information

↑N Not to scale		Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

2.1.1.1 Existing Development

The site contains a large factory/warehouse building to the rear of two storey brick offices facing the street. The building is a typical industrial design with a flat roof, small windows to the ground floor facing the street and larger windows in the first floor providing adequate light and ventilation to the office space. Two roller doors are provided to the eastern elevation and one roller door is located to the rear of the building where a large hardstand area is provided for storage and on site maneuvering.

The front yard between the factory and the road is currently grass with three existing trees. An electricity box (1.3m x 2.9m) is located in front of the factory adjacent to the western boundary. The factory building is erected up to the western property boundary adjoining No. 9 Long Street and has a 5.4m setback from the eastern boundary providing driveway access to the rear of the site. The factory building has a width of 27.5m and a depth of 44.3m, creating a building area of 1218m^2. The offices located in the front portion of the building have a depth of 7.0m and a width of 22.1m, providing approximately 480m^2 of subsidiary office, staffroom and toilet facilities.

The rear part of the site is concrete hardstand which provides a large area for the parking of cars, manoeuvring and storage. The rear boundaries have low height fencing with very little screening of the adjoining land uses.

The following figures provide aerial views of the subject land and the surrounding development. The subject land is located in a well-established industrial area.

Figure 2-2: Aerial View of the Land

Source: Six Maps, NSW Government Land and Property Information

↑N Not to scale		Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

Figure 2-3: Aerial View of the Site and Surrounding Development

Source: Six Maps, NSW Government Land and Property Information

↑N Not to scale		Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

2.1.1.2 Topography and Vegetation

The site is devoid of any significant vegetation.

2.1.2 Planning Framework

2.1.2.1 Commonwealth Controls

2.1.2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) would apply to the development of the subject land. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the EPBC Act as matters of national environmental significance.

The proposed development would not have a significant impact on matters of National environment significance and it is not on Commonwealth land. Therefore, the Provisions of the Act do not have application and the approval of the Minister is not required.

2.1.2.2 State Controls

2.1.2.2.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A) and the Environmental Planning and Assessment Regulation 2000 provide the framework for environmental planning in NSW. The Act and the Regulations include Provisions to ensure that proposals, which have the potential to impact on the environment, are subject to detailed assessment.

State Significant development

Under Clause 8 (1) of the *State Environmental Planning Policy (State and Regional Development) 2011*, development was potentially state significant development if it is specified in Schedule 1 or 2.

Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 applies to the development. Clause 23 (6) (b) is relevant to the proposed activities:

> ***23 Waste and resource management facilities***
>
> *(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:*
>
> *(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or*
> *(b) has a capacity to receive more than 650,000 tonnes per year of putrescible waste over the life of the site, or*
> *(c) is located in an environmentally sensitive area of State significance.*
>
> *(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.*
>
> *(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.*
>
> *(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.*
>
> *(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.*
>
> ***(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:***
>
> *(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or*
> ***(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.***

It was considered that the sludge is not liquid industrial waste and therefore the proposed development is <u>not</u> state significant. Instead, the development is designated as it meets a Clause in Schedule 3 of the Environment Planning and Assessment Regulations 2000.

Designated development

Under the Environmental Planning and Assessment Regulation 2000, Schedule 3, Part 1 "What is designated development", the following definition is relevant:

32 Waste management facilities or works

(1) Waste management facilities or works that store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste and:

(a) that dispose (by landfilling, incinerating, storing, placing or other means) of solid or liquid waste:

(i) that includes any substance classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that comprises more than 100,000 tonnes of "clean fill" (such as soil, sand, gravel, bricks or other excavated or hard material) in a manner that, in the opinion of the consent authority, is likely to cause significant impacts on drainage or flooding, or

(iii) that comprises more than 1,000 tonnes per year of sludge or effluent, *or*

(iv) that comprises more than 200 tonnes per year of other waste material, or

(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:

(i) that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or

(iii) that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or

(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or

(d) that are located:

(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally *sensitive area, or*

(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or

(iii) within a drinking water catchment, or

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or

(v) on a floodplain, or

(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

(2) This clause does not apply to:

(a) development comprising or involving any use of sludge or effluent if:

(i) the dominant purpose is not waste disposal, and

(ii) the development is carried out in a location other than one listed in subclause (1) (d), above, or

(b) development comprising or involving waste management facilities or works specifically referred to elsewhere in this Schedule, or

(c) development for which State Environmental *Planning Policy No 52-Farm Dams and Other Works in Land and Water Management Plan Areas requires consent.*

Approval for 50,000 tonnes of sludge per year will be sought. The site is also within 500m of a residential zone. Therefore, the proposed development constitutes designated development.

An Environmental Impact Statement (EIS) is required to accompany an application that is designated. The Regulations detail the information required to be provided and this information is so provided in this EIS.

Integrated development

Clause 91 of the Environmental Planning and Assessment Act 1979 defines development that is "Integrated development", that in order for it to be carried out, requires development consent and one or more approvals.

The proposed activity pursuant to Clause 48 of the Protection of the Environment Operations Act 1997 requires licensing as a scheduled activity (premises based).

Clause 41 of Part 1 of Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act) states that '*Waste Processing (non thermal treatment)* includes *'non thermal treatment of liquid waste'* which is defined as *'the receiving of liquid waste (other than waste oil) from off site and its processing otherwise than by thermal treatment.*' '*Non-thermal treatment of liquid waste*' is declared to be a scheduled activity if it involves having on site at any time more than 200 kilograms of liquid waste.

2.1.2.2.2 Threatened Species Conservation Act 1995

The subject land is not biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act 1995. There is no approved bio banking agreement that applies to the land. The subject land does not contain threatened species.

2.1.2.2.3 NSW Heritage Act 1977

The subject land does not contain an item of environmental heritage. There is no item of environmental heritage in the immediate vicinity of the subject land that would be impacted by the proposed use. There are no heritage issues.

2.1.2.2.4 Native Vegetation Act 2003

The subject land does not contain Native Vegetation.

2.1.2.2.5 State and Regional Environmental Planning Policies

The following table summarises the policies that apply to the subject land.

Table 2-1: State and Regional Environmental Planning Policies

Policy	Comments
SEPP No 1 – Development Standards	No application
SEPP No 4 – Development Without Consent and Miscellaneous Exempt and Complying Development (Clause 6 and Parts 3 and 4 do not apply)	No application
SEPP No 19 – Bushland in Urban Areas	No application
SEPP No 32 – Urban Consolidation (redevelopment of Urban Land).	No application
SEPP No 33 – Hazardous and Offensive Development.	No application. As discussed in this EIS measures can be put in place such that the use is neither offensive nor hazardous.
SEPP No 55 – Remediation of Land.	The history of the use of the land would suggest that the land is not contaminated.
SEPP No 62 – Sustainable Agriculture	No application
SEPP No 64 – Advertising and Signage.	Subject to future application
SEPP No 65 – Design Quality of Residential Flat Development.	No application
SEPP (Repeal of Concurrence and Referral provisions) 2008	No application
SEPP (Temporary Structures) 2007	No application
SEPP (Infrastructure) 2007.	Discussed below
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	No application
SEPP (Major Development) 2005	No application
SEPP (State and Regional (Development) 2011	No application as detailed above.
SEPP (Exempt and Complying Development Codes) 2008.	No application
SEPP (Affordable Rental Housing) 2009.	No application
Sydney REP No 9 – Extractive Industry (No 2 - 1995).	No application
The Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment.	Refer to comments below

The following State Environmental Planning Policies (SEPP) have been examined in further detail:

- SEPP (Infrastructure) 2007
- SEPP no. 33 – Hazardous and Offensive Development
- SEPP no. 55 – Remediation of Land
- GMREP No. 2 – The Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment

State Environmental Planning Policy (Infrastructure) 2007

The facility being a "waste management facility" is permissible under the provisions of SEPP (Infrastructure) 2007.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

Pursuant to Clause 3 of State Environmental Planning Policy No. 33 (SEPP 33) 'potentially hazardous industry' is defined as follows:

> *"potentially hazardous industry" means a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:*
>
> *(a) to human health, life or property; or*
> *(b) to the biophysical environment,*
>
> *and includes a hazardous industry and a hazardous storage establishment."*

Hazardous storage establishment is defined at Clause 4 of SEPP 33 as follows:

> *"hazardous storage establishment" means any establishment where goods, materials or products are stored which, when in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the establishment from existing or likely future development on the other land in the locality), would pose a significant risk in relation to the locality."*
>
> (a) to human health, life or property; or
> (b) to the biophysical environment."

The proposed operation involves treatment of waste slurry into reusable and recyclable by-products. A very minor quantity of dangerous goods would be required. The proposal therefore does not fit the definition of "potentially hazardous industry" or "hazardous storage establishment" and SEPP 33 does not apply.

State Environmental Planning Policy No. 55 – Remediation of Land

The proposed development would not involve construction or excavation works therefore would not be assessable under SEPP 55 – Remediation of Land.

The Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment

The Aims and Objectives of this Plan are:

> *(1) The general aims and objectives of this plan are as follows:*
>
> *(a) to maintain and improve the water quality and river flows of the Georges River and its tributaries and ensure that development is managed in a manner that is in keeping with the national, State, regional and local significance of the Catchment,*
>
> *(b) to protect and enhance the environmental quality of the Catchment for the benefit of all users through the management and use of the resources in the Catchment in an ecologically sustainable manner,*

(c) to ensure consistency with local environmental plans and also in the delivery of the principles of ecologically sustainable development in the assessment of development within the Catchment where there is potential to impact adversely on groundwater and on the water quality and river flows within the Georges River or its tributaries,

(d) to establish a consistent and coordinated approach to environmental planning and assessment for land along the Georges River and its tributaries and to promote integrated catchment management policies and programs in the planning and management of the Catchment,

(e) (Repealed)

(f) to provide a mechanism that assists in achieving the water quality objectives and river flow objectives agreed under the Water Reform Package.

(2) The specific aims and objectives of this plan are as follows:

Environmental protection and water quality and river flows

(a) to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments such as wetlands (including mangroves, saltmarsh and seagrass areas), bushland and open space corridors within the Catchment, by identifying environmentally sensitive areas and providing for appropriate land use planning and development controls,

(b) to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment by providing appropriate development,

(c) to ensure that development achieves the environmental objectives for the Catchment.

Regional role and land use

(a) to identify land uses in the Catchment which have the potential to impact adversely on the water quality and river flows in the Georges River and its tributaries and to provide appropriate planning controls aimed at reducing adverse impacts on the water quality and river flows,

(b) to conserve, manage and improve the aquatic environment within the Catchment which is a significant resource base for the aquaculture industry, by providing controls aimed at reducing pollution entering the Catchment's watercourses,

(c) to protect the safety and well-being of the local and regional community in accordance with standards and processes aimed at improving the water quality and river flows in the Catchment to enable recreation,

(d) to aid in the improvement of the environmental quality of Botany Bay in conjunction with other regional planning instruments.

Clause 11 (22) includes particular specific matters for consideration in respect of Waste management facilities or works as follows:

Specific matters for consideration

> *A system is to be required to manage leachate surface controls on the land on which the waste management facility or works is or are proposed.*
>
> *A site management plan is to be required for the land on which the waste management facility or works is or are proposed.*
>
> *The likelihood of groundwater contamination.*
>
> *The adequacy of the proposed leachate management system and surface water controls.*
>
> *The long-term stability of the final landform and the adequacy of the site management plan.*
>
> *Where the proposed development involves extraction of material, whether an adverse impact on the Georges River or its tributaries will result.*
>
> *The aim of this plan is to protect the environment of the Georges River system by ensuring that the impacts of future land uses are considered in a regional context.*

These matters for consideration have been addressed in this EIS. It can be determined that the proposed use is not inconsistent with the Aims and Objectives of the Policy, whilst the matters for consideration are satisfied.

2.1.2.3 Local Planning Instruments

Holroyd Local Environmental Plan 2013

This section was prepared by the applicant.

Holroyd LEP 2013 applies to all land within the Holroyd City Council. Pursuant to Clause 2.1 of the LEP, the subject site is within *Zone IN1 General Industrial* and amongst other things *waste or resource management facility* is a permissible land use with Council's development consent as it is development not specified in item 2 or 4 of the land use table.

It is considered that the proposal is best described as a *waste or resource management facility* which is defined in the Holroyd LEP as follows and includes a '*waste or resource transfer station*' and '*resource recovery facility*':

> *(a)* ***a resource recovery facility****,*
> *(b) a waste disposal facility,*
> *(c)* ***a waste or resource transfer station****,*
> *(d) a building or place that is a combination of any of the things referred to in paragraphs (a)–(c).*

Furthermore a *resource recovery facility* is defined as:

> ***resource recovery facility*** *means a building or place used for the recovery of resources from waste, including works or activities such as separating and sorting, processing or treating the waste, composting, temporary storage, transfer or sale of recovered resources, energy generation from gases and water treatment, but not including re-manufacture or disposal of the material by landfill or incineration.*
>
> ***Note.*** *Resource recovery facilities are a type of* ***waste or resource management facility****— see the definition of that term in this Dictionary.*

The proposed activity focuses on the recovery of resources from slurry waste and seeks to reuse and recycle where possible. Only in rare cases where contamination exists will the waste products be sent to landfill.

The following objectives are specified for development within the *IN1 General Industrial* zone:

1 *Objectives of zone*

- *To provide a wide range of industrial and warehouse land uses.*
- *To encourage employment opportunities.*
- *To minimise any adverse effect of industry on other land uses.*
- *To support and protect industrial land for industrial uses.*
- *To enable other land uses that provides facilities or services to meet the day to day needs of workers in the area.*

The proposal is entirely consistent with the above objectives, will encourage employment opportunities and will not generate any adverse effect on other land uses. It reinforces and protects industrial land for industrial use.

Clause 4.1 'Minimum subdivision lot size' requires a minimum lot size of 1200m^2 for industrial sites within Smithfield as shown on Sheet LSZ_006 of the Holroyd LEP. The application does not include subdivision of the land and the site will retain a site area of 2700m^2. There are no other provisions under the LEP that refer to industrial land use and consequently the proposal is considered to meet the LEP provisions for development within the General Industrial zone.

Holroyd LEP 2013 Housekeeping Amendment Proposal

Amendments are proposed under *Holroyd LEP 2013 Housekeeping Amendment Proposal* which was granted Gateway Determination on 17 October 2014. There are no provisions within the Housekeeping Amendment Proposal that are relevant to the subject land with the majority of changes under the amendment seeking to address anomalies in the Holroyd LEP 2013.

Holroyd Development Control Plan 2013

Holroyd DCP 2013 applies to all land within Holroyd City Council to which the Holroyd Local Environmental Plan 2013 applies and accordingly applies to the subject site. Part D 'Industrial Controls' applies to the site and sets out matters relating to design, landscaping, pollution controls and factory units. Part A 'General Controls' is also relevant and sets out requirements for car parking, access and manoeuvring.

The following is an assessment of the proposed use against the relevant DCP provisions and the proposal's compliance with them.

Part A 'General Controls'

Parking
The site currently has no formal car parking areas allocated with cars parking on the grass area to the front of the building or in the large hard standing area to the rear of the site. This proposal seeks to formalise parking on the site with three (3) spaces proposed to the front of the office and six (6) spaces proposed along the rear boundary. The use would require the provision of four (4) car parking spaces for the warehouse floor area and five (5) spaces for the office floor area, requiring a total of nine (9) spaces. The location of the parking maximises on site manoeuvring and turning areas for rigid vehicles, allowing all vehicles to enter and exit in a forward direction.

None of the trees within the front yard will be impacted by the proposed car parking and the parking area does not exceed 50% of the street frontage.

Part D 'Industrial Controls'

The site has already been developed with a large warehouse building, subsidiary offices and a hard standing area to the rear and consequently the controls relating to layout and design are not relevant to this application. The principal issue to consider is the use of the land and whether the site is of a sufficient size for the activity proposed.

As outlined above the proposal provides adequate parking to meet the needs of the staff and visitors with nine (9) on site car parking spaces. The activity will generate approximately 1-2 truck movements per hour. The vehicles travelling to the site are either garbage trucks or long rigid vehicles which are able to manoeuvre within the site and exit in a forward direction. A traffic impact assessment prepared by Transport and Urban Planning found that the proposed development is a low traffic generator and would have a low impact on the surrounding road system.

Part 5 of the 'Industrial Controls' includes requirements relating to Pollution Control and stipulates under C7 that if the premises are subject to licence under the Protection of the Environment Operations Act, 1997 that the proposal complies with any conditions of such licence. The proposal will comply with the conditions stipulated in the current EPL (Licence No. 20519) or any subsequent variations or amendments within a premises based EPL. A trade waste discharger's licence will also be obtained from Sydney Water prior to occupation of the industrial premises.

The proposed development is considered reasonable and appropriate in the circumstances.

2.1.2.4 Section 79C (1) – Matters for Consideration

The general matters for consideration are set out in Section 79C of the Environmental Planning and Assessment Act, 1979. The following summarises these matters for consideration.

(a) The provisions of:

(i) Any environmental planning instrument

The proposed use is permissible with consent as a "Resource Recovery Facility" pursuant of the Provisions of SEPP (Infrastructure) 2007. The proposed use is also permitted under the Provisions of Holroyd Local Environmental Plan (HLEP) 2013.

The proposed development does not represent state significant development pursuant to Schedule 1 of SEPP (State and Regional (Development) 2011.

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved).

None at this stage.

(iii) Any Development Control Plan

The proposed use has been assessed in accordance with the Holroyd DCP 2013. The proposed development is not inconsistent with the relevant provisions.

(iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F

No planning agreement applies.

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph).

The proposed development represents designated development pursuant to Schedule 3 of the Regulations.

(v) any coastal zone management plan (within the meaning of the Coastal Protection Act, 1979)

Not applicable.

(b) The likely impact of the development including environmental impacts in both the natural and built environment and social and economic impacts in the locality.

- Context and Setting

The proposed use will complement the development and strengthen the overall economic development of the area.

- Potential Impact on Adjoining Properties

There will be no negative impact on the adjoining or surrounding industrial developments.

- Access, Transport and Traffic

The applicant will utilise the existing exit/entry driveways onto Long Street. Traffic movements will be in a forward direction on and off the site, with no conflict with traffic movements in Long Street as stipulated in the attached traffic impact assessment.

- Public Domain

The proposed use will have a positive contribution to the public domain.

- Utilities

The existing utilities have been or are being provided to service the proposed development.

- Heritage

There are no heritage issues.

- Other Land Resources

The proposed development will utilise the valuable industrial development.

- Critical Habitat

The land does not include or comprise critical habitat.

- Air and Microclimate

There are no air or microclimate issues.

- Waste

The two waste product streams from the process would be recycled off-site. Little waste is expected to be generated by the processes. Any waste material generated by the processes or office activities that cannot be recycled or reused will be disposed of through a licensed waste-handling contractor or via a Tradewaste Agreement with Sydney Water.

- Energy

The proposed operation would not involve energy intensive activities therefore there are no energy issues.

- Noise

Noise has been addressed in Section 5. No adverse degradation to the existing acoustic environment would be likely. No significant increase to the existing ambient noise levels at the considered nearest residential receivers is expected.

- Natural Hazards

There are no acknowledged natural hazards.

- Social Impact in the Locality

There are no negative social impacts.

- Economic Impact in the Locality

The proposed use will contribute to the economic development of Smithfield.

- Site Design and Building Form

The existing building design and form will not be altered.

- Construction

Minor alterations to create additional on-site parking would be undertaken. Impacts of these would be negligible.

- Cumulative Impacts

There are no cumulative impact issues.

(c) The suitability of the site for the development.

The proposed development is appropriate for this site. The objectives of the zone IN1 have been satisfied.

(d) Any submissions made in accordance with the Act.

No submissions at this stage. The proposed development is subject to the public participation process.

(e) The public interest

The proposed development is considered to be in the public interest as it addresses an environmental by-product associated with many construction projects. It provides an environmental solution to the processing of slurry waste achieving water positive recycling activities.

2.2 CONSULTATION

Consultation with government departments and the local community plays an important role in ensuring all potential environmental impacts are evaluated. The consultation process provides the opportunity to identify and prioritise issues. Key aspects identified through both the government and community consultation process are addressed in varying degrees throughout this report.

- Liaison with all relevant state and federal government authorities regarding the proposed development and requirements of the EIS;
- Compilation of issues of concern raised and outcomes of any meetings undertaken during the consultation process.

2.2.1 Regulatory Consultation

Liaison with all relevant state and federal government authorities regarding the proposed development and requirements of the EIS was undertaken.

Correspondence was forwarded to the NSW EPA and a telephone discussion was held; no meeting was considered to be needed.

Details of this consultation are provided in the following sub-sections and compilation of issues of concern are provided in Table 2-2 to Table 2-5.

Secretary's Environmental Assessment Requirements (SEARS) were provided on 14th September 2015. These are provided as Appendix 1 and listed in Table 2-2.

2.2.2 Community Consultation

The nature of the proposal is being discussed with adjoining properties, however none have shown interest.

2.2.3 Public Participation on Submission of Development Application

In accordance with s.79 of the Environmental Planning and Assessment Act, 1979, this EIS must be advertised through a process of public notification and the EIS put on public display.

During the 30 day public exhibition period, the public is invited to make comment and forward submissions to the consent authority, Holroyd City Council.

2.3 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARS)

In accordance with requirements under Schedule 2, Part 2(3) of the *Environmental Planning and Assessment (EP&A) Regulation 2000*, Secretary's Environmental Assessment Requirements (SEARS) were obtained for the proposed development. A copy of the Requirements is presented below and in Appendix 1.

Key environmental planning issues raised by the requirements and subsequently addressed in this EIS are identified in the table below:

Table 2-2: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Planning

Requirement	EIS Reference	
	Section	Page No.
GENERAL REQUIREMENTS		
The environmental impact statement (EIS) must meet the minimum form and content requirements in Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.	Cover Page	
KEY ISSUES		
The EIS must include an assessment of all potential impacts of the proposed development on the existing environment (including cumulative impacts if necessary) and develop appropriate measures to avoid, minimise, mitigate and/or manage these potential impacts. As part of the EIS assessment, the following matters must also be addressed:		
• **Strategic context** – including: - A detailed justification for the proposal and suitability of the site for the development; - A demonstration that the proposal is consistent with all relevant planning strategies, environmental planning instruments, development control plans (DCPs), or justification for any inconsistencies; and - A list of any approvals that must be obtained under any other Act or law before the development may lawfully be carried out.	Section 10.1, 1.4.1 Section 2.1 Section 1.5	10-1 1-6 2-1 1-8
• **Waste management** – including: - Details of the type, quantity and classification of waste to be received at the site; - Details of the resource outputs and any additional processes for residual waste; - Details of waste handling including, transport, identification, receipt, stockpiling and quality control; and - The measures that would be implemented to ensure that the proposed development is consistent with the aims, objectives and guidelines in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.	Section 5.6	5-49

Table 2-2: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Planning

Requirement	EIS Reference	
	Section	Page No.
• **Hazards and risk** – including: - A preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* and Applying SEPP 33 (DoP, 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the development. Should preliminary screening indicate that the project is "potentially hazardous" a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011).	Section 5.7	5-59
• **Air quality and odour** – including: - A description of all potential sources of air emissions and odour; - An air quality impact assessment in accordance with relevant Environment Protection Authority Guidelines; and - A description and appraisal of air quality impact mitigation and monitoring measures.	Section 5.1	5-1
• **Noise and vibration** – including: - A description of all potential noise and vibration sources during construction and operation, including road traffic noise; - A noise and vibration impact assessment in accordance with the relevant Environment Protection Authority Guidelines; and - A description and appraisal of noise and vibration mitigation and monitoring measures.	Section 5.2	5-9

Table 2-2: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Planning

Requirement	EIS Reference	
	Section	Page No.
• **Soil and water** – including: - A description of local soils, topography, drainage and landscapes; - The details of stormwater, leachate, and wastewater management; - The details of sediment and erosion controls; - The details of water usage including water supply and licences; - An assessment of impacts to surface and groundwater resources, soil and agricultural resources, flooding impacts, and impacts to groundwater dependant ecosystems; and - A description and appraisal of impact mitigation and monitoring measures.	Sections 5.3 and 5.4	5-37 and 5-44
• **Traffic and transport** – including: - Details of road transport routes and access to the site; - Road traffic predictions for the development during construction and operation; and - An assessment of impacts to the safety and function of the road network and the details of any road upgrades required for the development.	Section 6.7	6-15
• **Incident management** – including technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill cleanup equipment and fire management and containment measures.	Section 6.4	6-5
• **biodiversity** – including a description of any vegetation clearing that may be required.	Section 5.5	5-47
• **visual** – including an impact assessment at private receptors and public vantage points.	Section 6.2	6-3
• **heritage** – including Aboriginal and non-Aboriginal cultural heritage.	Section 6.3	6-5
ENVIRONMENTAL PLANNING INSTRUMENTS AND OTHER POLICIES		
The EIS must assess the proposal against the relevant environmental planning instruments, including but not limited to: • Holroyd Local Environmental Plan, 2013; • State Environmental Planning Policy (Infrastructure) 2007; • State Environmental Planning Policy No. 33 – Hazardous and Offensive Development; and • Relevant development control plans and section 94 plans.	Section 2.1	2-1

Table 2-2: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Planning

Requirement	EIS Reference	
	Section	Page No.
GUIDELINES		
During the preparation of the EIS you should consult the Department's Register of Development Assessment Guidelines which is available on the department's website at planning.nsw.gov.au under Development Proposals/Register of Development Assessment Guidelines. Whilst not exhaustive, this Register contains some of the guidelines, policies and plans that must be taken into account in the environmental assessment of the proposed development.		
CONSULTATION		
During the preparation of the EIS you should consult the relevant local, State and Commonwealth government authorities, service providers and community groups and address any issues they may raise in the EIS. In particular, you should consult with the: • Holroyd City Council; • Environmental Protection Authority; • Roads and Maritime Services; • Department of Primary Industries; and • The surrounding landowners and occupiers that may be impacted by the proposal. Details of the consultation carried out and issues raised must be included in the EIS.	Section 2.2	2-16
FURTHER CONSULTATION AFTER 2 YEARS		
If you do not lodge an application under Section 78A (8) of the Environmental Planning and Assessment Act 1979, within 2 years of the issue date of these SEARs, you must consult with the Secretary in relation to any further requirements for lodgement.	N/A	

A summary of the key information requirements the NSW Environment Protection Authority require to issue general terms of approval are listed in Table 2-3.

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
KEY INFORMATION REQUIREMENTS		
• Air quality issues (including odour and dust management); • Noise impacts; • Waste and chemical management; and • Stormwater management and wastewater management.	Section 5.1 Section 5.2 Section 5.6, 5.7 Section 5.3	5-1 5-9 5-49, 5-59 5-37
1. AIR QUALITY		
The EIS should include a detailed air quality and impact assessment ("AQIA") provided by a suitably qualified expert.	5.1	5-1
Describe baseline conditions • Provide a description representing the existing land uses and surrounding land uses of the Premises; • Detail the existing air quality in the area including supporting data; and • Contextualise the proposal within the receiving environment (local, regional and inter-regional where appropriate) including a description of the meteorology and climate, topography, surrounding land use and receptors, and ambient air quality.	 3.1 5.1.3 3.4.1	 3-1 5-1 3-8

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
Assess Impacts • An air impact assessment must be conducted by a suitably qualified expert in line with the Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (EPA 2011). All processes that could result in air pollution must be identified and described in a detailed description of the proposal (including construction and operational stages). A sufficient level of detail will be required to accurately communicate and characterise and quantify all emissions proposed on the Premises; and • A quantitative assessment of the air quality impacts arising from the project on surrounding land owners and sensitive receptors (particularly dust and odour). • Include air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW 2005*.	5.1.5, 5.1.6	5-8, 5-8
Management and Mitigation • Provide an air pollutant management plan that must include details of the various methods that will be employed to control pollutants (with particular reference to dust) at the Premises, including operational practices and specifications of pollution control equipment (including manufacturer's performance guarantees where available). • Demonstrate the proposal's ability to comply with the relevant regulatory framework, particularly the *Protection of the Environment Operation Act 1997* ("the POEO Act") and the *POEO Clean Air Regulation 2010*.	5.1.7	5-9

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
2. NOISE		
The EIS should address the following matters in relation to noise, for all stages of the proposal (including construction and operational stages).	5.2	5-9
Describe baseline conditions • Determine the existing background ambient noise levels in accordance with the *NSW Industrial Noise Policy, 2000*; • Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy*.	5.2.2, 5.2.3, 5.2.4	5-9, 5-12, 5-16
Assess Impacts A noise assessment must be undertaken by a suitably qualified consultant in accordance *with NSW Industrial Noise Policy 2000*. The assessment must:		
• Identify all existing and proposed noise sources from the premises;	5.2.8.2	5-31
• Identify any noise sensitive locations which may be affected by activities at the Premises;	5.1.2	5-1
• Quantify the cumulative noise impacts of the Premises for surrounding receivers;	5.2.8	5-30
• Assess all construction noise associated with the proposal using the interim Construction Noise Guideline (DECC, 2009)	5.1.5	5-8
• Specify the proposed operating hours for the premises and the types of machinery used during this period. If the development is proposing 24 hours a day, seven days a week, an assessment of the maximum noise levels during the night time period (10pm-7am) needs to be analysed.	5.2.9	5-35
• Assess any increased road traffic generated at the Premises. Include details such as locations of access roads, internal roads, and potential environmental impacts from increased vehicle movements as a result of the proposal.	5.2.8	5-30

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
Management and Mitigation • Determine noise management and mitigation measures including appropriate controls for both construction and operational noise. • In relation to traffic noise impacts, provide a description of any improvement measures considered. • Describe ongoing mitigation and management measures in regards to noise that will be employed throughout the life of the proposal.	5.2.10	5-36
3. WASTE AND CHEMICAL MANAGEMENT		
The EIS should:		
Describe baseline conditions • Describe any waste or chemical operations related to the Premises.	5.6, 5.7	5-49, 5-59

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
Assess Impacts • Provide details regarding the source, quantity and types of all wastes that will be generated, accepted, handled, processed or treated at the Premises; • Waste both incoming and outgoing from the Premises will need to be classified in accordance with the *EPA's Waste Classification Guidelines 2014*. • Provide details regarding the proposed transportation, receival, and handling of waste to arrive at or be generated at the Premises. • Detail the wastes to be stored including the estimated average and maximum amount of materials to be stored at any one time and per annum, stockpile heights, the approximate locations of these stockpiles, and the proposed containment of materials and stockpiles. • Assess each waste processing activity related to the proposal including reuse, recycling, reprocessing or treatment of waste. • Assess the estimated emissions arising from the handling, storage, treatment, processing and reprocessing of waste; • Provide details of the methods and processes that will be employed to produce recycled or processed waste materials so that they comply with the requirements of the POEO Act and the POEO (*Waste Regulation*) 2014. • Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes. • Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.	5.6.3, 5.6.4, 5.6.5, 5.6.1, 5.7.2	5-55, 5-58, 5-59, 5-50, 5-62

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
Management and Mitigation • Detail acceptance procedures to reduce the incident of non-complying wastes arriving at the Premises. • Outline measures to avoid the generation of waste and promote the legitimate reuse and recycling of waste at the premises. • Assess the adequacy of the proposed measures to minimise natural resource consumption and minimise impact from the handling, storage, treatment, processing and reprocessing of waste. • Assess the adequacy of the proposed measures to minimise impact from the handling, transporting and storage of chemical substances.	5.6.4.1, 5.6.5	5-58, 5-59
4. STORMWATER AND WASTEWATER MANAGEMENT		
The EIS should:		
Describe baseline conditions • Describe in relation to the entire proposal, the intake and discharge of water at the premises. This should include volumes, water quality and frequency of all discharges; • Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal; • Describe any existing surface water and wastewater controls; • Provide details and diagrams of site drainage and surface runoff yield and capacity of the stormwater system.	5.3.1, 5.3.2	5-37, 5-42

Table 2-3: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW EPA

Requirement	EIS Reference	
	Section	Page No.
Assess Impacts • Assess and provide details of all surface water, groundwater and wastewater impacts. • Assess all water bodies and receiving waters likely to be affected. • Assess the types of soils and materials likely to impact of surface water and groundwater quality and hence require controls • Demonstrate that all practical options to avoid discharge have been implemented • Include a water balance including water requirements (quantity, quality and treatment and management methods and re-use options; and • Assess impacts on groundwater and groundwater dependant ecosystems.	5.3.4, 5.4	5-42, 5-44
Management and Mitigation • Include controls measures to be implemented to minimise wastewater generation, erosion and sediment mobilisation. Ref: *Managing Urban Stormwater – Soils and Construction: Landcom 2004* ("the Blue Book") and *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000). • Provide details of the site's surface water catchments and the capacity to ensure there is no water run-off for events greater than a 1 in 10 year rain event. • Provide details of structures and systems (including staff training and operational practices) that will be used to prevent the tracking of mud and dust onto the street from vehicle movements at the premises • Describe how stormwater will be managed both during and after construction; and • Describe how predicted impacts will be monitored and assessed over time.	5.3.4, 5.3.5	5-42, 5-43

Requirements of the Roads and Maritime Services in regards to the EIS for the proposed development are listed in Table 2-4.

Table 2-4: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Roads and Maritime Services

Requirement	EIS Reference	
	Section	Page No.
1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required). The key intersections to be examined/modelled include: • Long Street/Cumberland Highway • Long Street/Gipps Road	NSW RMS requirements addressed in Traffic Impact Assessment (Appendix 2)	
2. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).		
3. Proposed number of car parking spaces and compliance with the appropriate parking codes.		
4. Details of service vehicle movements (including vehicle type and likely arrival and departure times).		

A summary of the potential key issues and assessment requirements of the NSW Department of Primary Industries – Water to be addressed in regards to the EIS for the proposed development are listed in Table 2-5.

Table 2-5: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Primary Industries – Water

Requirement	EIS Reference	
	Section	Page No.
KEY RELEVANT LEGISLATIVE INSTRUMENTS		
The EIS should take into account the objects and regulatory requirements of the Water Act 1912 and Water Management Act 2000, and associated regulations and instruments as applicable: • *Water Management Act 2000;* • *Water Act 1912;* • *Water Management (General) Regulation 2011;* • *Water sharing plans; and* • *Access Licence Dealing Principles Order 2004.*	5.3.2	5-42

Table 2-5: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Primary Industries – Water

Requirement	EIS Reference	
	Section	Page No.
WATER SHARING PLANS		
Describe all water sharing plans that apply. The EIS is required to: • Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan; • Provide a description of any site water use and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities; • Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any WSP; • Provide detailed and consolidated site water balance; and • Take into account the following policies: - NSW Aquifer Interference Policy (NOW, 2012); - Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012); - Australian Groundwater Modelling Guidelines (NWC, 2012); - NSW State Rivers and Estuary Policy (1993); - NSW State Groundwater Policy Framework Document (1997); - NSW State Groundwater Quality Protection Policy (1998); - NSW State Groundwater Dependent Ecosystems Policy (2002); - NSW Water Extraction Monitoring Policy (2007)	5.3.3	5-42
LICENSING CONSIDERATIONS		
The EIS is required to provide: • Identification of water requirements for the life of the project in terms of both volume and timing; • Details of the water supply source(s); • Explanation of how the required water entitlements will be obtained; • Information on the purpose, location, construction and expected annual extraction volumes; • Details of all bores and excavations; • Details on existing dams/storages; • Details on the location, purpose, size and capacity of any new proposed dams/storages; • Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.	5.3.1	5-37

Table 2-5: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Primary Industries – Water

Requirement	EIS Reference	
	Section	Page No.
GROUNDWATER ASSESSMENT		
To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources. Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration) a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.	5.3.1.4	5-38
GROUNDWATER DEPENDENT ECOSYSTEMS		
The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site.	5.3.1.4	5-38

Table 2-5: Compliance with Secretary's Environmental Assessment Requirements (SEARS) —NSW Department of Primary Industries – Water

Requirement	EIS Reference	
	Section	Page No.
SPECIFIC INFORMATION REQUIREMENTS		
The site is within the Water Sharing Plan for the Greater Metropolitan Groundwater Sources, which commenced on 1 July 2011. The proposed sludge dewatering plant is also within the Sydney Basin Central Groundwater Source.		
It is recommended that the EIS be required to include:	N/A	
• Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan **if the proponent intends to take water from those sources**;	N/A	
• Assessment of any volumetric water licensing requirements;	N/A	
• The identification of an adequate and secure water supply for the life of the project;	5.3.1.1	5-37
• A detailed and consolidated site water balance;	5.3.4	5-42
• Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts;	5.3.5	5-43
• Proposed surface and groundwater monitoring activities and methodologies;	5.3.5	5-43
• Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts;		
• Consideration of relevant policies and guidelines;	5.3.2	5-42
• A statement of where each element of the SEARs is addressed in the EIS (ie: in the form of a table).	2.3	2-17

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

This section of the EIS provides details of the site and its history of uses, the proposed development is described, the processes are explained and the design of the development as it relates to potential environmental impacts described.

Site layouts are presented in this Section of the EIS. Cleaner production initiatives are discussed, operational details relating to services are explained and proposed hours of operation listed.

3.1 SITE DETAILS

The site details are provided in the following sub-sections.

3.1.1 Site Location

The site is located to the west of Cumberland Highway at 7 Long Street, Smithfield. The site is a single lot with legal description Lot 16 in Deposited Plan 238072. The site is approximately 25 km west of the Sydney CBD.

The site location in a regional context of the proposed development is presented as Figure 3-1 and in the local context in Figure 3-2. An aerial photograph of the site and surrounds is shown in Figure 2-3.

3.1.2 Site Description

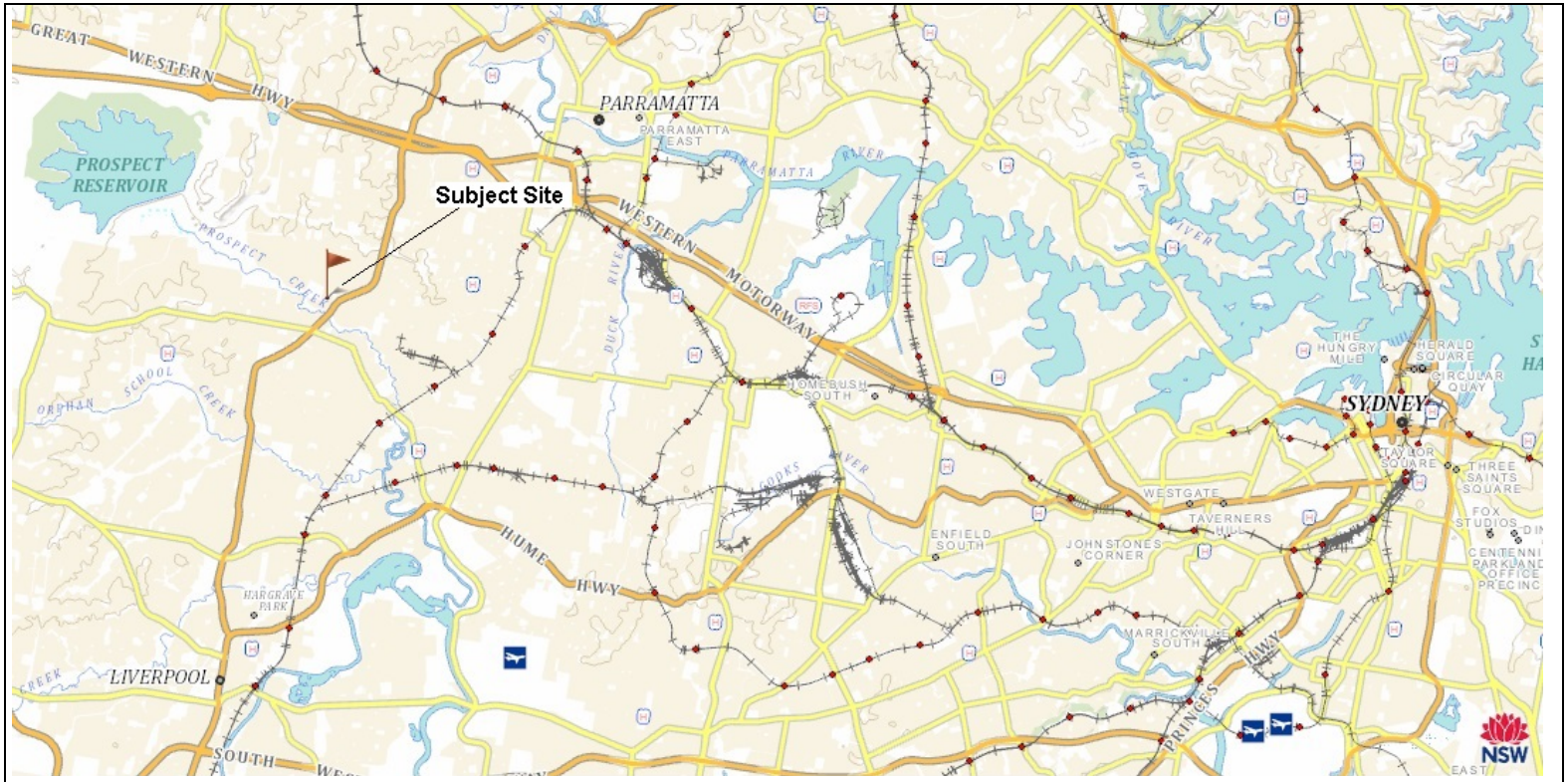
The site is a slightly irregular rectangular shape lot, measuring 27.8m wide to the southern street property boundary, 100m long to the western property boundary adjoining No. 9 Long Street, 93m long to the eastern property boundary adjoining No. 5 Long Street and a 29m splayed boundary to the rear. The site has a total site area of approximately 2700m^2. The site has a slight fall towards the street.

The site contains a large factory/warehouse building to the rear of two storey brick offices facing the street. The building is a typical industrial design with a flat roof, small windows to the ground floor facing the street and larger windows in the first floor providing adequate light and ventilation to the office space. Two roller doors are provided to the eastern elevation and one roller door is located to the rear of the building where a large hardstand area is provided for storage and on site maneuvering.

The front yard between the factory and the road is currently grass with three existing trees. An electricity box (1.3m x 2.9m) is located in front of the factory adjacent to the western boundary. The factory building is erected up to the western property boundary adjoining No. 9 Long Street and has a 5.4m setback from the eastern boundary providing driveway access to the rear of the site. The factory building has a width of 27.5m and a depth of 44.3m, creating a building area of 1218m^2. The offices located in the front portion of the building have a depth of 7.0m and a width of 22.1m, providing approximately 480m^2 of subsidiary office, staffroom and toilet facilities.

The rear part of the site is concrete hardstand which provides a large area for the parking of cars, manoeuvring and storage. The rear boundaries have low height fencing with very little screening of the adjoining land uses.

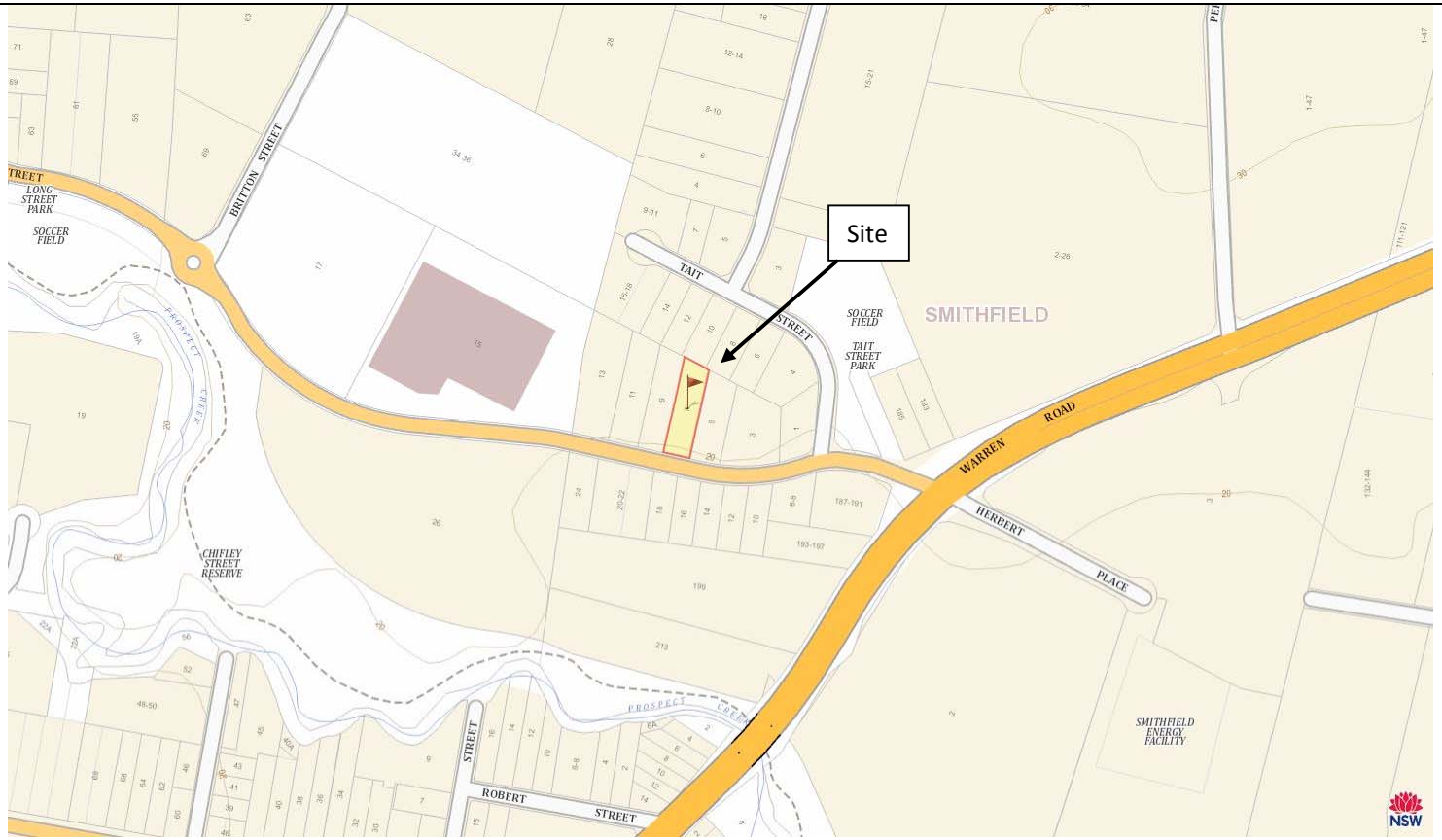
Figure 3-1: Site Location in Regional Context



Source: Six Maps, NSW Government Land and Property Information

↑N Not to scale		Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

Figure 3-2: Site Location in Local Context



Source: Six Maps, NSW Government Land and Property Information

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Figure 3-3: Aerial View of the Site

Source: Six Maps, NSW Government Land and Property Information

↑N Not to scale		Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

3.1.3 Surrounding Area

The locality is characterised by large scale industrial buildings with a number of industrial activities including but not limited to auto wreckers, manufacturing and storage. The character is typical of a general industrial zone.

The surrounding area is characterised by similar industrial buildings. To the west and east of the site are similar scale buildings currently occupied by a vehicle wrecker and auto parts business.

3.1.4 Land Use Zoning

Pursuant to Clause 2.1 of the LEP, the subject site is within *Zone IN1 – General Industrial.*

3.1.5 Land Ownership

A planning certificate under Section 149 (2) & (5) of the Environmental Planning and Assessment Act 1979 that was obtained on 29/07/2015 states that the owners of the land are Mr M Haugh and Ms D Theo.

3.1.6 Current Land Use

The land was previously used for warehousing and is currently not being used.

3.1.7 Site History

The site has a long history of use for industrial activities. Site inspections revealed no clear evidence of contaminating activities. The site surface does not need to be disturbed and therefore further detailed information is not considered of relevance.

3.2 PROPOSED DEVELOPMENT ACTIVITIES AND SITE USE

The filtering process is currently carried out in sludge and mud management units (SMU) as a mobile process at construction sites around Sydney. The proposed development involves establishment of a permanent facility to process slurry material from road and construction sites across Sydney. The development would involve installation and operation of the SMU at the site that would treat approximately 50,000 tonnes per annum of slurry waste. All activities would be undertaken inside the existing building.

The processing of slurry material would involve separation of sediments and liquids through containerised vibrating dewatering screens and high pressure filtering technologies. No contaminants or hazardous by-products are created and the resulting by-products would be filter cake (inert soil) and treated water. Both by-products are fully recyclable.

The proposed building works, process, raw materials, finished products and equipment required for the development is described in detail in the following sub-sections.

3.2.1 Proposed Building Works

No building works or changes to the site layout are proposed. The existing building is sufficient for the purposes of the proposed development. Minor improvements to the existing hardstand area to facilitate on-site parking would be undertaken to ensure it has no rough surfaces.

3.2.2 Process Description

The SMU are fitted out in shipping containers (3m x 6m) and would be located within the warehouse building with holding trucks delivering the sludge for processing. Trucks would enter and leave the site in a forward direction with access and turning areas provided at the rear of the site.

The treatment processes would require limited use of chemicals if the pH of the water needed to be adjusted.

The operation of the plant can be summarised as the following:

- Sludge is removed from a construction site and transported in trucks using sealed bins or in bulk tankers.

- At the plant, there would be an external hopper with roof over. The sludge is emptied into this hopper. The hopper would have a dewatering screen that allows material less than 0.5–3 mm to pass through into the Sludge Management Unit –SMU. There would be up to two of these units.

- The SMU is a filter press and uses pressure to filter the sludge through a filter cloth. The cloth enables the water to be cleaned of solids such that the moisture level of the sludge is reduced so that it is spreadable – often referred to as filter cake.

- The cake is transferred to skip bins and would usually be transported back to the site of origin or disposed of as a general solid waste.

- The cleaned water is tested for turbidity and pH level as well as per the requirements of the Trade Waste Agreement. It may be reused for dust suppression on construction sites or disposed of to sewer.

Figure 3-4 provides a flowchart with photos showing the process and resulting finished products.

3.2.3 Raw Materials

The raw materials would consist of uncontaminated classified material which is produced through Non Destructive Excavation only. This material is a mixture of soils and clean water combined, essentially creating mud or sludge.

Non Destructive Digging is a safe solution to avoid hitting or breaking existing services underground. This technology uses high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank. This vehicle is known as a sucker truck and is no bigger than a garbage truck. This method of excavating is fast becoming the preferred method of excavating for authorities such as councils to avoid damaging services.

3.2.4 Finished Goods

Finished goods consist of the filter cake and cleaned water. The filter cake can in most cases be transported back to the site of origin or disposed of as a general solid waste. The cleaned water is tested for turbidity and pH level. It may be reused for dust suppression on construction sites or disposed of to sewer.

3.2.5 Equipment

The site proposed to be developed to accommodate the following built assets and activities:

- Two sludge dewatering machines called an SMU – Sludge Management Unit – which is a filter press that dewaters sludge producing a filter cake.
- Two 10 kL aboveground water storage tanks within a bunded area. These would hold the water removed from the sludge.
- A conveyor to transfer the dewatered sludge into skip bins for loading the dewatered sludge onto a truck. The truck would remove the dewatered sludge either back to the source site or to off-site disposal.

Figure 3-4: Process Flowchart

TASK 1: Wet material is produced on site, for example, bi product of non-destructive excavation

TASK 2: Material is taken to premises currently proposed at (7 Long St, Smithfield)

TASK 3: Material is emptied into containerised dewatering screen with a 0.5-3mm aperture

TASK 4: Material greater than 0.5-3mm is separated and placed in bins.

TASK 5: All other material under 0.5-3mm is pumped to the filter chamber which produces a solid dry material and clean water.

TASK 6: All solid material is recycled back to site of origin for reuse or taken to appropriate landfill site as general waste.

TASK 7: Clear water is tested for turbidity and ph level.

Liquid before and after **TASK 5**

TASK 8:

- Water is recycled on site.
- Water is recycled back to site of origin.
- Water can be used by appropriate high water users, such as, dust suppression on construction sites.
- Discharged using trade wastewater consent through Sydney Water.

3.3 RESOURCES

The site activities transform a waste product into reusable by-products. In this way, the facility is preventing these items from having to be disposed of as waste to landfill.

In undertaking the conversion of someone else's "waste" and recovering valuable materials that can be reused, the site activity benefits from the reuse of resources otherwise wasted.

The business activities would use basic resources such as water, fuel and electricity. No water is required for production processes or cleaning. Water use is limited to the kitchen and amenities.

3.4 DESIGN OF THE DEVELOPMENT

The site is an established industrial site. No significant changes to the infrastructure are required.

The design of the development is limited by the space available on the existing site. Sludge would be emptied into an external hopper with roof over. The hopper would have a dewatering screen that allows material less than 0.5–3 mm to pass through into the Sludge Management Unit –SMU within the building. All other activities and storage would be wholly within the building.

Environmental factors have been addressed in relation to the design of the facility. These are provided in the following sections.

3.4.1 Environmental Factors and Design Features

Environmental factors have been taken into consideration in relation to the design of the facility. These are briefly discussed below. Detailed studies are provided in Sections 5 and 6.

3.4.1.1 Water Quality

No water is used on site for the processing operations. The potential environmental risks to water would be the slurry material and chemicals at the site and the possibility of these entering the stormwater system. Adequate bunded areas would be provided inside the building to prevent spillages escaping. Details are provided in Section 5.

The existing stormwater infrastructure is considered adequate for the facility.

3.4.1.2 Air Quality & Odour

The site activities release negligible air emissions. Air is assessed in Section 5.1.

3.4.1.3 Noise Amenity

There are residential premises located 400m south of the site and over 1km west, east and northeast of the site.

The processes are relatively quiet and equipment is confined within the building. The main sources of noise would be from trucks loading and unloading at the site.

The noise impact assessment undertaken shows that the NSW *Industrial Noise Policy* criteria are readily satisfied. The site activities would not cause a noticeable increase in noise emissions.

Noise is assessed in Section 5.2.

3.4.1.4 Fire

The building is protected in accordance with requirements of the National Construction Code. The processes do not involve combustible materials and do not involve heat. Fire issues associated with the proposal are considered to be minor.

The site has fire services in accordance with National Construction Code (NCC) requirements. Fire services consist of hydrants, hose reels and specifically placed fire extinguishers.

The buildings being occupied during working hours would reduce the risk of a fire being initiated and not being noticed.

Containment of fire fighting water has not been considered a requirement for this site given the nature of the activities.

3.4.1.5 Waste

The facility treats waste slurry material from construction sites. Material generated from the processes consists of recyclable material.

All waste is appropriately classified in accordance with the NSW EPA *Waste Classification Guidelines*. Waste includes liquid waste and general (non-putrescible) waste. There is expected to be negligible risks associated with waste generation from the proposed development. Further details on waste generation and management are provided in Section 5.6.

3.4.1.6 Visual Amenity

The site is an existing industrial facility. Buildings and infrastructure that exist would be used for the proposed activities with only minor changes to parking being required. All existing vegetation including three (3) trees at the front of the site will be retained and not affected by the proposed development. Further, all activities, equipment and storage of items would be confined within the building. Therefore there would be negligible impact on the visual amenity of the area.

3.4.1.7 Site Access and Traffic

The proposal provides adequate parking to meet the needs of the staff and visitors with nine (9) on site car parking spaces. The activity will generate approximately 1-2 truck movements per hour. The vehicles travelling to the site are either garbage trucks or long rigid vehicles which are able to manoeuvre within the site and exit in a forward direction. Based on 1-2 truck movements per hour and during standard hours of operation (7:00am-6:00pm) this will result in between 11 to 22 truck movements per day.

A traffic impact assessment was undertaken to address issues raised by the RMS in the SEARs.

Site access and traffic are discussed in further detail in Section 6.7.

3.5 SITE LAYOUT PLANS

A proposed site layout plan is provided as Figure 3-5.

3.6 CLEANER PRODUCTION ACTIONS

"Cleaner Production" is a continuous approach to improving business sustainability by implementing techniques to reduce resource usage including energy, water & raw materials and waste to increase efficiency, reduce costs and improve environmental performance.

Cleaner Production actions would be implemented at the site through a site Environmental Management Plan and work instructions. Examples of cleaner production actions that would be implemented at the site include:

Waste and Recycling Initiatives

The ultimate goal of the facility is to recycle as much water and soil as possible by:

- Sending recycled water and soil back to the site of origin; and
- Sourcing local high water users, such as for use on construction sites for water suppression.

DEMAST would continuously search for recycling options for the by-products and in this way will enable recovery of valuable resources and prevent these being disposed to landfill.

System Maintenance and Improvements

The equipment and on-site machinery would be maintained in accordance with manufacturer's specifications and continuous check for leaks and wear would be undertaken and rectified to ensure a high standard of efficiency in order to keep energy and resource use as low as possible.

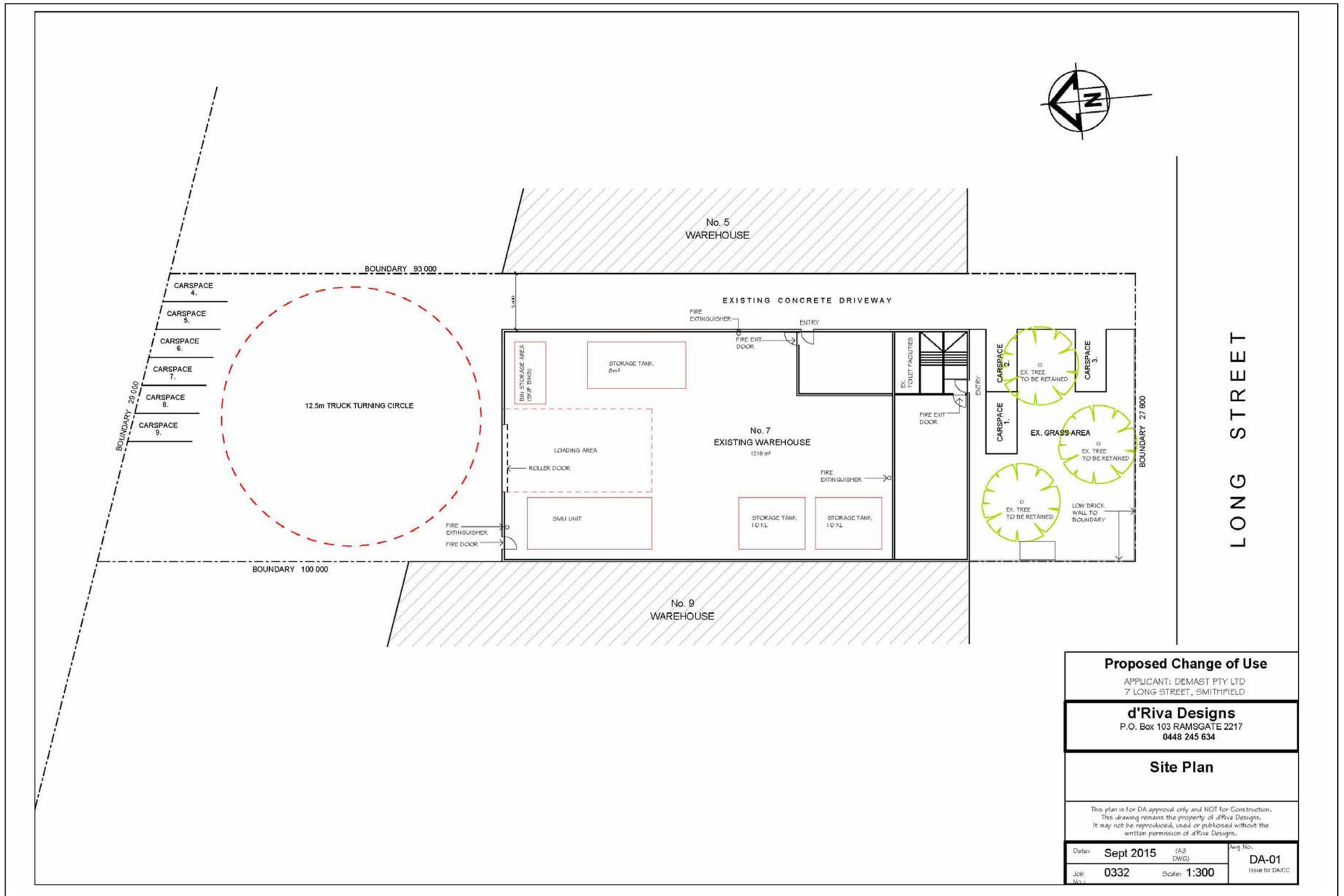
Water Management Systems

Continuous review of water management systems including all potential sources of water pollution and upkeep of stormwater infrastructure on site would be undertaken on a regular basis in accordance with the company's EMP.

Inspection of bunding and water containment systems would be ongoing.

Rainwater runoff into the stormwater system would benefit from the installation of particulate filters in the stormwater pits across the site.

Figure 3-5: Site Layout Plan



Source: DEMAST Pty Ltd

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3.7 STAGING OF THE DEVELOPMENT

The development would proceed in one stage.

3.8 OPERATIONAL DETAILS

3.8.1 Infrastructure and Services

The existing infrastructure on the site includes an industrial building, two storey brick offices, hardstand areas, landscaped areas and internal roadways.

Offices and amenities are located within the building. Two roller doorways are located along the eastern elevation and one roller door is located to the rear of the building.

3.8.1.1 Water

The site would use mains water supply. This is already available on site. Wastewater generated by the processes would be recycled or sent to Tradewaste. Stormwater infrastructure is also already established and considered adequate for the facility.

3.8.1.2 Sewage

The site has an existing sewer system. The sewerage system would be sufficient for handling sewerage generated by the proposed development.

3.8.1.3 Electricity and Telecommunications

Electricity and telecommunication lines are currently provided and would be used.

3.8.1.4 Fuel and Chemicals

Fuel is not stored on site. There are minimal chemicals used in the processes. pH correction may occasionally be necessary If so, this would involve having 20 L containers of an acid on site.

3.8.2 Hours of Operations

The proposed facility will be designed to operate 24 hours per day, 365 days per year with the majority of work being undertaken during standard hours of operation, 7:00am-6:00pm.

3.8.3 Employment

The proposed plant will provide employment for approximately 9–12 full-time employees.

4. EXISTING ENVIRONMENT

This section describes the existing site and the location for the development. The surroundings are characterised and a general description of the environment that is likely to be affected is provided.

4.1 EXISTING AND SURROUNDING LAND USE

The subject site is located at 7 Long Street, Smithfield NSW 2164. The subject site land is a slightly irregular rectangular shape lot, approximately 2700m^2 in area with frontage to Long Street. Smithfield is a suburb located approximately 25 km west of the Sydney Central Business District (CBD).

The site location is presented in Figure 3-1 and an aerial view presented in Figure 2-3 shows the general nature of the surrounding lands. The site is bordered by other industrial premises.

The nearest waterway is Prospect Creek, located approximately 230m to the south of the site. Potential impacts of the proposed development on the nearest catchment, stormwater run-off and the use of water for the proposed activities is be discussed in the EIS in Section 5.3.

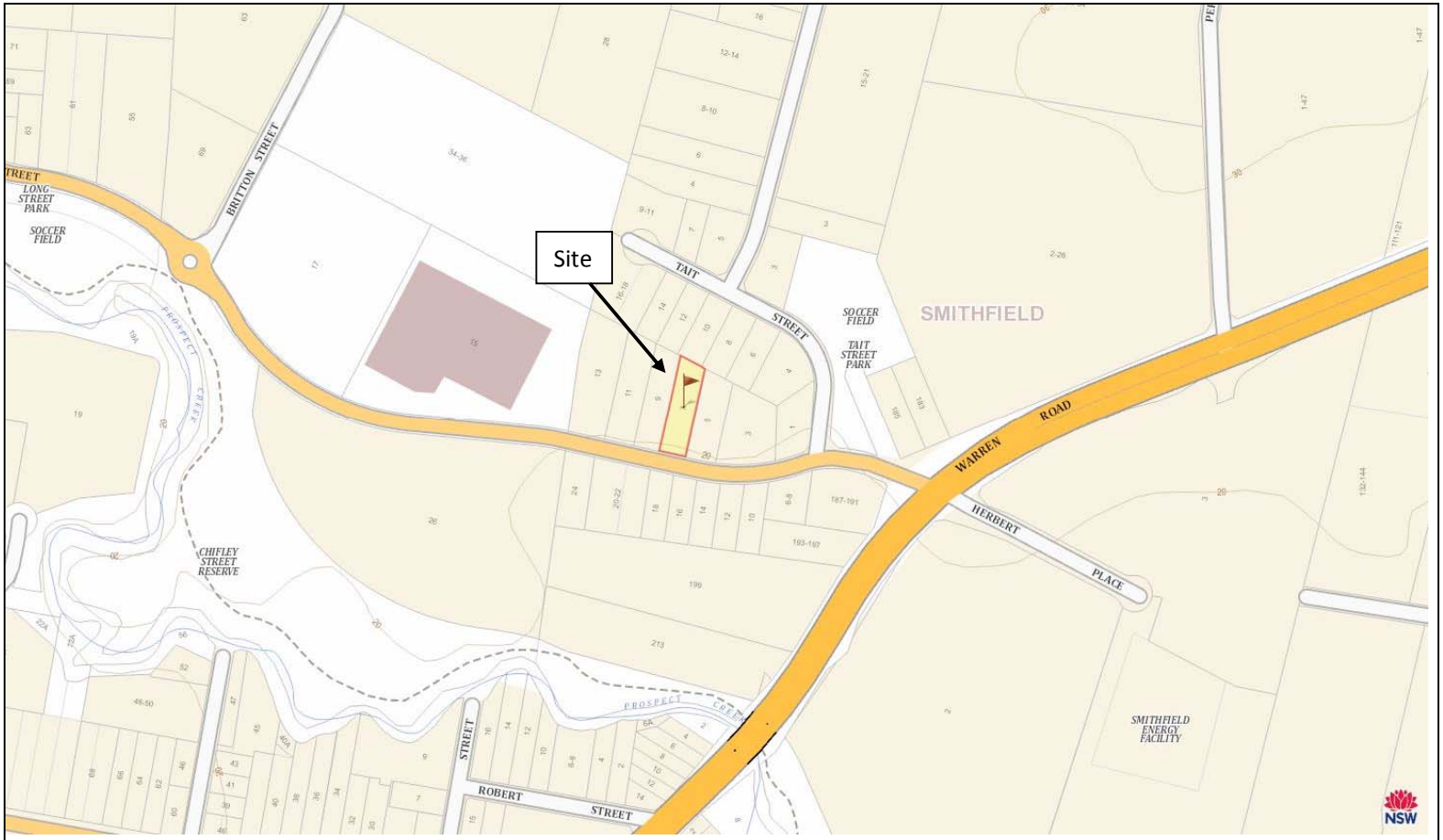
The locality is characterised by large scale industrial buildings with a number of industrial activities including but not limited to auto wreckers, manufacturing and storage. To the west and east of the site are similar scale buildings currently occupied by a vehicle wreckers and auto parts business. The character is typical of a general industrial zone.

Figure 3-2 shows the various land uses surrounding the location of the subject site. The site is surrounded in all directions by industrial zoned land. The site is zoned under the Holroyd Local Environmental Plan (LEP) 2013 land zoning map as zone IN1 – General Industrial.

The proposed usage of the site would have no conflicts with immediately surrounding premises, since they are all classified as the same 'IN1 – General Industrial'. Possible conflicts may arise with residential areas, which are within a distance of 380m to the south in the suburb of Smithfield within the Fairfield Local Government Area.

Impacts at potentially affected areas that are considered sensitive according to the relevant environmental guidelines and under the definitions of land use zones from Holroyd City Council LEP were considered in the individual environmental assessments included in Section 5.

Figure 4-1: Site Location



Source: Six Maps, NSW Government Land and Property Information

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Figure 4-2: Land use zoning

Source: Holroyd Local Environmental Plan 2013 – Land Use Zoning Map

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LEGEND

Neighbourhood Centre	B1	General Industrial	IN1	Private Recreation	RE2	Holroyd City Council LGA boundary	
Local Centre	B2	Light Industrial	IN2	Infrastructure	SP2	Cadastre (Lot)	
Mixed Use	B4	Low Density Residential	R2	Unzoned Land	UL	Cadastre (Property)	
Business Development	B5	Medium Density Residential	R3	SEPP (Major Development) 2005	MD		
Enterprise Corridor	B6	High Density Residential	R4	SEPP (Western Sydney Employment Area) 2009	WSE		
Environmental Conservation	E2	Public Recreation	RE1				

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Figure 4-3: Aerial View of the Site

Source: Six Maps, NSW Government Land and Property Information

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4.1.1 Existing Infrastructure

The following information was provided by the Applicant:

The site contains a large industrial building to the rear of two storey brick offices facing the street. The building is a typical industrial design with a flat roof, small windows to the ground floor facing the street and larger windows in the first floor providing adequate light and ventilation to the office space. Two roller doors are provided to the eastern elevation and one roller door is located to the rear of the building where a large hardstand area is provided for storage and on site maneuvering.

The front yard between the factory and the road is currently grass with three (3) existing trees. An electricity box (1.3m x 2.9m) is located in front of the factory adjacent to the western boundary. The factory building is erected up to the western property boundary adjoining No. 9 Long Street and has a 5.4m setback from the eastern boundary providing driveway access to the rear of the site. The factory building has a width of 27.5m and a depth of 44.3m, creating a building area of 1218m^2. The offices located in the front portion of the building have a depth of 7.0m and a width of 22.1m, providing approximately 480m^2 of subsidiary office, staffroom and toilet facilities.

4.2 LOCAL COMMUNITY

4.2.1 Smithfield and Surrounds

Smithfield is located approximately 25 km west of the Sydney CBD (31 km by road). Surrounding suburbs include Fairfield, Woodpark, Yennora and Guildford. The region is predominantly industrial and residential. The nearest waterway is Prospect Creek, located approximately 230m to the south of the site. Prospect Dam is located approximately 4km north-west of the site.

4.2.2 Population Demographics

The Australian Bureau of Statistics conducts a national census every 4 years. Statistics have been taken from the latest census carried out in 2011.

The population within the state suburb of Smithfield is 11,019 people, consisting of 5,514 males (50.0%) and 5,505 females (50.0%). Of the total persons residing in Smithfield in the labour force, 8.4% are unemployed. The majority of employed persons work 40 or more hours per week (40.4%). The occupation with the largest representation is 'clerical and administrative workers', which accounts for 16.3% of employment, followed by 'technicians and trades workers' at 15.8%.

4.2.3 Nearest Residences

The nearest residences to the subject site are located towards the south of the site, as seen in Figure 4-8. The nearest residence is located approximately 370 metres south of the site at 2 Low Street, Smithfield and is within the Fairfield Local Government Area.

4.3 FLORA AND FAUNA

Development of the site has resulted in removal of any original vegetation. At present, the only vegetation present on site is three (3) trees at the front of the property. These trees will remain.

There are no threatened or endangered flora or fauna populations or sightings listed or recorded on the NPWS Atlas for threatened or endangered species at the site. Flora and fauna are discussed further in Section 5.5.

4.4 TOPOGRAPHY

Three-dimensional views of the local topography surrounding the site have been provided as Figure 4-4 and Figure 4-5, showing the location of the site. The first figure shows the terrain with all axes equally scaled, depicting the terrain as it actually exists when viewed in a conventional three dimensional view. The second figure shows the terrain with the z-axis (i.e. vertical axis) exaggerated by a factor of 3 (i.e. a given distance on the x-axis or y-axis appears three times as great on the z-axis) in order to provide a clearer description of the topography. A coloured scale bar shows elevations corresponding to the colours used in the figures. It should be noted that these figures are an approximation of the actual terrain, based on terrain information available from USGS (U.S. Geological Survey).

Figure 4-4: Three-Dimensional View of Local Terrain with All Axes Equally Scaled

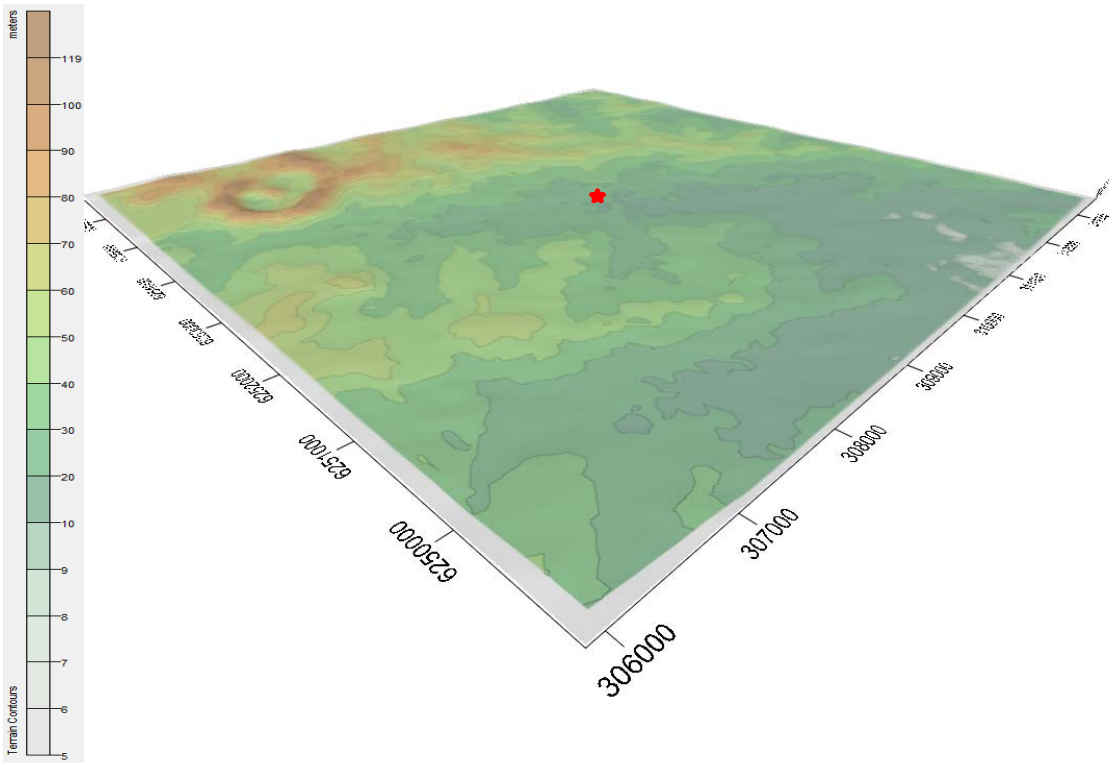
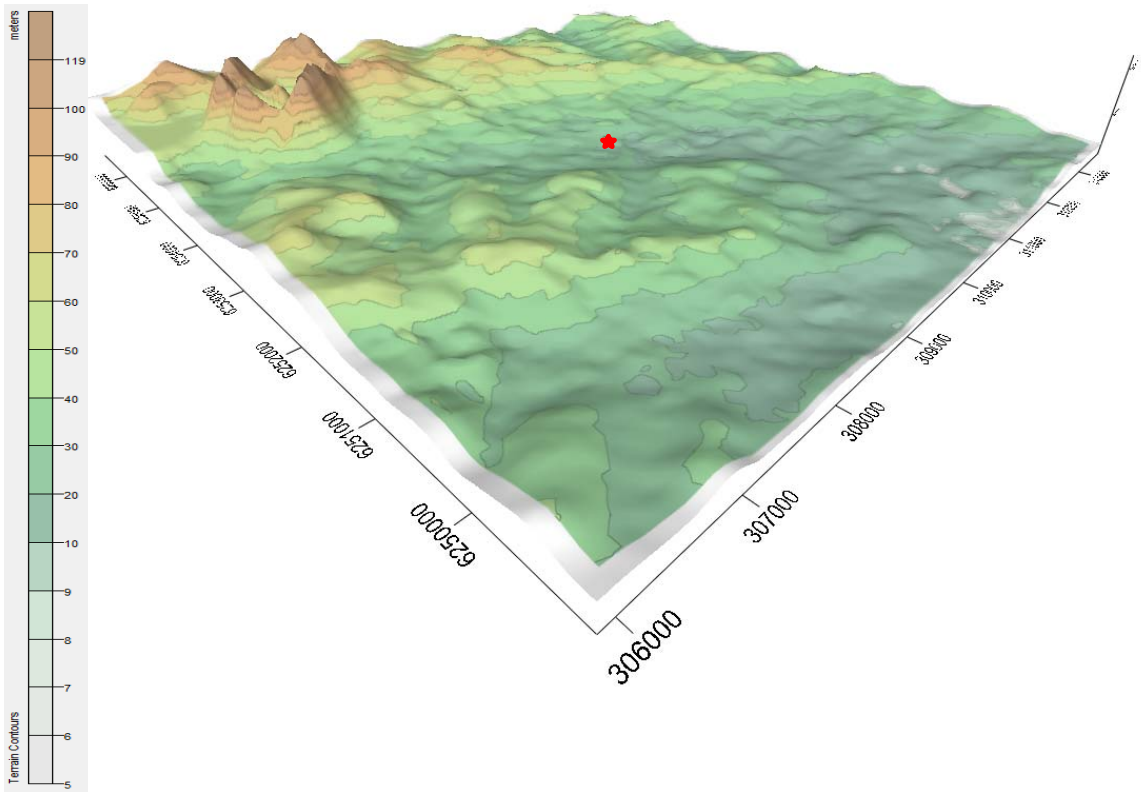


Figure 4-5: Three-Dimensional View of Local Terrain with an Exaggerated Z-Axis (Z-Axis Increased by a Factor of 10)



4.5 GEOLOGY

4.5.1 Soil

The site is fully developed and external areas are in the main concreted. There is no construction activity required as part of the development and therefore soils would not be disturbed.

There would be no external storage of dangerous goods and therefore risk of soil contamination is not considered to be an issue to be assessed. No further information on soils has been provided.

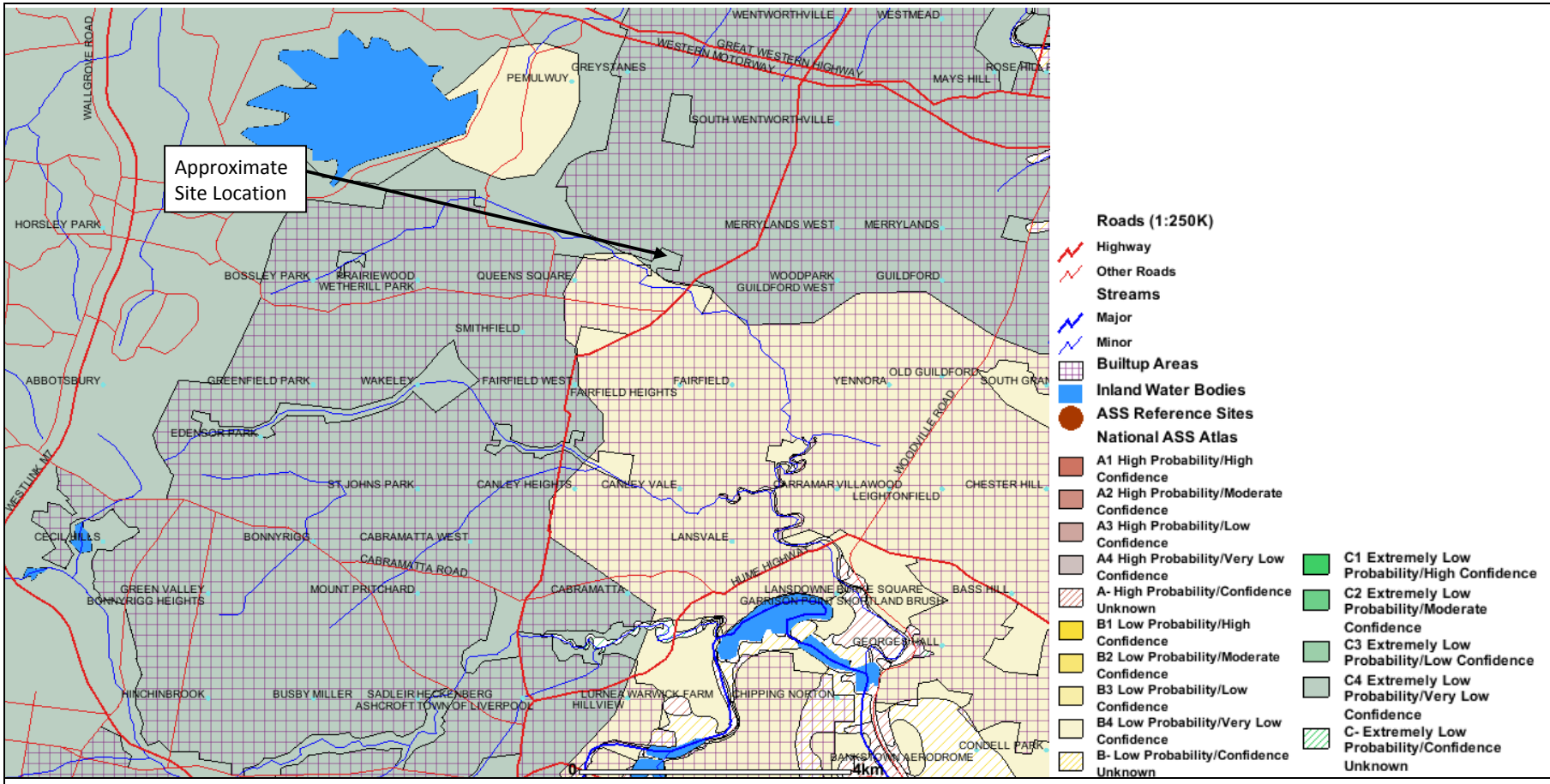
NSW Department of Industry- Resources and Energy Geological Series Sheet 9030 'Penrith' describes soil as medium-grained sand, clay, silt.

4.5.2 Acid Sulphate Soils

A search from the Atlas of Australian Acid Sulfate Soils database developed by the CSIRO shows that there is an extremely low probability of finding acid sulfate soils on the subject site or within close proximity to the site. A map is shown in Figure 4-6 to illustrate these findings.

Given the outcomes of this search, further acid sulfate soil investigations and assessments were neither required nor undertaken.

Figure 4-6: Acid Sulphate Soil Map



Source: Australian Soil Resource Information System (2015)

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4.6 HYDROLOGY

The following section details the hydrological aspect of the site and region. Specifics on the surface water, waterways and groundwater have been addressed, as well as overall catchment issues.

4.6.1 Catchment

The nearest waterway to the site is Prospect Creek which is an urban watercourse of the Georges River Catchment. Prospect Creek flows generally southeast by east, through the Holroyd, Fairfield, Liverpool and Bankstown local government areas, before converging with the Georges River, and spilling into Dhurawal Bay in the Chipping Norton Lakes. The catchment area of the creek is approximately 98 square kilometres and is largely urbanised with industrial land uses, residential and open space for recreation.

Prospect Creek is located approximately 230m South of the site. Prospect Dam is located approximately 4km north-west of the site.

4.6.1.1 Georges River Catchment

The Georges River catchment is highly urbanised with a population of approximately 1.2 million (NSW EPA). Various industrial land uses such as manufacturing, waste disposal, mining and fishing are undertaken in the catchment area and there are also numerous residential areas. The lower region of the Georges River is used for recreation and contains various aquatic and bird habitats.

4.6.2 Surface Water

The site is predominantly flat with a dominant direction of fall to the north. The site is fully sealed and any rainwater would be captured by the site's stormwater infrastructure.

4.6.2.1 Nearest Waterway

The nearest waterway is Prospect Creek, located approximately 230m South of the site.

4.6.2.2 Water Quality and River Flow Objectives

Interim water quality and river objectives for the receiving waters (Georges River Catchment) refer to the community's agreed environmental value and human uses endorsed by the Government as goals for the ambient waters of the Georges River. Prospect Creek flows through a predominantly urban area, as such, would be considered to be a "Waterway affected by urban development". The environmental values listed for this type of waterway are listed as follows:

Water Quality Objectives – Water quality objectives are based on providing the right water quality for the environment and its different uses. Water quality objectives for Prospect Creek would include protection of:

- Aquatic ecosystems;
- Visual amenity;
- Secondary contact recreation, as a short term objective, within 5 years;

- Primary contact recreation: assess opportunities to achieve as a longer term objective, 10 years or more.

River Flow Objectives – River flow objectives deal with the way water moves down the waterway and aim to improve river health focussing on natural flow patterns. River flow objectives for Prospect Creek include:

- Maintain wetland and floodplain inundation;
- Maintain natural flow variability;
- Maintain natural rates of change in water levels;
- Minimise effects of weirs and other structure

4.6.2.3 Healthy Rivers Commission (HRC)

The Healthy River Commission was discontinued in 2004 and was replaced by the Natural Resources Commission (NRC). Outstanding Healthy River Commission recommendations have been incorporated by the NRC into Catchment Action Plans and Government programs.

4.6.2.4 Catchment Action Plan (CAP)

The Southern Sydney Catchment Blueprint (2002) sets out an action plan to improve the catchments of southern Sydney, including the Georges River catchment. The Blueprint will be incorporated into the Catchment Action Plan, being developed by the Sydney Metropolitan Catchment Management Authority.

4.6.3 Groundwater

There is no visible evidence to suggest that there would be groundwater contamination due to past uses of the site. The site has no history of underground tanks having been installed.

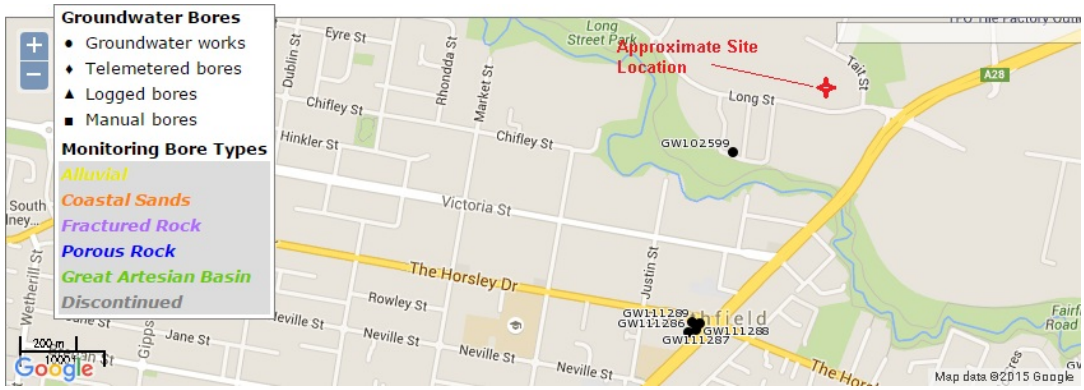
Data from several groundwater wells within close proximity of the site is presented in Table 4-1, and the location of the wells is shown in Figure 4-7.

This data was sourced from the NSW Natural Resources Atlas at http://nratlas.nsw.gov.au.

Table 4-1: Groundwater Well Data

Well ID	Approximate distance from site	Purposes	Final depth	Standing Water Level (S-W-L)	Salinity
GW102599	510m ENE	Industrial	204 m	Unknown (water encountered at 7.5-7.8m and 93.0-93.5m)	5750 (units not given)
GW111287	400m ESE	Monitoring Bore	5.5 m	0.8 m	unknown
GW111288	400m ESE	Monitoring Bore	7.0 m	1.3 m	unknown
GW111286	400m ESE	Monitoring Bore	5.5 m	1.4 m	unknown
GW111289	400m ESE	Monitoring Bore	6.0 m	1.8 m	unknown

Figure 4-7: Location of Groundwater Wells



Source: NSW Government – Department of Primary Industries Office of Water

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4.7 NOISE AMENITY

This section describes the noise amenity of the area.

4.7.1 Nearest Receptors

Table 4-2 provides the list of the nearest identified sensitive receptors that have the potential to be affected by the proposal while Figure 4-8 uses an aerial photograph to show these locations.

Noise logger and attended noise measurements were conducted at:

- **Location A** – 119 Oxford St, Smithfield

Figure 4-9 shows the above noise logger and attended noise measurement locations.

Table 4-2: Nearest Sensitive Receptors

Receptors	Address	Approximate Distance to Proposed Development (m)	Direction	Description
R1	3 LOW STREET SMITHFIELD	405	S	Residential
R2	19 RHONDDA STREET SMITHFIELD	1105	W	Residential
R3	24 IRIS STREET GUILDFORD WEST	1350	E	Residential
R4	4 VALE STREET WOODPARK	1195	NE	Residential

Sensitive receptors are selected firstly based on the proximity to the site. These can be residential dwellings, schools, hospitals, offices or public recreation areas. Usually an emphasis is placed on residential receptors due to the occupants potentially being present at any hour of the day or night. Selection is also dependant on the nature of the proposed development, hours of operation and potential pollutants.

For this particular assessment, the nearest residences were selected. In addition, receptors were selected to take into account all directions around the site to provide a more accurate indication of the impact the proposed development may have on the surrounding area, not just in one particular direction. This approach also enables consideration of dominant wind directions or adverse meteorological conditions over all seasons of the year.

Figure 4-8: Location of Sensitive Receptors (Modelling)

Source: Google Maps® 2015

↑N

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Figure 4-9: Location of Noise Logging

Source: Google Maps® 2015

↑N	**Location A** – 119 Oxford St, Smithfield	Benbow Environmental 13 Daking Street, North Parramatta NSW 2151

4.7.2 Existing Acoustic Environment

The level of background noise would vary over the course of any 24 hour period, typically from a minimum at 3.00am in the morning to a maximum during morning and afternoon traffic peak hours. Therefore the NSW Environment Protection Authority's (EPA*)* Industrial Noise Policy (INP) requires that the level of background and ambient noise be assessed separately for the daytime, evening and night time periods. The INP defines these periods as follows:

- **Day** is defined as 7.00am to 6.00pm, Monday to Saturday and 8.00am to 6.00pm Sundays and Public Holidays;
- **Evenings** is defined as 6.00pm to 10.00pm, Monday to Sunday and Public Holidays; and
- **Night** is defined as 10.00pm to 7.00am, Monday to Saturday and 10.00pm to 8.00am Sundays and Public Holidays.

In addition the NSW INP recognises that there will often be situations that require different assessment periods such as when early morning (5am – 7am) operations are proposed (Shoulder Period). In this case it may be unduly stringent to assess such operations against the night-time criteria, particularly when existing background noise levels rise steadily throughout this time. Consequently, more appropriate noise criteria may be adopted on a case-by-case basis.

4.7.2.1 Methodology

The background noise level measurements were carried out using a Svantek SVAN 957 Precision Sound Level Meter (attended noise monitoring) and one (1) Acoustic Research Laboratories statistical Environmental Noise Logger, type EL-215 (unattended noise monitoring). The instrument sets were calibrated by a NATA accredited laboratory within two years of the measurement period.

To ensure accuracy and reliability in the results, field reference checks were applied both before and after the measurement period with an acoustic calibrator Rion NC-73. There were no excessive variances observed in the reference signal between the pre-measurement and post-measurement calibration. The instruments were set on A-weighted Fast response and noise levels were measured over 15-minute statistical intervals. QA/QC procedures applied for the measurement and analysis of noise levels have been presented in the Attachments. The microphones were fitted with windsocks and were positioned between 1.2 and 1.5 meters above ground level.

Long term unattended noise monitoring was conducted from 28 August 2015 until 9 September 2015.

4.7.2.2 Measurement Locations

One (1) Environmental Noise Logger was strategically positioned at location A near residential receptor R1 in order to measure the existing ambient and background noise environment. Criterion establishment for all other considered residential receivers was based on the background noise levels and the equivalent sound pressure level measured at this location. The approach adopted is consistent with the requirements of the NSW EPA's "Industrial Noise Policy" (INP).

In accordance with the NSW INP measured noise data obtained from the above monitored location has been considered representative of the various potentially affected areas surrounding the subject site. The relevant information, found in Section 3.1.2 on page 24 of the NSW INP has been reproduced below.

> ***"Most affected location(s)****—locations that are most affected (or that will be most affected) by noise from the source under consideration as per Note 2 in Section 2.2.1. In determining these locations, the following need to be considered: existing background levels, noise source location/s, distance from source/s (or proposed source/s) to receiver, and any shielding (for example, building, barrier) between source and receiver. Often several locations will be affected by noise from the development. In these cases, locations that can be considered representative of the various affected areas should be monitored."*

The location of the Environmental Noise Logger can be identified in the following photograph.

Figure 4-10: Logger Location at Location A

4.7.2.3 Long-Term Unattended Noise Monitoring Results

All measured noise data considered in the assessment of the background noise level affected by adverse weather conditions has been discarded according to the requirements given by the NSW INP. The weather data has been sourced from the Bureau of Meteorology (BOM), specifically from the Automatic Weather Station (AWS) located in Horsley Park Equestrian Centre.

The measured data was analysed to determine a single assessment background level (ABL) for each day, evening and night time period, in accordance with the NSW INP. That is, the ABL is best established by determining the lowest ten-percentile level of the L_{A90} noise data over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night assessment periods is based on the median of individual ABL's determined over the entire monitoring period.

The resultant data is considered representative of the background and equivalent sound pressure levels for the area, and therefore suitable for use in this noise impact assessment.

4.8 AIR QUALITY

Background air quality parameters were obtained from the nearest ambient air monitoring station operated by the NSW EPA, which is located at Prospect, approximately 6.5km north-west of the site.

The relevant assessable pollutant parameters available from the monitoring station are PM_{10} 24-hour and monthly average values for 2014, which have been provided in Table 4-3 below.

Table 4-3: Referenced Background PM_{10} Data – NSW EPA Monitoring Station at Prospect

PM_{10}	Value Recorded Within Each Month (μg/m³)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Av.
Prospect, NSW													
24-Hour Maximum	38.7	39.0	32.6	26.8	34.0	28.7	30.3	26.7	25.2	41.4	44.6	30.3	**33.2**
Monthly Average	22.2	21.8	16.0	16.3	17.3	13.0	15.9	14.9	14.9	20.0	21.3	16.7	**17.5**

Given the data provided above, the most applicable PM_{10} background concentration to utilise for the assessment is 33.2 μg/m³ under the 24-hour averaging period. The most applicable annual averaging period would be 17.5 μg/m³.

Using the worst-case particle size distribution data provided by the U.S. Environmental Protection Agency (USEPA) AP42 Emissions Database, a PM_{10}-to-TSP ratio of 0.51 was used to estimate the TSP background concentration level of 34.3 μg/m³.

Dust deposition background data were unavailable from the referenced NSW EPA ambient air monitoring station and so a conservative background dust deposition value of 2 g/m²/month was utilised in this assessment for assessing cumulative deposited dust impacts.

Therefore in summary, the background air quality levels that were utilised in this assessment are as follows:

- PM10 (24-hour): 33.2 μg/m³
- PM10 (annual): 17.5 μg/m³
- TSP (annual): 34.3 μg/m³
- Deposited dust: 2 g/m²/month

4.9 CLIMATE

This section will provide background information on the meteorological condition of the existing area surrounding the proposed site. This referenced meteorological information has been sourced from the Bureau of Meteorology (BoM) monitoring station at Prospect Reservoir Automatic Weather Station (AWS), Station No. 067019. This station is located approximately 4 km north-west of the subject site and is considered suitable for reference to general climate conditions in the local area. This station is used for historical weather data only. Horsley Park data is used for wind roses and modelling due to the need for minute data.

4.9.1 Temperature

Temperature statistics have been referenced from the Prospect Reservoir Weather Station. This data is shown in Table 4-4, and depicted graphically in Figure 4-11 and Figure 4-12.

The mean annual minimum and maximum temperatures at Prospect Dam are 12.3°C and 23.2°C respectively. The lowest temperatures occur in July, with a mean maximum of 16.8°C and mean minimum of 6.1°C. The hottest temperatures are recorded during Summer, with the highest maximum occurring in January (28.4°C), and the highest minimum temperature occurring in February (17.8°C).

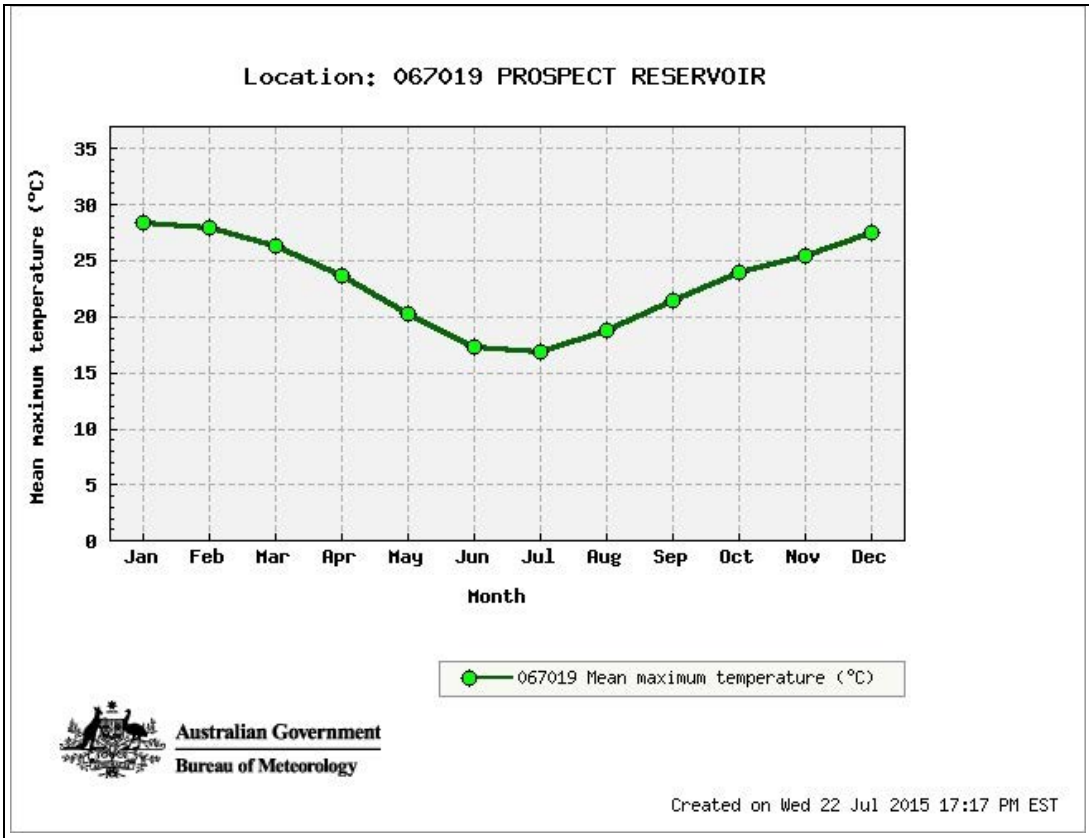
Table 4-4: Temperature Statistics from Bureau of Meteorology – Prospect Dam

Months / Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Maximum Temperature (ºC)	28.4	27.9	26.3	23.7	20.3	17.3	16.8	18.8	21.4	23.9	25.5	27.5	23.2
Mean Minimum Temperature	17.7	17.8	16.1	13.0	9.9	7.5	6.1	6.8	9.4	12.1	14.3	16.4	12.3

Source: Bureau of Meteorology, 2015

Note: Statistics are based on data collected from the Year 1965 to 2015

Figure 4-11: Mean Maximum Temperature from Prospect Dam



Source: Bureau of Meteorology, 2015

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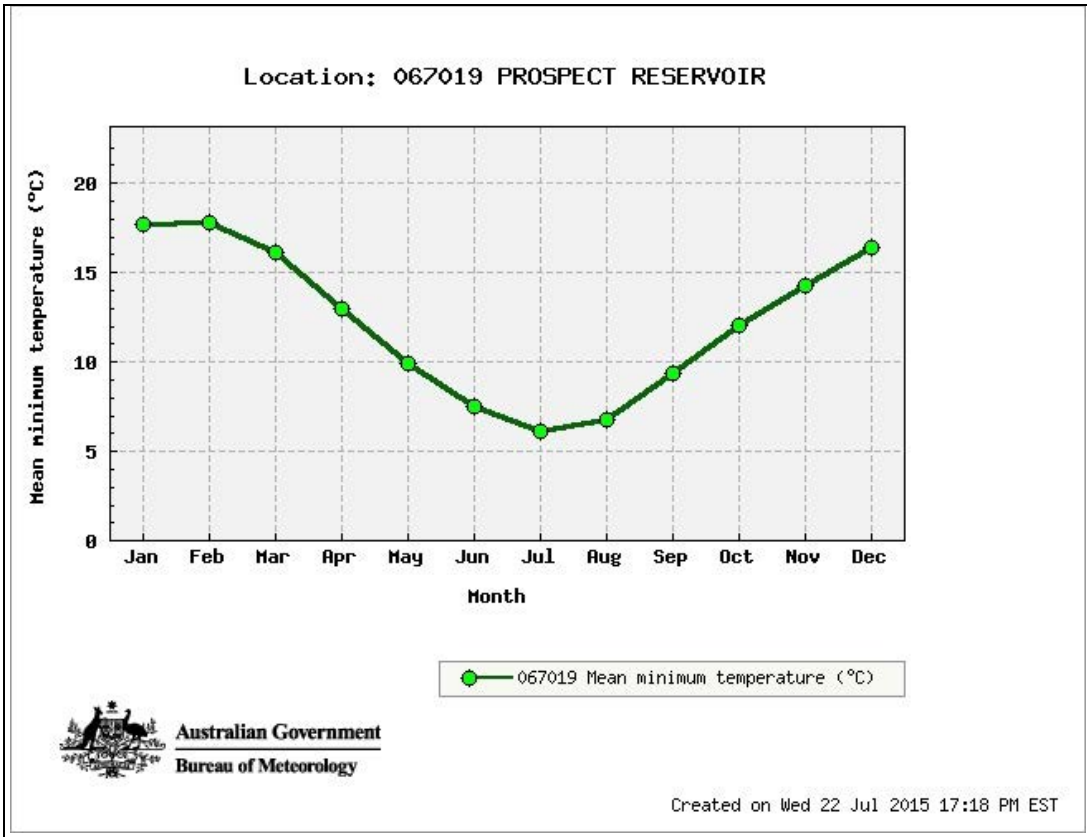
Figure 4-12: Mean Minimum Temperature from Prospect Dam



Source: Bureau of Meteorology, 2015

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4.9.2 Rainfall

The rainfall statistics have been referenced from the Prospect Dam Weather Station. This data is shown in Table 4-5, and mean rainfall is shown in Figure 4-13.

Rainfall data collected by the Prospect Dam Weather Station shows mean annual rainfall of 872.7 mm, which results in a monthly mean of 72.73 mm. March is the wettest month, where the mean rainfall reading is 96.6 mm, while the driest month is September with 46.6mm mean rainfall. The annual mean number of rainy days (with rainfall above 1mm) is calculated as 84.1 days.

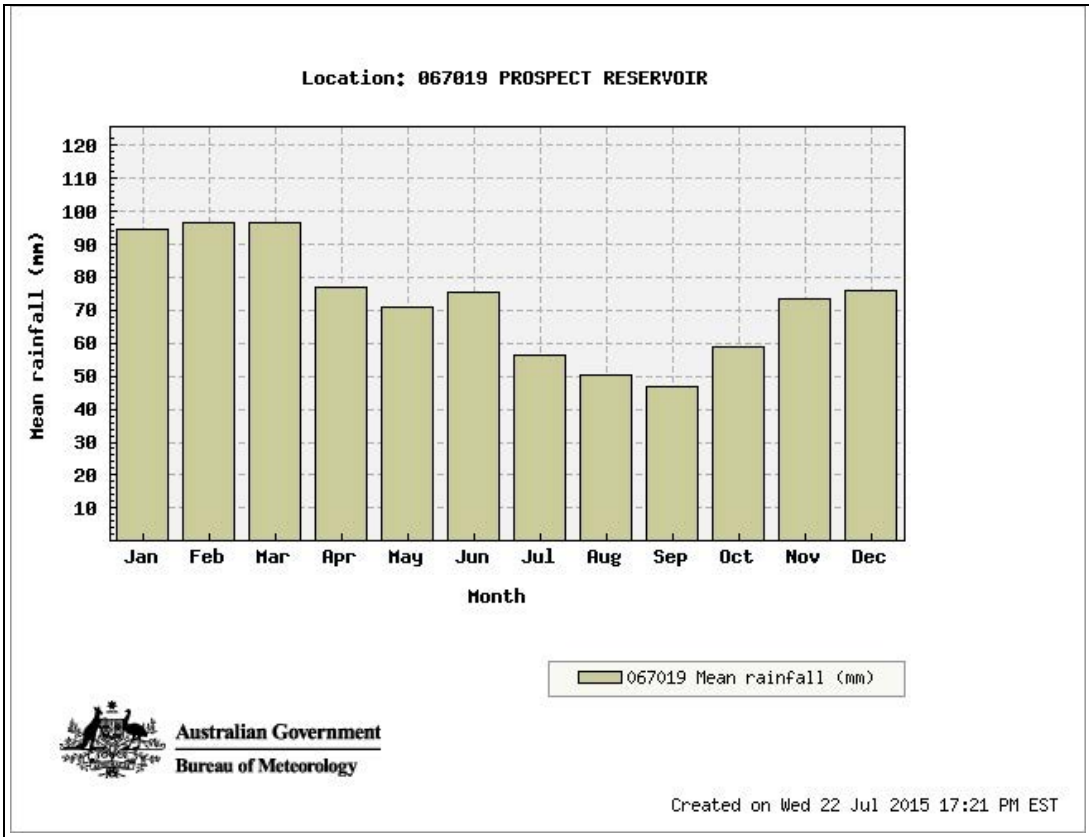
Table 4-5: Rainfall Statistics from Bureau of Meteorology – Prospect Dam

Months / Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Rainfall (mm)	94.6	96.5	96.6	77.2	70.8	75.4	56.3	50.3	46.6	58.9	73.3	75.9	872.7
Decile 5 (Median) Rainfall (mm)	73.2	73.1	78.3	57.2	40.0	49.7	32.7	30.2	40.4	43.3	60.1	57.5	857.7
Mean Number of Days of Rain ≥ 1 mm	8.0	8.2	8.3	7.1	6.4	7.0	5.7	5.7	6.1	6.8	7.3	7.5	84.1

Source: Bureau of Meteorology, 2015

Note: Statistics are based on data collected from the Year 1887 to 2015

Figure 4-13: Mean Rainfall from Prospect Dam



Source: Bureau of Meteorology, 2015

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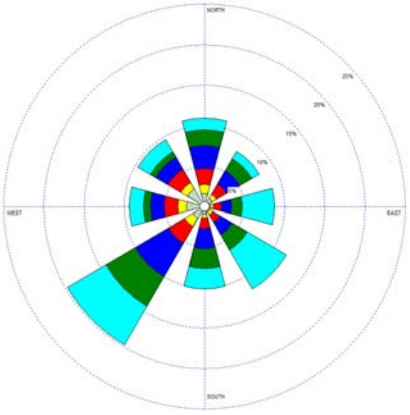
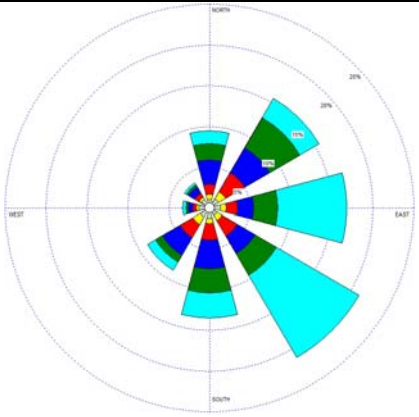
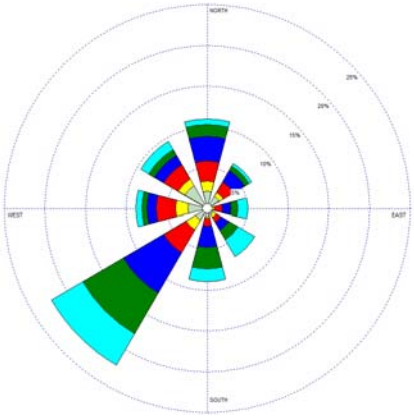
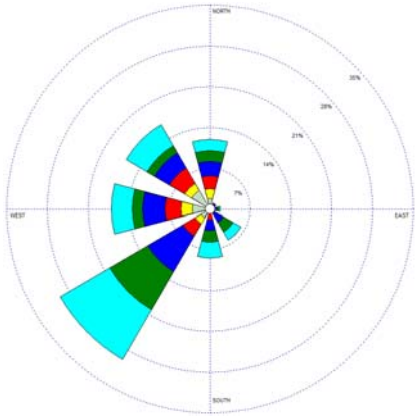
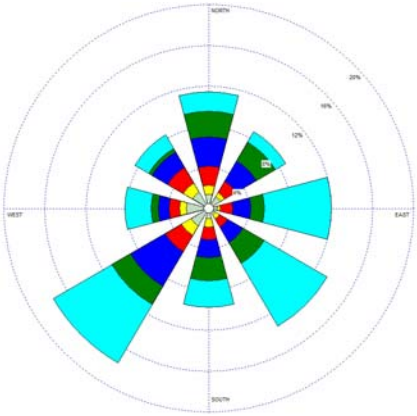
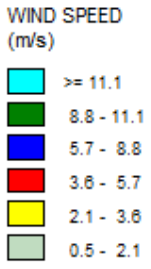
4.9.3 Wind

Wind rose plots show the direction from which the wind is coming from with triangles known as "petals". The petals of the plots in the figure summarise wind direction data into 8 compass directions i.e. north, north-east, east, south-east, etc. The length of the triangles, or "petals", indicates the frequency that the wind blows from the direction presented. Longer petals for a given direction indicate a higher frequency of wind from that direction. Each petal is divided into segments, with each segment representing one of the six wind speed classes. Thus, the segments of a petal show what proportion of wind for a given direction falls into each class. The proportion of time for which wind speed is less than speeds in the first class (i.e. 0.5 m/s), when speed is negligible, is referred to as calm hours or "calms". Calms are not shown on a wind rose as they have no direction, but the proportion of time that constitutes the period under consideration is noted under each wind rose. The concentric circles in each wind rose are the axes that denote wind frequencies. In comparing the plots it should be noted that the axes varies between wind roses, although all wind roses are the same size. The frequencies shown in the first quadrant (top-left quarter) of each wind rose are stated beneath the diagram.

Figure 4-14: Wind Rose Plots for the Referenced Meteorological Station – Bureau of Meteorology Horsley Park AWS (2014)

All Seasons	Summer Season (December – February)
	
Average Wind Speed: 7.54 m/s Calms Frequency: 11.50% Axis Frequencies: 5%, 10%, 15%, 20%, 25%	Average Wind Speed: 8.51 m/s Calms Frequency: 7.08% Axis Frequencies: 5%, 10%, 15%, 20%, 25%
Autumn Season (March – May)	**Winter Season (June – August)**
	
Average Wind Speed: 5.50 m/s Calms Frequency: 16.71% Axis Frequencies: 5%, 10%, 15%, 20%, 25%	Average Wind Speed: 7.89 m/s Calms Frequency: 6.17% Axis Frequencies: 7%, 14%, 21%, 28%, 35%
Spring Season (September – November)	**Legend**
	
Average Wind Speed: 8.37 m/s Calms Frequency: 9.56% Axis Frequencies: 4%, 8%, 12%, 16%, 20%	

5. ENVIRONMENTAL IMPACTS AND SAFEGUARDS – PHYSICAL ENVIRONMENT

5.1 AIR QUALITY

5.1.1 Introduction

This section examines the potential air quality impacts of the proposed site operations on surrounding land uses with regard to the subject sites terrain, local meteorological conditions, background air quality and potential for generation of dust emissions.

5.1.2 Sensitive Receivers

Table 5-1 lists the location of representative potentially affected receivers that are considered in this assessment. These are shown in Table 5-1.

The nearest residential receptor is located approximately 370m away from the south east corner of the Project Site.

Table 5-1: Nearest Potentially Affected Receivers

Receptor	Address	Direction from Site	Approximate Distance to Site Boundary (m)	Type of Receptor
R1	3 Low Street, Smithfield	S	405	Residential
R2	19 Rhondda Street, Smithfield	W	1105	Residential
R3	24 Iris Street, Guildford West	E	1350	Residential
R4	4 Vale Street, Woodpark	NE	1195	Residential
R5	708 The Horsley Park Drive, Smithfield	SW	840	Residential

5.1.3 Meteorology and Local Air Quality

5.1.3.1 Site Representative Meteorological Data

The nearest weather monitoring station within proximity to the subject site with 1 minute data available is the Horsley Park AWS operated by the Bureau of Meteorology. This monitoring station is located approximately 6 kilometres away to the west of the subject site and was considered to be the most appropriate due to the vicinity, completeness and latest data available. Weather data for the year 2014 was obtained.

5.1.3.2 Wind Rose Plots

Wind rose plots show the direction from which the wind is coming with triangles known as "petals". The petals of the plots in Figure 4-14 summarise wind direction data into 8 compass directions ie. north, north-east, east, south-east, etc.

The length of the triangles, or "petals", indicates the frequency that the wind blows from the direction presented. Longer petals for a given direction indicate a higher frequency of wind from that direction. Each petal is divided into segments, with each segment representing one of the six wind speed classes. Thus, the segments of a petal show what proportion of wind for a given direction falls into each class.

The proportion of time for which wind speed is equal to or less than 0.5 m/s, when speed is negligible, is referred to as calm hours or "calms". Calms are not shown on a wind rose as they have no direction, but the proportion of time that they make up for the period under consideration is noted under each wind rose.

The concentric circles in each wind rose are the axes that denote wind frequencies. In comparing the plots it should be noted that the axis varies between wind roses, although all wind roses are the same size. The frequencies shown in the first quadrant (top-left quarter) of each wind rose are stated beneath the wind rose.

5.1.3.3 Local Wind Trends

Seasonal wind rose plots for this site utilising Horsley Park AWS data have been included as Figure 4-14.

The dominant wind direction over the course of the year is south-west at a frequency of 20%. The average wind speed throughout the year is 7.54 m/s.

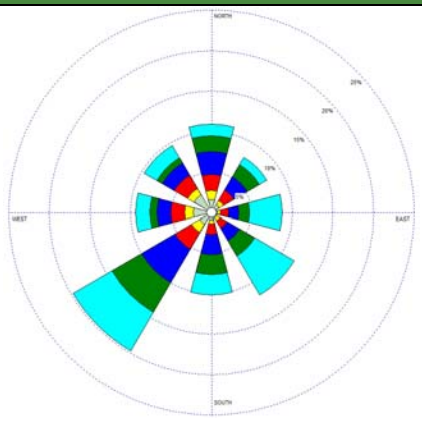
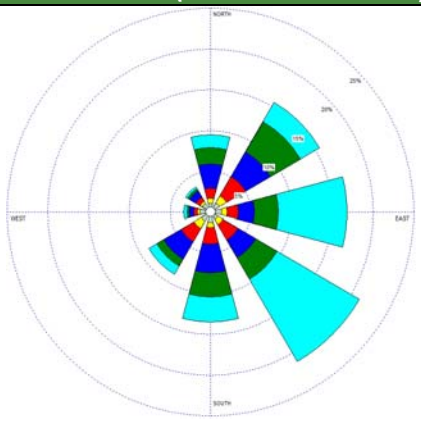
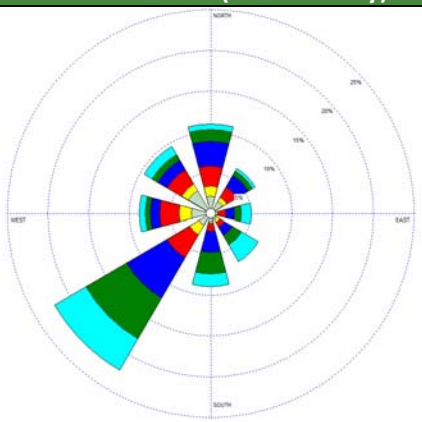
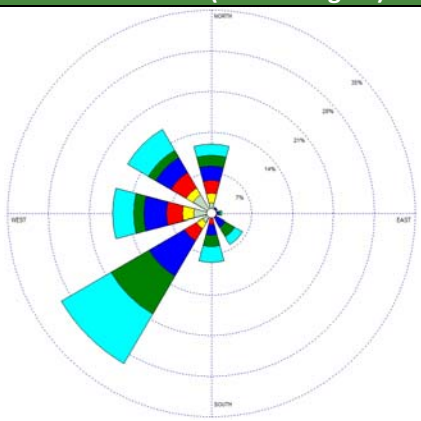
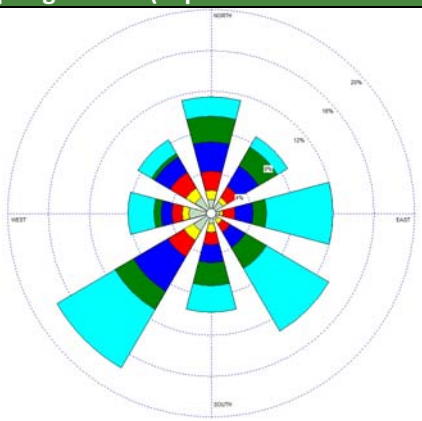
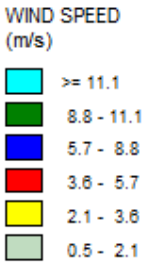
In summer, dominant winds are blowing from the south-east (21%), east (17%) and north-east (16%).

The prevailing wind direction is from the south-west in both autumn and winter at 23% and 30% respectively.

Winds in the spring are dominantly blowing from the south-wets, south-east and east at frequencies of 18%, 14% and 12% respectively.

Seasonal calms range between 6.17% in winter and 16.71% in autumn.

Figure 5-1: Wind Rose Plots for the Referenced Meteorological Station – Bureau of Meteorology Horsley Park AWS (2014)

All Seasons	Summer Season (December – February)
	
Average Wind Speed: 7.54 m/s Calms Frequency: 11.50% Axis Frequencies: 5%, 10%, 15%, 20%, 25%	Average Wind Speed: 8.51 m/s Calms Frequency: 7.08% Axis Frequencies: 5%, 10%, 15%, 20%, 25%
Autumn Season (March – May)	**Winter Season (June – August)**
	
Average Wind Speed: 5.50 m/s Calms Frequency: 16.71% Axis Frequencies: 5%, 10%, 15%, 20%, 25%	Average Wind Speed: 7.89 m/s Calms Frequency: 6.17% Axis Frequencies: 7%, 14%, 21%, 28%, 35%
Spring Season (September – November)	**Legend**
	
Average Wind Speed: 8.37 m/s Calms Frequency: 9.56% Axis Frequencies: 4%, 8%, 12%, 16%, 20%	

5.1.3.4 Terrain and Structural Effects on Dispersion

The meteorological condition known as katabatic flow (or katabatic drift) is often identified as the condition under which maximum environmental impacts from primarily ground-based sources are likely to occur. Katabatic flow is simply the movement of cold air down a slope, generally under stable atmospheric conditions. Under such circumstances, dispersion of airborne pollutants is generally slow and the associated impacts can reach their peak.

Katabatic flow is unlikely to affect any emissions from the subject site because katabatic flow only affects receptors that are located at a lower terrain elevation compared to the site's elevation. As such, no wind direction-specific katabatic flow would be expected to occur. Figure 5-2 with all axes equally scaled, shows the terrain as it actually exists when viewed in a conventional three dimensional view. Figure 5-3 shows the terrain with the z-axis (i.e. vertical axis) exaggerated by a factor of 10 (i.e. a given distance on the x-axis or y-axis appears three times as great on the z-axis) in order to provide a clearer description of the topography. A coloured scale bar shows elevations corresponding to the colours used in the figures. It should be noted that these figures are an approximation of the actual terrain, based on terrain information that have been digitised from local contour terrain maps.

Figure 5-2: Local Topography of Site, no vertical exaggeration

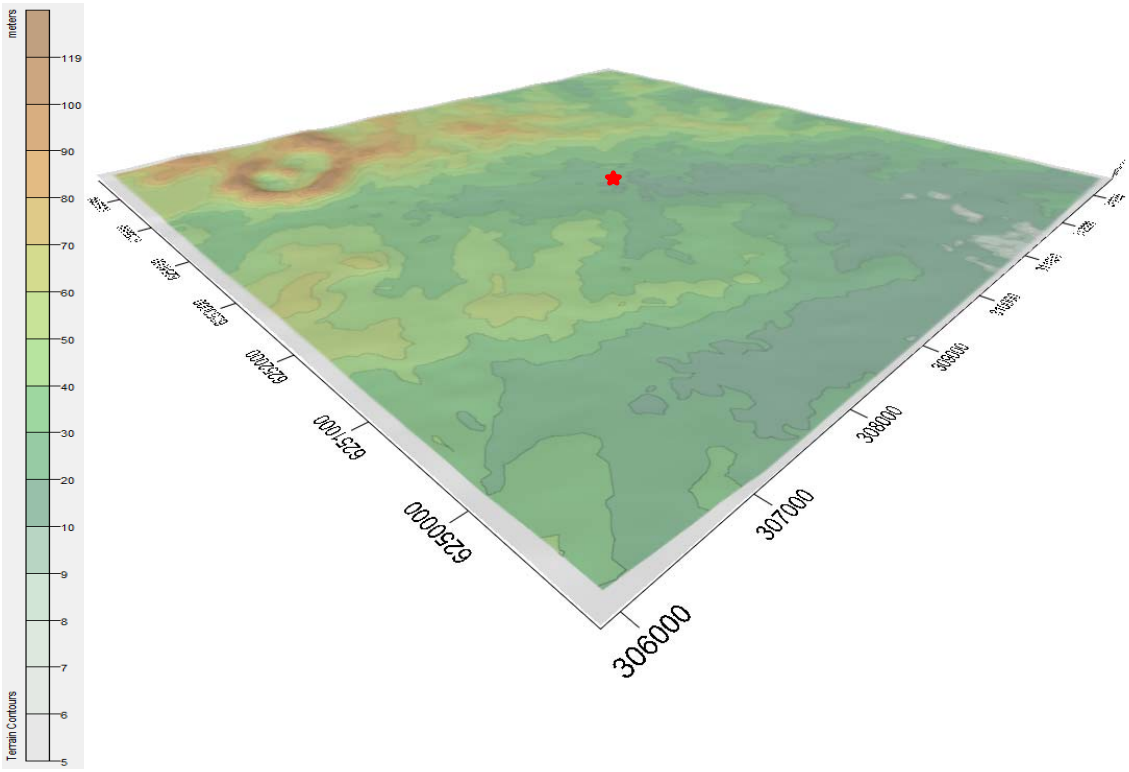
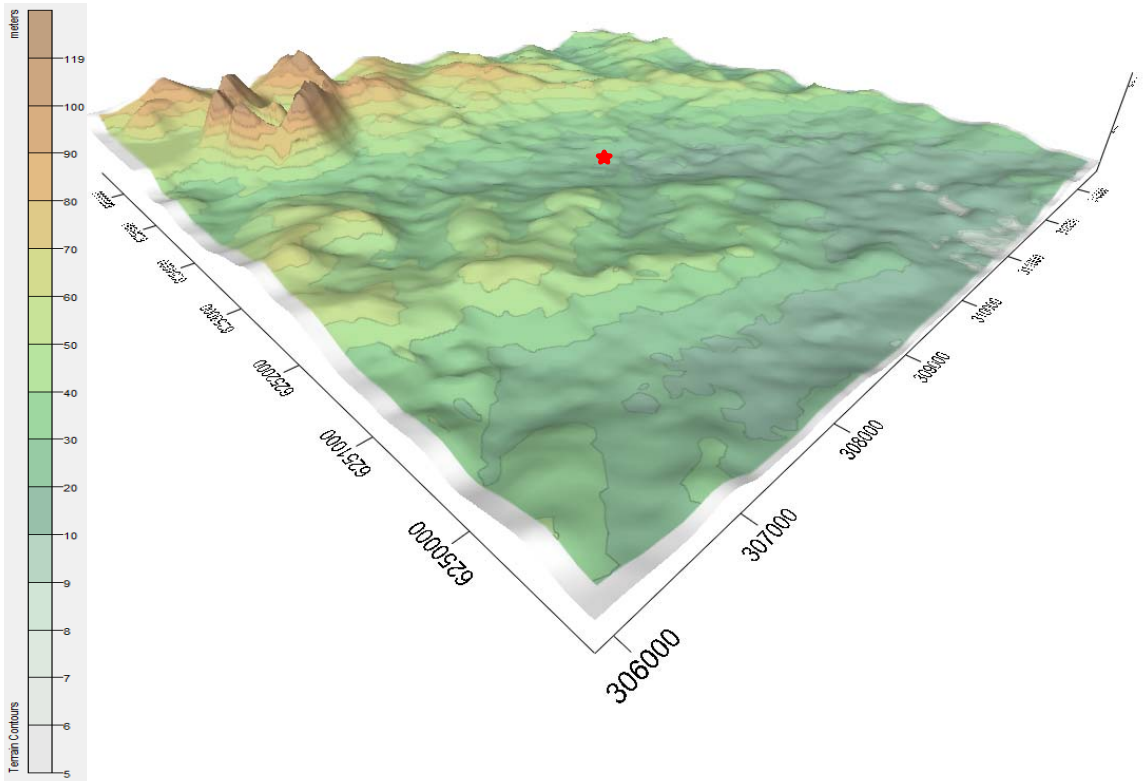


Figure 5-3: Local Topography of Site, factor of 10 vertical exaggeration



5.1.3.5 Local Air Quality

Background air quality parameters were obtained from the NSW EPA ambient air monitoring station located at Prospect, NSW. The relevant assessable pollutant parameters available from the monitoring station are PM_{10} 24-hour and monthly average values for 2014, which have been provided in Table 5-2 below.

Table 5-2: Referenced Background PM_{10} Data – NSW EPA Monitoring Station at Prospect

PM_{10}	Value Recorded Within Each Month (µg/m³)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Av.
Prospect, NSW													
24-Hour Maximum	38.7	39.0	32.6	26.8	34.0	28.7	30.3	26.7	25.2	41.4	44.6	30.3	33.2
Monthly Average	22.2	21.8	16.0	16.3	17.3	13.0	15.9	14.9	14.9	20.0	21.3	16.7	17.5

Given the data provided above, the most applicable PM_{10} background concentrations are 33.2 µg/m³ under a 24-hour averaging period and 17.5 µg/m³ under an annual averaging period.

Using the worst-case particle size distribution data provided by the U.S. Environmental Protection Agency (USEPA) AP 42 Emissions Database, a PM_{10}-to-TSP ratio of 0.51 was used to estimate the TSP background concentration level of 34.3 µg/m³ for an annual averaging period.

Dust deposition background levels have therefore been conservatively assumed to be 2 g/m^2/month.

5.1.4 Air Quality Criteria and Guidelines

5.1.4.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) applies the following definitions relating to air pollution:

> ***"Air pollution"*** *means the emission into the air of any air impurity.*
>
> *While "air impurity" includes smoke, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, mists odours, and radioactive substances*

The following sections of this Act have most relevance to the site:

- *Section 124 Operation of Plant - other than domestic plant*

  The occupier of any premises who operates any plant in or on those premises in such a manner as to cause air pollution from those premises is guilty of an offence if the air pollution so caused, or any part of the air pollution so caused, is caused by the occupier's failure:

  (a) to maintain the plant in an efficient condition, or

  (b) to operate the plant in a proper and efficient manner.

- *Section 126 Dealing with Materials*

  (1) The occupier of any premises who deals with materials in or on those premises in such a manner as to cause air pollution from those premises is guilty of an offence if the air pollution so caused, or any part of the air pollution so caused, is caused by the occupiers failure to deal with those materials in a proper and efficient manner.

  (2) In this section:

  deal *with materials means process, handle, move, store or dispose of the materials.*

  Materials *includes raw materials, materials in the process of manufacture, manufactured materials, by-products or waste materials.*

- *Section 127 Proof of causing pollution*

  To prove that air pollution was caused from premises within the meaning of Sections 124 – 126, it is sufficient to prove that air pollution was caused on the premises, unless the defendant satisfies the court that the air pollution did not cause air pollution outside the premises.

- *Section 128 Standards of air impurities not to be exceeded*

  (1) The occupier of any premises must not carry on any activity, or operate any plant, in or on the premises in such a manner as to cause or permit the emission at any point specified in or determined in accordance with the regulations of air impurities in excess of:

  (a) The standard of concentration and the rate, or

  (b) The standard of concentration or the rate.

  Prescribed by the regulations in respect of any such activity or any such plant.

  (2) Where neither such a standard nor rate has been so prescribed, the occupier of any premises must carry on any activity, or operate any plant, in or on the premises by such practicable means as may be necessary to prevent or minimise air pollution.

- *Section 129 Emission of odours from premises licensed for scheduled activities*

  (1) The occupier of any premises at which scheduled activities are carried on under the authority conferred by a licence must not cause or permit the emission of any offensive odour from the premises to which the licence applies.

  (2) It is a defence in proceedings against a person for an offence against this section if the person establishes that:

  (a) The emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of the licence directed at minimising the odour, or

  (b) The only persons affected by the odour were persons engaged in the management or operation of the premises.

  (3) A person who contravenes this section is guilty of an offence.

  Prescribed by the regulations in respect of any such activity or any such plant.

  The proposed development is required to comply with this Act.

5.1.4.2 Protection of Environment Operations (Clean Air) Regulation 2010

In accordance with Part 5 of the *Protection of the Environment Operations (Clean Air) Regulation 2010* (herein referred to as the Clean Air Regulation 2010), the activities and plant would belong to Group 6 (Standards for scheduled premises) as it is to be *commenced to be carried on, or to operate, on or after 1 September 2005 as a result of development consent granted pursuant to a development application made on or after 1 September 2005*.

Schedule 4 of the Clean Air Regulation 2010 provides standards of concentration for scheduled premises for general activities and plant. Relevant concentrations include:

- Solid Particles (Group 6) Concentration: 50 mg/m^3

The proposed development is required to comply with this Regulation.

5.1.4.3 NSW Environment Protection Authority Guidelines

The document, "*Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*" (AMMAAP) published by the NSW Environment Protection Authority (NSW EPA) provides guidance on methodology and thresholds that are to be used for the air impact assessment of a proposed development. This air impact assessment has been conducted in accordance with this guideline, and assessable pollutants (along with their corresponding limits) are summarised in Table 5-3.

Table 5-3: Relevant Limits from the Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales (2005)

Pollutant	Averaging Period	Concentration		Source
		pphm	µg/m^3	
PM_{10}	24 hours	-	50	NEPC (1998)
	Annual	-	30	EPA (1998)
Total Suspended Particulates (TSP)	Annual	-	90	NHMRC (1996)
		g/m^2/month[a]	**g/m^2/month[b]**	
Deposited Dust	Annual	2	4	NERDDC (1988)

[A] Maximum increase in deposited dust level.

[B] Maximum total deposited dust level.

5.1.5 Assessment of Air Quality Impacts from Construction

No demolition or construction works are to occur. The installation of plant equipment within the building and external storage units on sealed surfaces is assumed to have negligible impacts in terms of air emissions.

5.1.6 Assessment of Air Quality Impacts from Operations

5.1.6.1 Air Emission Sources

The nature of the sludge waste processed at the facility is anticipated to be a mixture of water and excavated soil and thus emissions of odour are not expected from site operations.

There are very limited potential sources of dust associated with the sites operations. Emissions discussed in both the USEPA AP42 and National Pollutant Inventory Emission Estimation Technique Manuals for *Sewage and Wastewater Treatment* Version 2.1 (2011) and *Sewage Sludge and Biomedical Waste Incineration* (1999). These documents consider emissions associated with incineration and biological treatments, neither of which are to occur on site.

Wheel generated fugitive type dust emissions may occur but is considered to be negligible in consideration of the onsite road surface accessed by trucks being paved.

The moisture content of the filter cakes is reasonably high (approximately 10-12%) and thus the opportunity for dust particles to become airborne is significantly limited. Filter cake is deposited directly from the SMU to skip bin below.

The vibrating screen component of the SMU is enclosed within the unit container as seen in the technical drawings, thus eliminating the potential for material particles to become airborne.

Furthermore, all processing and handling associated with the SMU and storage units are all operating within an enclosed building, further limiting any emissions.

To ensure any potential dust emission are controlled the following mitigation and monitoring measures are recommended:

- Limit on site vehicle speed to 10km/hr.
- Conduct regular maintenance checks of equipment including seals to confirm any potential airborne particles are contained within their units.

In summary, emissions of dust associated with the operation of the SMU are expected to be negligible and therefore modelling is not warranted.

5.1.7 Statement of Potential Air Impact

The air quality issues associated with the subject site are minimal as there are very limited potential sources of dust associated with the sites operations and emissions of odour are not anticipated.

5.2 NOISE

5.2.1 Introduction

This section has been undertaken in accordance with NSW EPA Industrial Noise Policy (INP) and examines the potential noise impacts of the proposed site operations on the nearest sensitive receptors.

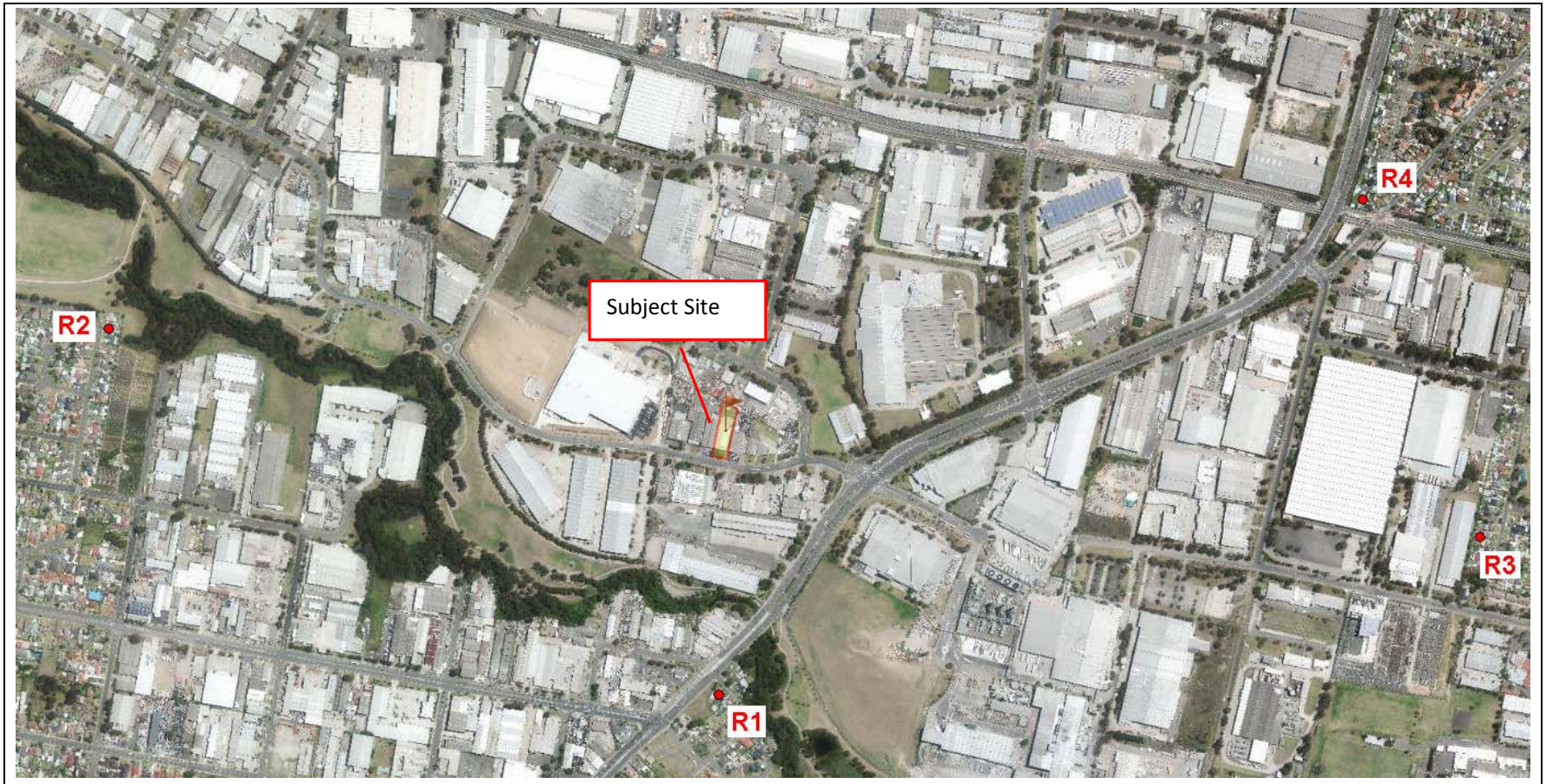
5.2.2 Sensitive receivers

Sensitive receptors are selected firstly based on the proximity to the site. These can be residential dwellings, schools, hospitals, offices or public recreation areas. Usually an emphasis is placed on residential receptors due to the occupants potentially being present at any hour of the day or night. Selection is also dependant on the nature of the proposed development, hours of operation and potential pollutants.

For this particular assessment, the nearest residences were selected. In addition, receptors were selected to take into account all directions around the site to provide a more accurate indication of the impact the proposed development may have on the surrounding area, not just in one particular direction. This approach also enables consideration of dominant wind directions or adverse meteorological conditions over all seasons of the year.

The nearest sensitive receptors are listed in Table 5-4 and their locations are shown in Figure 5-4. These receptors are considered to represent the primary receptors likely to be affected by Project Site noise emissions.

Figure 5-4: Sensitive receivers



Source: Google Maps® 2015

↑N

Benbow Environmental
13 Daking Street,
North Parramatta NSW 2151

Table 5-4: Nearest Potentially Affected Receptors Considered

Receptors	Address	Approximate Distance to Site Boundary (m)	Direction	Description
R1	3 Low Street, Smithfield	405	S	Residential
R2	19 Rhondda Street, Smithfield	1105	W	Residential
R3	24 Iris Street, Guildford West	1350	E	Residential
R4	4 Vale Street, Woodpark	1195	NE	Residential

5.2.3 Existing Acoustic Environment

The level of background noise varies over the course of any 24 hour period, typically from a minimum at 3.00am in the morning to a maximum during morning and afternoon traffic peak hours. Therefore the NSW EPA Industrial Noise Policy (INP) requires that the level of background and ambient noise be assessed separately for the daytime, evening and night time periods. The INP defines these periods as follows:

- **Day** is defined as 7.00am to 6.00pm, Monday to Saturday and 8.00am to 6.00pm Sundays and Public Holidays;
- **Evening** is defined as 6.00pm to 10.00pm, Monday to Sunday and Public Holidays; and
- **Night** is defined as 10.00pm to 7.00am, Monday to Saturday and 10.00pm to 8.00am Sundays and Public Holidays.

5.2.3.1 Noise monitoring equipment and methodology

The background noise level measurements were carried out using a Svantek SVAN 957 Precision Sound Level Meter (attended noise monitoring) and one (1) Acoustic Research Laboratories statistical Environmental Noise Logger, type EL-215 (unattended noise monitoring). The instrument sets were calibrated by a NATA accredited laboratory within two years of the measurement period. Calibration certificates have been included in Attachment 3.

To ensure accuracy and reliability in the results, field reference checks were applied both before and after the measurement period with an acoustic calibrator. There were no excessive variances observed in the reference signal between the pre-measurement and post-measurement calibration. The instruments were set on A weighted Fast response and noise levels were measured over 15-minute statistical intervals. QA/QC procedures applied for the measurement and analysis of noise levels have been presented in Attachment 2. The microphones were fitted with windsocks and were positioned between 1.2 and 1.5 meters above ground level.

In assessing the background noise levels, any data affected by adverse weather conditions has been discarded according to the requirements of the NSW EPA Industrial Noise Policy (INP). The weather data was sourced from the Bureau of Meteorology, from the Automatic Weather Station (AWS) located at Horsley Park.

5.2.3.2 Measurement Locations

The Environmental Noise Logger was utilised to measure the existing ambient and background noise environment. Unattended long-term noise monitoring was undertaken from 21st August 2015 until 5th September 2015. The noise logger location details are listed in Table 5-5. Attended noise monitoring was conducted at the same location on 21st August 2015 during the day, evening and night periods. The measured noise levels have been considered as being representative of the existing ambient noise environment of the area. Noise Logger Charts are presented as Attachment 4.

Table 5-5: Noise Monitoring Locations

Monitoring Location	Address	Approximate distance from site boundaries	Description
Location A	119 Oxford St, Smithfield	529	Residential

In accordance with the NSW EPA INP measured noise data obtained from the above monitored location has been considered representative of the various potentially affected areas surrounding the Project Site. The relevant information, found in Section 3.1.2 on page 24 of the NSW INP has been reproduced below.

> *"**Most affected location(s)**—locations that are most affected (or that will be most affected) by noise from the source under consideration as per Note 2 in Section 2.2.1. In determining these locations, the following need to be considered: existing background levels, noise source location/s, distance from source/s (or proposed source/s) to receiver, and any shielding (for example, building and barrier) between source and receiver. Often several locations will be affected by noise from the development. In these cases, locations that can be considered representative of the various affected areas should be monitored."*

5.2.3.2.1 Long-Term Unattended Noise Monitoring Results

The data was analysed to determine a single assessment background level (ABL) for each day, evening and night time period, in accordance with the NSW EPA INP. That is, the ABL is best established by determining the lowest tenth-percentile level of the LA90 noise data over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night assessment periods is based on the median of individual ABL's determined over the entire monitoring period. The results of the long-term unattended noise monitoring are displayed in Table 5-6.

The resultant data is considered representative of the background and equivalent sound pressure levels for the area, and is therefore suitable for use in this noise impact assessment. Daily noise logger graphs have been included in Attachment 4.

Table 5-6: Unattended Noise Monitoring Results, dB(A)

Location A						
Date	ABL (L_{90})			L_{eq}		
	Day	Evening	Night	Day	Evening	Night
21/08/2015	51	50	50	58	54	52
22/08/2015	49	49	47	61	54	52
23/08/2015	-	-	44	-	-	49
24/08/2015	-	-	-	-	-	-
25/08/2015	54	-	-	68	-	-
26/08/2015	-	-	-	-	-	-
27/08/2015	50	50	48	58	55	52
28/08/2015	48	47	49	56	53	54
29/08/2015	47	49	49	56	54	52
30/08/2015	45	47	46	56	52	50
31/08/2015	48	47	44	60	54	52
1/09/2015	46	48	48	58	52	54
2/09/2015	48	49	48	54	57	56
3/09/2015	50	49	-	56	55	-
4/09/2015	49	48	45	70	57	51
5/09/2015	46	-	46	55	-	50
Median (RBL)	48	49	48	*	*	*
Logarithmic Average	*	*	*	63	55	52

Note: - indicates values that has not been considered due to adverse weather conditions

5.2.3.2.2 Short term attended noise monitoring

Given that the results of the unattended noise monitoring are affected by all ambient noise sources such as local fauna, road traffic and industrial sources, it is not possible to determine with precision the exact existing industrial noise contribution based on unattended monitoring alone. Therefore, the attended noise monitoring allows for a more detailed understanding of the existing ambient noise characteristics and a more meaningful final analysis to be undertaken. The results of the short-term attended noise monitoring are displayed in Table 5-7.

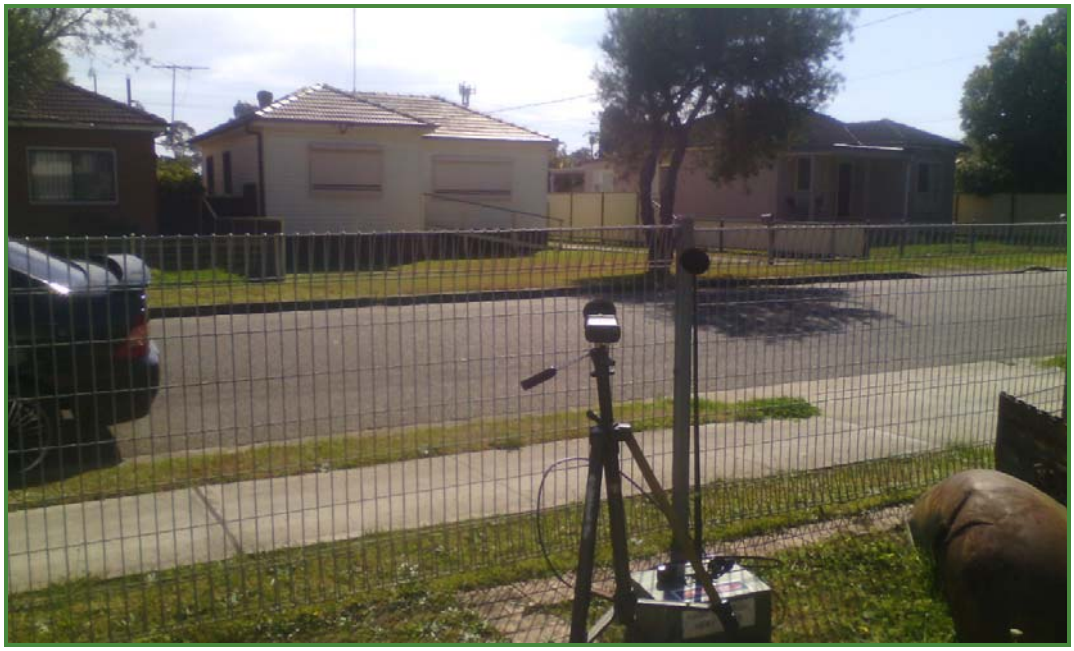
Table 5-7: Operator Attended Noise Measurements, dB(A)

Location & Date/Time	L_{Aeq}	L_{A90}	L_{A10}	L_{A1}	Comments
119 Oxford St Smithfield Friday 21/08/2015 12:06:16	57	52	59	66	Aeroplane <58 Construction noise (nearby home) <77 (impulse) Car passing by <72 Traffic <59 Reverse beeping <53 Industrial noise <55 (not clean, very hard to distinguish industrial noise from traffic noise) Distant power tools <57
119 Oxford St Smithfield Friday 21/08/2015 20:29:48	55	52	56	62	Traffic <66 (revving) Traffic mostly ~=54 Aeroplane <63 Car passing <68 Industrial noise impulse <56 when road traffic was 55/54 (this happened twice (moving materials) Industrial noise is audible but SPL is masked by traffic noise
119 Oxford St Smithfield Friday 21/08/2015 22:04:04	55	51	56	62	Car passing by <74 Traffic noise <57 Revving <60 Truck/car brakes <58 No industrial noise audible

Traffic was the dominant noise source audible 100% of the time including night monitoring. Although some industrial noise was audible the duration was less than 5% of the time and was masked by the traffic noise.

5.2.3.3 Photographs

Figure 5-5: Environmental Noise Location A – 119 Oxford St, Smithfield



5.2.4 Meteorological conditions

Wind and temperature inversions may affect the noise impact at the receptors. Therefore adverse weather conditions should be assessed when wind and temperature inversions are considered to be a feature of the area.

A site-representative meteorological data file was obtained from the Bureau of Meteorology (BOM) for the Horsley Park automatic weather station (AWS). The year 2014 is the latest data available and was considered appropriate.

5.2.4.1 Wind effects

Wind is considered to be a feature where source-to-receiver wind speeds (at 10m height) of 3 m/s or below occur for 30% or more of the time in any assessment period in any season.

5.2.4.1.1 Wind rose plots

Wind rose plots show the direction that the wind is coming from, with triangles known as "petals". The petals of the plots in the figures summarise wind direction data into 8 compass directions i.e. north, north-east, east, south-east, etc. The length of the triangles, or "petals", indicates the frequency that the wind blows from that direction. Longer petals for a given direction indicate a higher frequency of wind from that direction. Each petal is divided into segments, with each segment representing one of two wind speed classes.

Thus, the segments of a petal show what proportion of wind for a given direction falls into each class. The proportion of time for which wind speed is less than 0.5 m/s, when speed is negligible, is referred to as calm hours or "calms". Calms are not shown on a wind rose as they have no direction, but the proportion of time consisting of the period under consideration is noted under each wind rose.

The concentric circles in each wind rose are the axis, which denote frequencies. In comparing the plots it should be noted that the axis varies between wind roses, although all wind roses are similar in size. The frequencies denoted on the axes are indicated beneath each wind rose.

Wind is considered to be a feature where source-to-receptor wind speeds (at 10 m above ground) of 3 m/s or below occur for 30% or more of the time in any assessment period in any season.

The meteorological data was obtained from the BOM weather data from Horsley Park Automatic Weather Station n.67119.

Seasonal wind rose plots for the site-representative meteorological file have been included in Figure 5-6, Figure 5-7 and Figure 5-8, based on the BOM data received.

Based on the wind rose analysis source-to receptor wind speeds of 3 m/s or below, winds are present for less than 30% of the time.

Figure 5-6, Figure 5-7 and Figure 5-8 show the wind rose plots for daytime, evening and night times respectively.

Figure 5-6: Wind Rose Plots – BOM Horsley Park 2014 – Day time

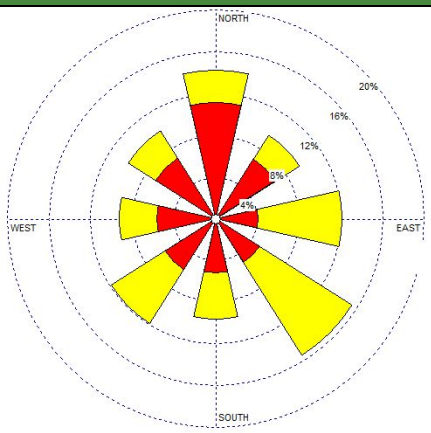
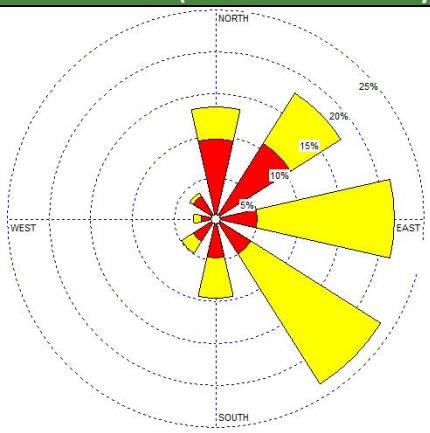
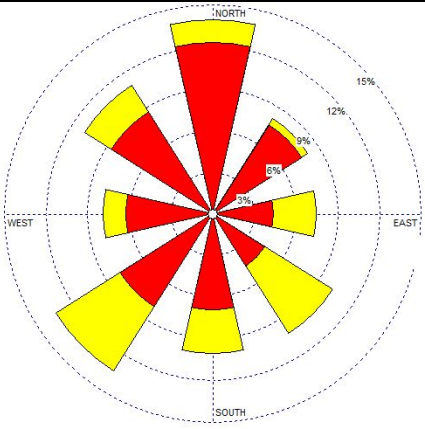
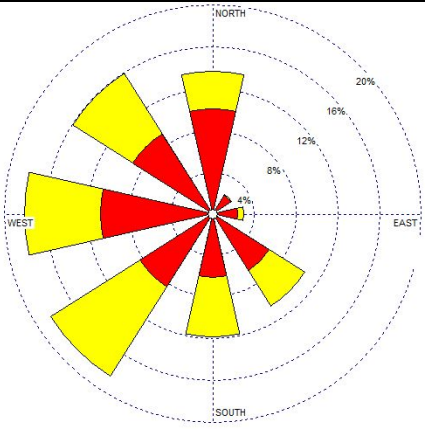
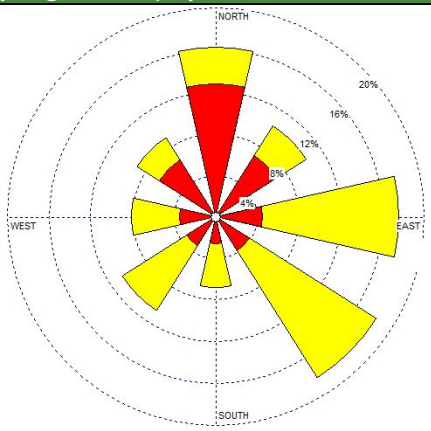
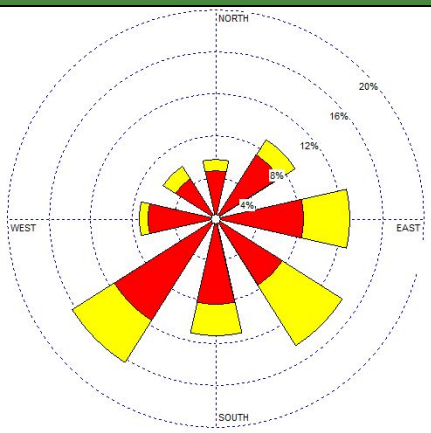
All Seasons	Summer Season (December – February)
	
Average Wind Speed: 2.69 m/s	Average Wind Speed: 3.14m/s
Autumn Season (March – May)	**Winter Season (June – August)**
	
Average Wind Speed: 1.86m/s	Average Wind Speed: 2.63m/s
Spring Season (September – November)	**Legend**
	
Average Wind Speed: 3.17 m/s	

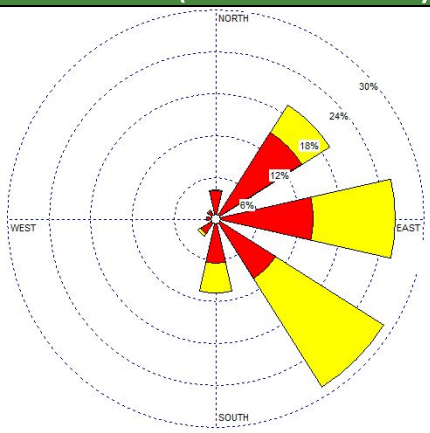
Figure 5-7: Wind Rose Plots – BOM Horsley Park 2014 – Evening Time

All Seasons



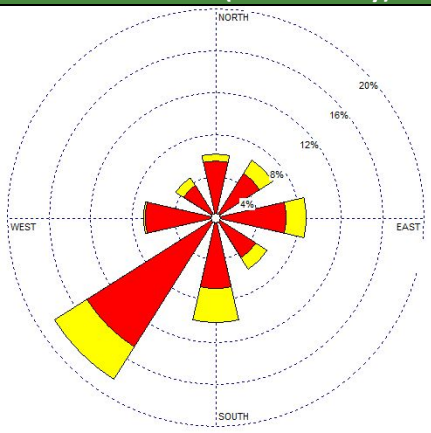
Average Wind Speed: 1.94 m/s

Summer Season (December – February)



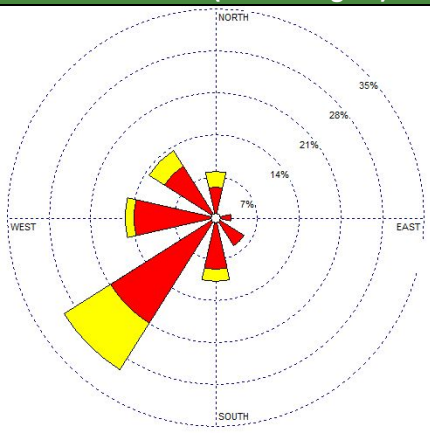
Average Wind Speed: 2.56 m/s

Autumn Season (March – May)



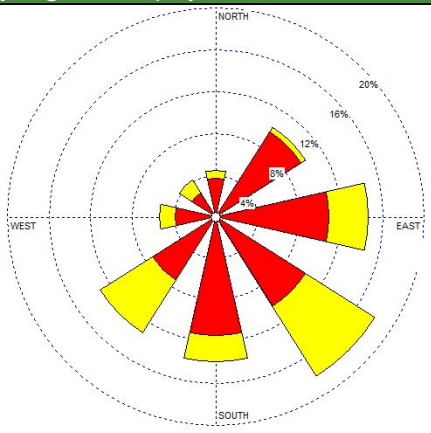
Average Wind Speed: 1.38m/s

Winter Season (June – August)



Average Wind Speed: 1.84m/s

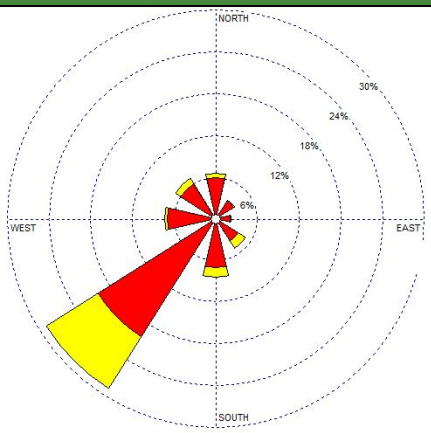
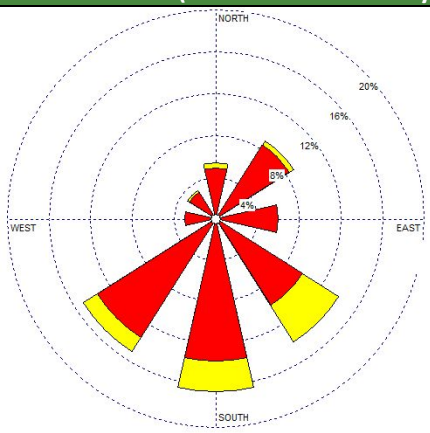
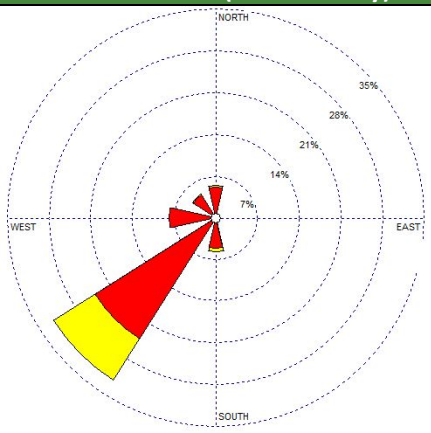
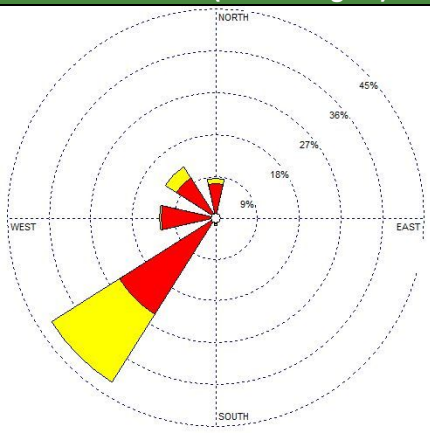
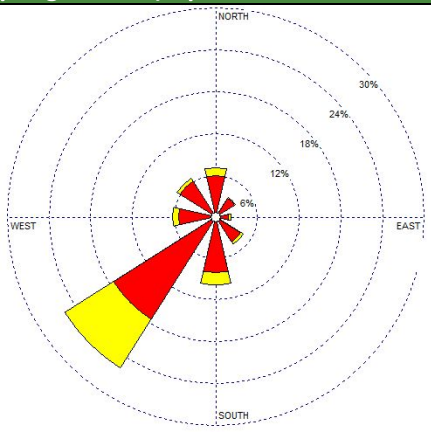
Spring Season (September – November)



Average Wind Speed: 1.98 m/s

Legend

Figure 5-8: Wind Rose Plots –BOM Horsley Park 2014 – Night Time

All Seasons	Summer Season (December – February)
	
Average Wind Speed: 1.36 m/s	Average Wind Speed: 1.27 m/s
Autumn Season (March – May)	**Winter Season (June – August)**
	
Average Wind Speed: 1.09m/s	Average Wind Speed: 1.71m/s
Spring Season (September – November)	**Legend**
	
Average Wind Speed: 1.27 m/s	

Based on the information presented from the TAPM weather data, source-to receiver wind speeds of 3 m/s or below are present for less than 30% of the time during any season and each assessment period, therefore wind effects have not been included in the assessment.

5.2.5 Temperature Inversions

Temperature inversions are considered a feature where they occur more than 30% of the total night time during winter (June, July and August) between 6:00pm and 7:00am. This is different from the night noise assessment period over which inversions are to be assessed, which is from 10:00pm to 7:00am.

This involves determining the percentage occurrence of moderate (Class F) and strong (Class G) inversions. Weak inversions (Class E) should not be included in the analysis.

The analysis conducted on the 2014 weather data highlighted that during winter, approximately 19.23% of the total night periods presented temperature inversion conditions. Therefore, temperature inversion effects have not been considered in the noise impact assessment as per NSW EPA INP requirements.

5.2.6 Weather Conditions Considered in the Assessment

The following condition was considered:

Condition A: neutral weather conditions;

The meteorological condition considered in the noise model has been displayed in detail in Table 5-8.

Table 5-8: Meteorological Conditions Assessed in Noise Propagation Modelling

Condition	Classification	Ambient Temp.	Ambient Humidity	Wind Speed	Wind Direction (blowing from)	Temperature Inversion	Affected Receptors	Applicability
A	Neutral	10°C	70%	–	–	No	All	All periods

5.2.7 Current Legislation and Guidelines

5.2.7.1 NSW Industrial Noise Policy

The NSW Industrial Noise Policy was developed by the NSW EPA primarily for the assessment of noise emissions from industrial sites regulated by the NSW EPA. However, the policy can also be used by NSW Planning and Infrastructure and local government to assist in their assessment of potential noise issues.

An important point to note in the policy is presented in Section 1.4.1. This section states:

"The industrial noise source criteria set down in Section 2 are best regarded as planning tools. They are not mandatory, and an application for a noise-producing development is not determined purely on the basis of compliance or otherwise with the noise criteria. Numerous other factors need to be taken into account in the determination. These factors include economic consequences, other environmental effects and the social worth of the development."

The policy sets out two criteria that are used to assess potential site-related noise impacts. The first criterion aims at controlling intrusive noise impacts in the short-term for residences. This criterion is therefore called the intrusiveness criterion.

The second criterion aims at maintaining a suitable amenity for particular land uses including residences in the long-term. This criterion is called the amenity criterion.

5.2.7.1.1 Intrusive Criterion

The intrusiveness criterion can be summarised as:

$$L_{Aeq,(15minute)} \leq \text{rating background level} + 5 \text{ dB(A)}$$

where the $L_{Aeq,(15minute)}$ is the predicted or measured L_{Aeq} from noise generated within the Project Site over a fifteen minute interval at the receptor.

This is to be assessed at the most affected point on or within the residential property boundary or if that is more than 30 m from the residence, at the most affected point within 30 m of the residence.

5.2.7.1.2 Amenity Criterion

To limit continuing increases in noise levels, the maximum ambient noise level within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.1 of the NSW INP, the applicable parts of which are reproduced in Table 5-9.

Table 5-9: NSW EPA Amenity Criteria - Recommended L_{Aeq} noise levels from industrial noise sources

Type of Receptor	Indicative Noise Amenity Area	Period	Recommended L_{Aeq} noise level (dB(A))	
			Acceptable	Recommended Maximum
Residence	Urban	Day	60	65
		Evening	50	55
		Night	45	50
Active Recreation Area	All	When in use	55	60
Industrial premises	All	When in use	70	75

The existing industrial noise levels are compared to the acceptable level and Table 5-10 is then used to derive the applicable amenity criteria.

Table 5-10: Modification to Acceptable Noise Level (ANL[1]) to Account for Existing Levels of Stationary Noise

Total Existing L_{Aeq} Noise Level From Industrial Sources	Maximum L_{Aeq} Noise Level for Noise from New Sources Alone
≥ ANL + 2	If existing noise level is likely to decrease in future: • ANL – 10 If existing noise level is unlikely to decrease in the future: • Existing level – 10
ANL + 1	ANL – 8
ANL	ANL – 8
ANL –1	ANL – 6
ANL – 2	ANL – 4
ANL – 3	ANL – 3
ANL – 4	ANL – 2
ANL – 5	ANL –2
ANL – 6	ANL – 1
< ANL - 6	ANL

Source: Table 2.2 NSW EPA INP

Note: [1]ANL is the recommended acceptable L_{Aeq} noise level for the specific receptor, area and time of day.

5.2.7.2 Assessment in areas of high traffic noise

As discussed in the NSW EPA INP, the level of transportation noise – road traffic noise in particular – may be high enough to make noise from an industrial source effectively inaudible, even though the L_{Aeq} noise level from that industrial source may exceed the recommended acceptable noise level shown in Table 5-9. In such cases, the amenity criterion for noise from the industrial noise becomes the $L_{Aeq,period,(traffic)}$ minus 10 dB.

5.2.7.3 NSW EPA Road Noise Policy

The RNP has been adopted by the EPA to establish the off-site road traffic noise criteria for the potential noise impact associated with the facility. The NSW Road Noise Policy was developed by the NSW EPA primarily to identify the strategies that address the issue of road traffic noise from:

- Existing roads;
- New road projects;
- Road redevelopment projects; and
- New traffic-generating developments.

The RNP also defines criteria to be used in assessing the impacts of such noise.

5.2.7.3.1 Road Category

The NSW Road Noise Policy states the following:

> *"Roads are functionally classified by a range of factors, including their role in facilitating traffic movement; their relationship to other road categories; and whether they support through or local traffic, access to adjacent land uses and applicable traffic management options".*

The Cumberland Highway has been considered as the road most likely to contribute to road traffic noise.

The Cumberland Highway is classified as an 'Arterial road' as defined in the *'Road Noise Policy'*.

The functional role of an 'Arterial road' is explained as follows:

- Support major regional and inter-regional traffic movement;
- Freeways and motorways usually feature strict access controls via grade separated interchanges.

5.2.7.3.2 Noise Assessment Criteria

Section 2.3 of the RNP outlines the criteria for assessing road traffic noise. The relevant sections of Table 3 of the RNP are shown in Table 5-11.

Table 5-11: Road Traffic Noise Assessment Criteria For Residential Land Uses, dB(A)

Road Category	Type of Project/Land Use	Assessment Criteria, dB(A)	
		Day (7 am-10 pm)	Night (10 pm-7 am)
Freeway/arterial/sub-arterial roads and transit ways	3. Existing residences affected by additional traffic on existing freeways/ arterial/sub-arterial roads generated by land use developments	$L_{Aeq\ (15\ hour)}$ 60 dB (external)	$L_{Aeq\ (9\ hour)}$ 55 dB (external)

The noise level descriptor that has been adopted by the NSW RNP for use with the above criteria is the L_{Aeq}.

5.2.7.3.3 Relative Increase Criteria

In addition to the assessment criteria outlined above, any increase in the total traffic noise level at a location due to a proposed project or traffic-generating development, must be considered. Residences experiencing increases in total traffic noise level above the relative criteria should also be considered for mitigation as described in Section 3.4 of the RNP.

Table 6 of the RNP outlines the relative increase criteria for residential land uses and is shown in Table 5-12.

Table 5-12: Relative Increase Criteria For Residential Land Uses, dB(A)

Road Category	Type of Project/Land Use	Total Traffic Noise Level Increase, dB(A)	
		Day (7 am-10 pm)	Night (10 pm-7 am)
Freeway/arterial/sub-arterial roads and transit ways	New road corridor/redevelopment of existing road/land use development with potential to generate additional traffic on existing road	Existing traffic $L_{Aeq\ (15\ hour)}$ + 12 dB (external)	Existing traffic $L_{Aeq\ (9\ hour)}$ + 12 dB (external)

The assessment criteria provided in Table 5-11 and the relative increase criteria provided in Table 5-12 should both be considered when designing project specific noise levels, and the lower of the two should be adopted. For example, if the assessment criteria is 60 dB(A) and the relative increase criteria is 42 dB(A), then a project specific noise level of 42 dB(A) should be adopted. Similarly, if the assessment criteria is 60 dB(A) and the relative increase criteria is 65 dB(A), a project specific noise level of 60 dB(A) should be adopted.

5.2.7.3.4 Exceedance of Criteria

If the criteria shown in both Table 5-11 and Table 5-12 cannot be achieved, justification should be provided that all feasible and reasonable mitigation measures have been applied.

For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

5.2.7.3.5 Assessment Locations for Existing Land Uses

Table 5-13: Assessment Locations for Existing Land Uses

Assessment Type	Assessment Location
External noise levels at residences	The noise level should be assessed at 1 metre from the façade and at a height of 1.5 metres from the floor. Separate noise criteria should be set and assessment carried out for each façade of a residence, except in straightforward situations where the residential façade most affected by road traffic noise can be readily identified. The residential noise level criterion includes an allowance for noise reflected from the façade ('façade correction'). Therefore, when taking a measurement in the free field where reflection during measurement is unlikely (as, for instance, when measuring open land before a residence is built), an appropriate correction – generally 2.5 dB – should be added to the measured value. The 'façade correction' should not be added to measurements taken 1 metre from the façade of an existing building. Free measurements should be taken at least 15 metres from any wall, building or other reflecting pavement surfaces on the opposite side of the roadway, and at least 3.5 metres from any wall, building or other pavement surface, behind or at the sides of the measurement point which would reflect the sound.
Noise levels at multi-level residential buildings	The external points of reference for measurement are the two floors of the building that are most exposed to traffic noise. On other floors, the internal noise level should be at least 10 dB less than the relevant external noise level on the basis of openable windows being opened sufficiently to provide adequate ventilation (Refer to the Building Code of Australia (Australian Building Codes Board 2010) for additional information.)
Internal noise levels	Internal noise levels refer to the noise level at the centre of the habitable room that is most exposed to the traffic noise with openable windows being opened sufficiently to provide adequate ventilation (Refer to the Building Code of Australia (Australian Building Codes Board 2010) for additional information.)
Open space – passive or active use	The noise level is to be assessed at the time(s) and location(s) regularly attended by people using the space. In this regard, 'regular' attendance at a location means at least once a week.

5.2.7.4 Sleep Disturbance

The occurrences of noise levels over a very short time period have potential to cause sleep disturbance to nearby residents. The World Health Organisation recommends individual noise events to be contained under 45 dB(A) L_{max} indoors (fast response) in order to minimise sleep disturbance. Generally, the number of such events should be less than 10–15 events per night for a 'good night's sleep'.

Section 5.4 of the NSW Road Noise Policy details the effects of disruption of a person's normal sleep patterns due to road traffic noise, outlines research regarding the causes of sleep disturbance, and states conclusions regarding the noise levels from road traffic noise correlating to sleep disturbance.

From the research on sleep disturbance to date it can be concluded that:

- Maximum internal noise levels below 50–55 dB(A) are unlikely to awaken people from sleep; and

- One or two noise events per night, with maximum internal noise levels of 65–70 dB(A), are not likely to affect health or well-being significantly.

An appropriate sleep disturbance criteria of 45 dB(A) L_{max} (internal) was considered for all residential premises surrounding the Project Site with respect to onsite noise generating activities. This approach of setting an internal limit, as opposed to an external limit, has been applied to similar noise assessments that consider night time (10pm – 7am) site operations and vehicle movements and has been accepted as a suitable management level.

It is more than likely that during the evening and night time periods throughout the cooler months of the year, the residences located in this area will have the windows and doors fully closed. A conservative 10 dB(A) reduction in sound pressure level resulting from the façade and ceiling of the house has been considered in order to derive an acceptable noise limit that is to be achieved outside the house. This is based on windows being partially open, equivalent to a summer period.

Therefore if the recommended internal noise level is to be below 45 dB(A) L_{max}, and the house offers a 10 dB(A) reduction in sound pressure level with the windows partially open, the exterior sound pressure level can be 55 dB(A) L_{max}.

5.2.7.5 Project Specific Noise Levels

Noise limits for the development can now be established based on the guidelines provided in Sections 5.2.7.1 and 5.2.7.3 of this report and the measured noise levels shown in Section 5.2.3.2.2.

The project specific noise levels associated with operation and road traffic noise impacts are detailed in the following sections.

5.2.7.5.1 Operational Project Specific Noise Levels

Noise limits for the Project Site can be established in accordance with the principles and methodologies of the NSW EPA INP, the measured background noise levels and the existing industrial operational noise levels of the area.

According to the NSW EPA INP, it is recommended that the more stringent noise limits be applied to protect the existing acoustic amenity from deteriorating.

The selected Project Specific Noise Levels and the Sleep Disturbance Criteria associated with operational noise are presented in Table 5-14.

It should be noted that different time periods apply for the noise criteria as the intrusive criterion considers a 15 minute assessment period while the amenity criterion requires assessment over the total length of time that a site is operational within each day, evening or night period. In order to ensure compliance under all circumstances, a 15 minute period assessment has been considered for all receptors.

Table 5-14: Project Specific Noise Levels Associated with Operational Activities, dB(A)

Receptor	Period	RBL L_{F90}	Existing Industrial Noise L_{eq}	Acceptable Noise Level L_{eq}	Intrusive Criterion $L_{eq,15minute}$	Amenity Criterion $L_{eq, period}$	PSNL	Sleep Disturbance L_{max}
R1, R2, R3 and R4	Day	48	Inaudible	60	53	60	$L_{eq,15\ minute}$ **53**	-
	Evening	48*	Inaudible	50	53	50	$L_{eq,evening}$ **50**	-
	Night	48	Inaudible	45	53	45	$L_{eq,15\ minute}$ **45**	63

Note: *as per INP the intrusive noise level for evening be set at no greater than the intrusive noise level for daytime
N/A indicates not applicable
Bold values indicate the applicable Project Specific Noise Level

5.2.7.5.2 Road Traffic Project Specific Noise Levels

The "comments" column of the operator attended noise monitoring shown in Table 5-7 indicate that at Location A, the primary contribution to the L_{Aeq} noise descriptor is attributable to traffic (Cumberland Highway). In particular, noise levels up to 72 dB(A) were measured for a car passing by. The existing road traffic noise at receptors R1, R2, R3 and R4 was calculated based on the measured results. The more stringent of the two noise criteria for the assessment of road traffic noise has been applied to the considered residential receptors in order to predict any potential noise impact.

Table 5-15: Project Specific Noise Levels Associated with Road Traffic, dB(A)

Receptor	Period	Assessment Criteria $L_{eq,15 \text{ or } 9 \text{ hour}}$	Relative Increase Criteria $L_{eq,15 \text{ or } 9 \text{ hour}}$	PSNL $L_{eq,15 \text{ or } 9 \text{ hour}}$	Sleep Disturbance L_{max}
R1	Day	60	70	**60**	–
	Night	55	64	**55**	55
R2	Day	60	70	**60**	–
	Night	55	64	**55**	55
R3	Day	60	70	**60**	–
	Night	55	64	**55**	55
R4	Day	60	70	**60**	–
	Night	55	64	**55**	55

Note: - indicates not applicable
Bold values indicate the applicable Project Specific Noise Level

5.2.8 Operational noise impact assessment

5.2.8.1 Modelling methodology

5.2.8.1.1 Noise model

Predictive Noise Modelling was carried out using the Concawe algorithm within SoundPLAN v7.3. This model has been extensively utilised by Benbow Environmental for assessing noise emissions for existing and proposed developments, and is recognised by regulatory authorities throughout Australia. The model allows for the prediction of noise from a site, at the specified receptor, by calculating the contribution of each noise source.

The noise sources as well as the topographical features of the subject area, surrounding buildings and receiver locations, were all input into the noise model to determine the noise emissions of the proposed development at the nearest potentially affected residences.

The modelling scenario has been carried out using both $L_{Aeq,\ 15\ minutes}$ and L_{Amax} descriptors. Using these descriptors, noise emission levels were predicted at the nearest potentially affected sensitive receptors to determine the noise impact against the relevant noise criteria in accordance with the INP. The relevant criteria are presented in 5.2.7.5.1.

5.2.8.1.2 Assumptions made for noise modelling

It should be noted that the relevant assessment period for operational noise emissions has been considered to be 15 minutes. Therefore noise source durations detailed in the following assumptions should be considered per 15 minute period in view of potential noise impacts under worst-case scenarios. Each assessment-specific assumption has been detailed below:

- Off-site topographical information was obtained from the Department of Lands, Six Maps, with contour maps having intervals of 10 m;
- Off-site structures such as the primary industrial and commercial building surrounding the Project Site have been included in the model;
- All receptors were modelled at 1.5 m above ground level;
- All ground areas have been modelled considering different ground factors ranging from 0 (hard) to 1 (soft);
- Trucks have been modelled considering two moving point sources at heights of 1.5m and 3m above ground level in order to account for the engine (1.5m) and the exhaust outlet (3m). An on-site speed of 10km/h has been considered;
- Sludge dumping operation has been modelled as a point source and has been considered to last for 30 seconds;
- Air compressors and internal noise associated with sludge filtration have been modelled as point sources and will be operational for 100% of the assessment period;
- The construction materials utilized in the industrial building structure is made of Steel sheets and bricks. The roller shutter doors located on the northern side of the structure have been modelled in the closed position during the sludge trucks unloading process and the sludge filtration process;

An outline of the predictive noise modelling methodology and operational noise modelling scenarios has been provided below.

5.2.8.2 Operational Noise Sources

The sound power levels for the identified noise sources associated with the operational activities have been utilised from the extensive database of measurements undertaken by Acoustic Engineers at Benbow Environmental.

Approximate A-weighted third octave band centre frequency sound power levels have been used and are presented in Table 5-16. The noise sources utilised as part of this assessment are comprised of the primary noise generating activities associated with the effective operation of the proposed development.

Table 5-16: A-weighted Sound Power Levels Associated with Operational Activities, dB(A)

Noise Source	Overall	Third Octave Band Centre Frequency (Hz)									
		25	31	40	50	63	80	100	125	160	200
		250	315	400	500	630	800	1k	1.25k	1.6k	2k
		2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
Sludge Tipping											
Sucker truck Maneuvering at 10km/hr	98	55	61	70	61	65	68	69	73	73	75
		76	74	77	83	83	83	87	88	86	85
		84	81	79	76	75	69	64	62	56	54
Sludge Dumping	80	30	32	34	42	45	49	59	61	60	60
		63	62	63	66	69	69	70	72	72	69
		70	68	64	64	63	58	54	51	48	44
Internal sources											
Bobcat	92	36	59	61	51	65	66	77	68	60	62
		66	69	74	81	78	78	81	85	84	84
		81	75	71	71	65	63	56	51	45	42

In addition, sleep disturbance has been assessed at all residential receptors considering truck air brake release. A noise level 116 dB(A) L_{max} has been considered in the calculations.

5.2.8.2.1 Noise modelling scenarios

One (1) operational scenario considering all operations (truck manoeuvring, sludge dumping and sludge filtration) was established for the modelling of operational noise generation. The configuration was used to calculate noise levels at the nearest potentially affected receptor under the proposed operations.

5.2.8.2.2 Meteorological factors

Operations between 10pm-7am were run with noise enhancing meteorological conditions. The following conditions were considered:

- Condition A: neutral weather conditions.

The meteorological conditions have been displayed in detail in Table 5-17.

Table 5-17: Meteorological Conditions Assessed in Noise Propagation Modelling

Condition	Classification	Ambient Temp.	Ambient Humidity	Wind Speed	Wind Direction	Temperature Inversion	Affected Receiver	Applicability
A	Neutral	10 °C	70%	–	–	–	All	All periods

For all other time periods Conditions A/B were only considered as temperature inversion effects are confined to the night time period as nominated in the NSW INP.

5.2.8.3 Operational predicted noise levels

Results of the predictive noise modelling considering operational activities are shown in Table 5-18 and Table 5-19.

Table 5-18: Noise Modelling Results Associated with Operational Activities for L_{eq} dB(A)

Receiver	Condition A	Condition B	Condition C	PSNL		
	($L_{eq, 15\ minute}$)	($L_{eq, 15\ minute}$)	($L_{eq, 15\ minute}$)	Day ($L_{eq, 15\ minute}$)	Evening ($L_{eq, 15\ minute}$)	Night ($L_{eq, 15\ minute}$)
R1	<25	<25	<25	53	50	45
R2	<25	<25	<25	53	50	45
R3	<25	<25	<25	53	50	45
R4	<25	<25	<25	53	50	45

Operations associated with the L_{Aeq} noise descriptor comply at all the considered receptors except for industrial receptors R1 – R4.

Table 5-19: Noise Modelling Results Associated with Operational Activities for L_{max} dB(A) – Sleep disturbance

Receiver	Condition A	Condition B	Condition C	PSNL
	L_{max}, dB(A)	L_{max}, dB(A)	L_{max}, dB(A)	Night ($L_{eq, 15\ minute}$)
R1	<40	<40	<40	63
R2	<40	<40	<40	63
R3	<40	<40	<40	63
R4	<40	<40	<40	63

The L_{Amax} noise descriptor has been predicted to be satisfy criteria at all receptors under all weather conditions.

5.2.9 Road Traffic noise impact assessment

A description of the calculation methodology and the noise predictions associated with road traffic has been provided below.

5.2.9.1 Modelling Methodology

Calculation of road traffic noise contribution has been undertaken using a method that takes into account sound exposure levels and calculates the L_{Aeq} noise level due to the time of exposure to the truck noise. This procedure was selected due to the precision of the method and the accuracy of the noise predictions obtained in previous noise surveys undertaken by Benbow Environmental. Noise emission levels were predicted at several receptors to determine the noise impact against the relevant noise criteria in accordance with the Road Noise Policy. The relevant criteria are presented in Section 5.2.7.5.2.

The following noise descriptors have been calculated:

- $L_{Aeq,}$ 15 hour-day;
- $L_{Aeq,}$ 9 hour-night; and
- $L_{Amax,}$ night.

The method used to calculate sound exposure levels is explained below and is based on procedures referenced in AS 1055.1 and reference texts on assessing the environmental impact of roads and traffic.

AS 1055.1 Clause 3.6 defines L_{AE} as being:

> *"the sound exposure level of a discrete noise event is the instantaneous A-weighted sound pressure integrated over the specified time duration at the noise event and referenced to a duration of 1 sec".*

AS 1055.1 Clause 6.4.5 explains how the sound exposure level can be used:

> *"where a noise environment is the result of a number of identifiable noise events, the time weighted average A-weighted sound pressure level may be calculated from the sound exposure levels of the individual events occurring within a time period from the following equation:"*

$$L_{Aeq,T} = 10\log_{10}\frac{1}{T}\sum_{i=1}^{n}10^{0.1L_{AEi}}$$

The sound exposure level associated with truck manoeuvring off-site has been obtained from noise measurements carried out during previous noise surveys.

5.2.9.2 Assumptions

The relevant assessment period for road traffic noise emissions is 15 and 9 hours for the day and night time. Each assessment-specific assumption has been detailed below:

- A total of 60 (120 movements) and 36 (72 movements) trucks have been considered for the 15-hour day and 9-hour night time periods respectively in order to assess the worst case scenario. Each truck movement has been considered to travel towards the site and leave by the same route;
- Based on the 2012 AADT data for Cumberland Highway (data taken approximately 300m south west of Long street intersection), the total daily traffic volume is 64,900 vehicles (northbound and southbound);
- The distance from the façade of the property to the side of the road has been considered in the calculations; and
- The calculation of road traffic noise (CoRTN) procedure is used to predict Leq noise levels for off-site traffic impacts.

5.2.9.3 Off-Site Road Traffic Predicted Noise Levels

The calculated noise levels to the nearest receiver associated with off-site road traffic are shown in Table 5-20.

Table 5-20: Predicted Noise Levels Associated with Road Traffic for $L_{eq,}$ dB(A)

Receiver	Site Contribution	
	$L_{eq,15hr}$	$L_{eq,9hr}$
R1	46	46

Due to the relatively high and constant traffic volume along the Cumberland Highway (greater than 65 dB(A)), the additional noise impact associated with the proposed development is considered to be negligible.

5.2.10 Statement of Potential Noise Impacts

A noise impact assessment was undertaken to assess the noise emissions from the proposed concrete batching plant. In particular, this report details the findings of operational and road traffic noise impacts from the proposed operations.

The noise survey and assessment was undertaken in accordance with the following guidelines:

- NSW Environmental Protection Authority, Industrial Noise Policy (EPA 2000);
- Department of Environment, Climate Change and Water NSW, Road Noise Policy (DECCW2011).

Compliance with the project specific noise levels was predicted for operational and road traffic impacts at all considered receptors.

In order to verify all assumptions made, and strengthen all conclusions drawn, the undertaking of post-commissioning validation measurements is recommended.

5.3 WATER

Water management has been identified by the key government stakeholders as an environmental aspect that needs to be addressed. The nearest natural watercourse is Prospect Creek located approximately 230m to the south of the site.

The site is a fully sealed and developed industrial site, with existing hardstand surfaces and stormwater infrastructure. Sludge is stored within a tank that is bunded. The sludge dewatering operations are within a building that is bunded. The main issue in relation to water would be potential for spillages outside the building entering stormwater. The opportunity for sludge to escape the process is very limited.

This section provides a desktop study that addresses water issues and the impacts of the site activities on water interactions including surface water, stormwater and groundwater.

5.3.1 Water Interactions

The proposed site is predominantly flat with no dominant direction of fall. It is fully sealed and contains stormwater infrastructure that would be adequate for the proposed use. The surrounding area is an established industrial estate. To the south of the site is Prospect Creek.

The following sub-sections describe the water interactions that would occur as a result of the proposed development.

5.3.1.1 Water Supply and Use

Water will be used for the following:

- Dust control – The site will be cleaned regularly with a motorised sweeper. Water sprays will be used during the sweeping process.
- In the sludge dewatering process. Wastewater generated from this process would be held in holding tanks prior to transport back to the site or gravity fed to sewer.
- Office and amenities – This would be the majority of the water used on site.
- Minor cleaning purposes.

Mains supply would be used for the above water requirements. No rainwater tanks are provided nor proposed for the site.

The estimated annual water use for the site is:

- Water sprays for dust control / minor cleaning purposes: 80 kL
- Water use in sludge dewatering process: 120 kL
- Office and amenities: 240 kL

- Total Annual Water Use: 440 kL (estimate only)

The water balance for the site would involve a supply of mains water for all three requirements. The water used for dust control would be applied as a mist or spray and then evaporate: Office wastewater from kitchen and amenity areas would be sent to the domestic sewer. Wastewater

generated from the sludge dewatering process would be either returned to site or disposed of as tradewaste.

A water balance diagram is presented as Figure 5-9.

5.3.1.2 Wastewater

Of the sludge that is dewatered on site, approximately 60% of this will be treated wastewater. This would be temporarily stored in bunded 10,000 litre tanks inside the building. This wastewater is suitable to send back to the site where the sludge originated or would be gravity fed as tradewaste to the Sydney Water Sewer System.

DEMAST currently have conditional consent No: 37990. The application to Sydney Water is provided as Appendix 3 As part of the consent from Sydney Water testing of the wastewater for certain criteria would be required.

5.3.1.3 Surface Water

The nearest natural waterway to the site is Prospect Creek located approximately 230m to the south. Stormwater from the site would enter existing stormwater drains and pipes and would eventually be released into Prospect Creek.

Prospect Creek catchment is a sub-catchment of the Georges River. Prospect Creek starts near Prospect Reservoir and flows for 26 km where it discharges into the Georges River. The Prospect Creek catchment is made up of other creeks and drainage lines, some of which do not permanently carry water and only flow after rain. Many of the waterways in the Prospect Creek catchment are affected by large amounts of vegetation, weed growth and erosion.

5.3.1.4 Groundwater

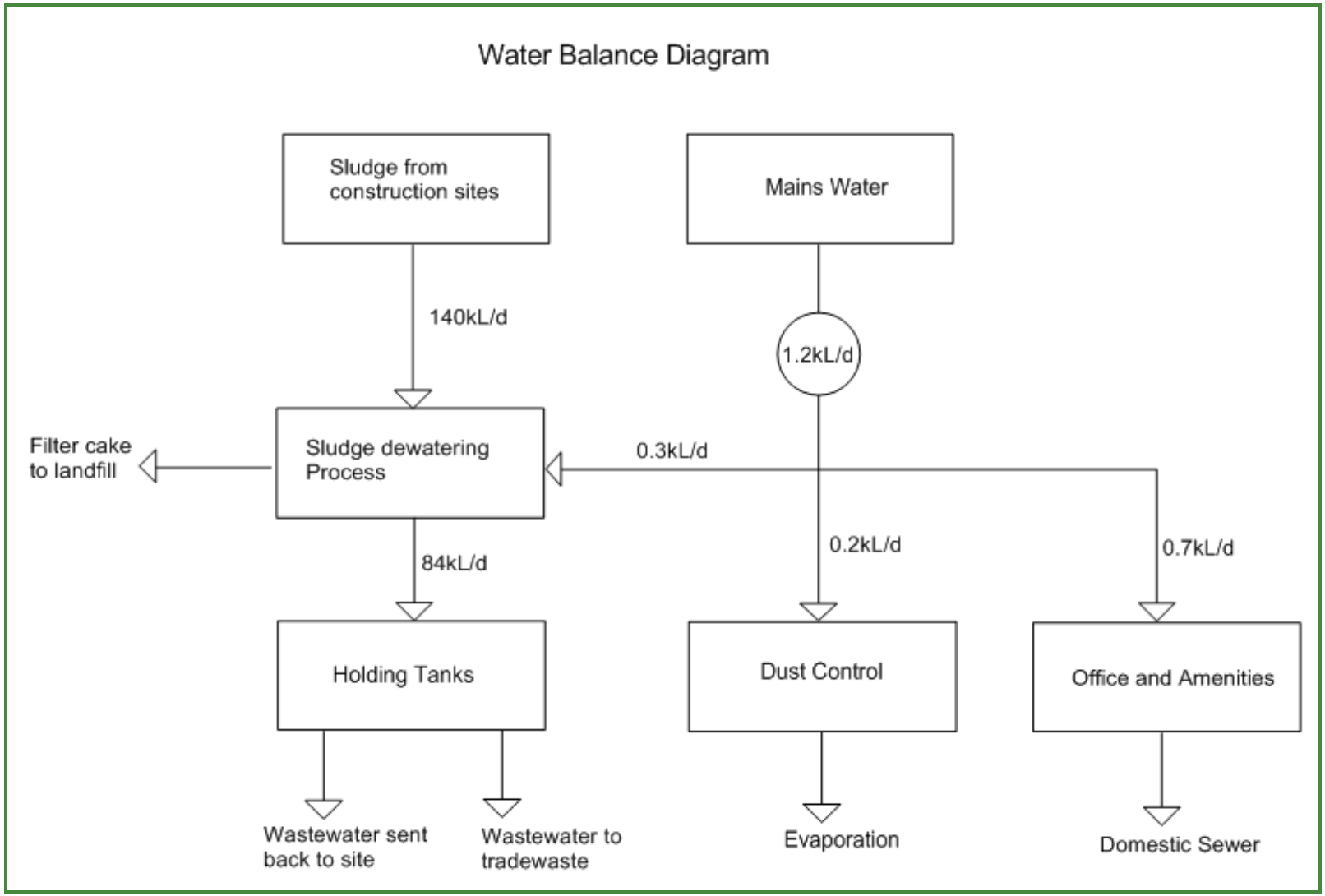
The site is an existing industrial facility which contains existing buildings and concrete hardstand areas. No further building works is proposed.

Data from several groundwater wells within close proximity of the site indicate that the standing water level (or depth from the surface to groundwater) is 0.8 – 1.8 metres. Further information can be found in Section 4.6.3.

There are no groundwater dependent ecosystems at or in the vicinity of the site.

There are no activities on site or visible evidence to suggest that there would be groundwater contamination due to past uses of the site. The site has no history of underground tanks having been installed.

Figure 5-9: Water Balance Diagram



5.3.1.5 Stormwater

A Planning Certificate under Section 149(2) & (5) of the Environmental Planning and Assessment Act 1979 for the site was obtained from Holroyd City Council on 29/07/2015, receipt no. 75133. The certificate states that "Council records suggest that the subject land may be liable to overland stormwater overflow based on information from a study in the area."

The site has existing stormwater infrastructure that is considered adequate for the proposed use of the site. Stormwater would be captured on the existing roof and hardstand surfaces of the site and directed through stormwater drains and eventually released to Prospect Creek.

5.3.1.6 Flooding

According to the S149 Planning certificate, development on the land or part of the land is subject to flood related development controls.

The Flood Control Lots Map on the Holroyd City Council website was consulted. The site was identified in pink as being a flood control lot where an overland flood study is required / in progress. The map notes that:

> *A private certifier may not issue a Complying Development Certificate on properties coloured dark blue, yellow, magenta or pink unless a professional Engineer certifies that this site is not one of the conditions identified in Clause 3.36C of the SEPP (Exempt and Complying Development Code) 2008.*

Therefore, Clause 3.36 of the State Environmental Planning Policy (Exempt and Complying Development Code) 2008 applies.

3.36C Development standards for flood control lots

(1) This clause applies:

(a) to all development specified for this code that is to be carried out on a flood control lot, and
(b) in addition to all other development standards specified for this code.

(2) The development must not be on any part of a flood control lot unless that part of the lot has been certified, for the purposes of the issue of the relevant complying development certificate, by the council or a professional engineer who specialises in hydraulic engineering as not being any of the following:

(a) a flood storage area,
(b) a floodway area,
(c) a flow path,
(d) a high hazard area,
(e) a high risk area.

(3) The development must, to the extent it is within a flood planning area:

(a) have all habitable rooms no lower than the floor levels set by the council for that lot, and
(b) have the part of the development at or below the flood planning level constructed of flood compatible material, and
(c) be able to withstand the forces of floodwater, debris and buoyancy up to the flood planning level (or if on-site refuge is proposed, the probable maximum flood level), and
(d) not increase flood affectation elsewhere in the floodplain, and
(e) have reliable access for pedestrians and vehicles from the development, at a minimum level equal to the lowest habitable floor level of the development, to a safe refuge, and
(f) have open car parking spaces or carports that are no lower than the 20-year flood level, and
(g) have driveways between car parking spaces and the connecting public roadway that will not be inundated by a depth of water greater than 0.3m during a 1:100 ARI (average recurrent interval) flood event.

(4) A standard specified in subclause (3) (c) or (d) is satisfied if a joint report by a professional engineer who specialises in hydraulic engineering and a professional engineer who specialises in civil engineering confirms that the development:

(a) can withstand the forces of floodwater, debris and buoyancy up to the flood planning level (or if on-site refuge is proposed, the probable maximum flood level), or
(b) will not increase flood affectation elsewhere in the floodplain.

(5) If a word or expression used in this clause is defined in the Floodplain Development Manual, the word or expression has the same meaning as it has in that Manual unless it is otherwise defined in this clause.

(6) In this clause:

***"flood compatible material"** means building materials and surface finishes capable of withstanding prolonged immersion in water.*

***"Floodplain Development Manual"** means the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.*

***"flow path"** means a flow path identified in the council's flood study or floodplain risk management study carried out in accordance with the Floodplain Development Manual.*

***"high hazard area"** means a high hazard area identified in the council's flood study or floodplain risk management study carried out in accordance with the Floodplain Development Manual.*

***"high risk area"** means a high risk area identified in the council's flood study or floodplain risk management study carried out in accordance with the Floodplain Development Manual.*

In relation to the above, relevant maps were consulted and the following was found relevant to the site:

- The site's flood hydraulic category is to be determined;

- A flood study containing the site is in progress;
- The site's provisional flood hazard category is "Low Hazard"; and
- The flood risk precinct map indicates the site is medium to low risk.

The buildings and infrastructure already exists at the site and there would be no further building works, the flood hazard category is low and the flood risk is not high, no further study is considered warranted.

5.3.2 Legislation

The two key pieces of legislation for the management of water in NSW are the *Water Act 1912* and the *Water Management Act 2000*.

5.3.2.1 Water Act, 1912

Licences for water conservation, irrigation, water supply or drainage as well as changing the course of a river can be applied for under the Water Act 1912.

The proposal does not involve works for water conservation, irrigation, water supply or drainage and does not involve works that would change the course of a river. Therefore, the Water Act 1912 does not apply.

5.3.2.2 Water Management Act, 2000

The Water Management Act (WMA) 2000 provides requirements for the extraction of water, water use, floodplain and drainage management, the construction of works such as dams and weirs, and undertaking activities on or near water sources in NSW.

Approvals for the extraction and use of water and for the construction of works relating to water use can be obtained under the Act.

The proposal does not involve any of the above works.

5.3.3 Water Sharing Plans

Two water sharing plans apply to the area where the subject site is located. These are:

- Water Sharing Plan for the Greater Metropolitan Region Unregulated River Sources; and
- Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources.

These do not apply to the proposal.

5.3.4 Water Assessment

The potential impacts to receiving waters have been identified as follows:

- Spillage of chemicals entering waterways. Storage of chemicals on site is minor and limited to Class 8 corrosives for pH adjustment of wastewater;
- An incident involving the release of untreated sludge. This could be during transport, unloading or treatment;

- An incident involving the release of wastewater from the holding tanks;
- Windblown waste contaminating nearby waterways.

The main potential impact to ground and surface water would be from release of untreated sludge leaving the site. Approximately 140 kL per day of sludge would be brought to the site for treatment on average. The sludge by nature is predominantly soil and water. Therefore the potential for contamination is low.

The storage of chemicals poses a risk of release of dangerous goods should a spillage occur. Given that the capacity of the largest container of dangerous goods that would be on site is 20L and that no more than 150kg of chemicals would be stored at any one time, the risk of contamination to waters is low. Dangerous goods storage areas would be bunded. In addition, spill kits are provided in these areas.

The holding tanks would hold treated wastewater. These 10,000 litre tanks would be bunded and located inside the building. Therefore risk of contamination from the release of wastewater would be low.

The site stormwater system is already established and is considered adequate for the facility. All materials are required to be stored within the building. Housekeeping needs to be maintained to a high standard and fabric filters would be placed in all stormwater drains to prevent stormwater contamination. As an additional safeguard, all stormwater pits/drains should be painted blue or green around the border of the pit (or drain) with words stencilled “flows to creek”.

General litter also has the potential to enter the drains. Designated rubbish bins are provided on site and regular housekeeping practices and floor sweeping would serve to prevent litter and sediment from warehouse and hardstand areas entering the stormwater system.

The existing downpipes on the building and site and stormwater drains would be maintained and are considered sufficient for control of stormwater runoff from the site. This in addition to the safeguards described above demonstrate that there is minimal potential for contamination of surface water.

Therefore a water monitoring program is not considered warranted. Tradewaste would be monitored under the Agreement with Sydney Water.

There is potential for contaminated fire fighting water to enter the stormwater should a significant fire occur on site. The risk of a fire occurring is considered to be considering the nature of the materials used on site and the processes being used.

5.3.5 Potential Water Impacts and Safeguards

Potential impacts to water from the facility and control measures that are recommended to mitigate these are summarised in the table below.

Table 5-21: Potential Impacts to Water and Recommended Control Measures

Potential Contaminant & Source	Potential Impact	Controls
Release of untreated sludge from truck, unloading or during treatment.	Untreated sludge entering stormwater system and nearby waterways	• Bunded building • Sealed site • Spill kits
Release of treated wastewater from holding tanks	Wastewater entering stormwater system and nearby waterways	• Bunded building • Bunded holding tanks • Sealed site • Spill kits
Spill of dangerous goods such as battery acid or base.	Dangerous goods enter into the stormwater system, contaminating the water.	• Bunded storage areas; • Spill kits.
Petrol, oil, fuel, sediment from car parking and use of driveways.	Spills of fuel and build up of sediment causing contamination of stormwater and sedimentation of local waterways.	• Vehicle maintenance; • Fabric filters in stormwater pits; • Sealed surfaces; • Spill kits.
Contaminated fire fighting water.	Contamination of stormwater	• Bunded building • Risk is considered to be low.

Safeguards recommended to protect waters are:

- Adequate bunding for the building, chemical storage areas and wastewater tanks;
- Suitable spill kits located in high risk areas;
- Fabric filters installed in all stormwater drains;
- On-site personnel trained in environmental awareness; and
- Use of a licensed waste contractor.

5.4 SOIL

There would be minimal disturbance to soils as a result of the proposed development. The site is fully developed and external areas are in the main concreted. There is no construction activity required as part of the development and therefore soils would not be disturbed.

The addition of car parking spaces may require minor excavation of the surface however, the site is completely sealed with the exception of a small grassed area at the frontage to Long Street. This area would not be disturbed.

There would be no external storage of dangerous goods and therefore risk of soil contamination is not considered to be an issue to be assessed.

During operation, there would be safeguards in place to prevent the contamination of soil. The nature of the proposed development is such that there would be minor storage of dangerous goods at the site, thereby significantly reducing the risk for contamination of soil to occur. Potential impacts and mitigation measures are discussed in the following sections.

5.4.1 Existing Soil Contamination

A site inspection found that there was no evidence to suggest that there would be soil contamination due to past uses of the site. Due to the proposed use and the sealed nature of the site, further investigations are not considered warranted.

5.4.2 Potential Impacts on Soil

The risk for contamination of the soil and land due to the proposed development would be related to:

- Accidental release of sludge from transport vehicles, during unloading or the filtering process. The building would be completely bunded and the main potential for release would be in the external area. This area is concreted and potential for sludge seeping into the soil is minimal. In addition, the nature of the sludge is a non-hazardous material, mainly consisting of mud and water from construction sites.

- Works required for the establishment of additional car parking spaces that may disturb the surface of the soil at the front of the site if excavation is required.

- Inappropriate storage and handling of chemicals. There would be minor storage of Class 8 – Corrosive Substances including acids and bases for the purposes of pH adjustment of wastewater. Chemicals would be stored within an appropriately bunded and covered area in accordance with dangerous goods legislation. Employees would be made aware of storage and handling requirements.

- Windblown litter and rubbish around the external storage area. This would be reduced by ensuring all external storage of waste is entirely within designated bins.

- Use of car parks and on-site driveways may result in fuel releases, oil leakages and sediment. Contaminants of concern include heavy metals, total petroleum hydrocarbons, BTEX (benzene, toluene, ethylbenzene and xylene). The likelihood or risk of contamination is low to negligible.

- Use of equipment and machinery within the building due to the lubrication of machinery and use of forklifts may result in the release of fuel and oils. Contaminants of concern include total petroleum hydrocarbons, BTEX and aluminium phosphate however the likelihood or risk of contamination is low to minimal.

Littering would also have a negative impact on the local landscape however can be maintained through the use of designated rubbish bins and regular housekeeping practices. In addition to ensuring materials are stored entirely within designated storage areas, daily sweeping of external storage areas and inspections to ensure that loose material is secure would need to be undertaken. This would greatly reduce the risk of litter contaminating the land.

5.4.3 Safeguards and Mitigation Measures

Table 5-22 provides a summary of the proposed activities with potential to cause contamination of soil and details the controls that are recommended to be established in relation to this issue.

Table 5-22: Potential Soil Contaminating Activities and Recommended Controls

Activity	Potential Contaminant	Potential Pathway	Controls
Accidental release of Sludge	Sludge – dirty water	• Transport incident; • Release of sludge during unloading • Release of sludge during filter process	• Bunded building • Bunded storage areas • Sealed surfaces • Spill kits
Inappropriate storage and use of chemicals	Class 8 acids and / or bases	• Transport incident; • Spillage	• Bunded building • Bunded storage areas • Sealed surfaces • Spill kits
Use of equipment and machinery inside building	Total petroleum hydrocarbons, BTEX and aluminium phosphate	Incident involving release of oil or fuel	• Spill kits • Environmental awareness training • Sealed surfaces
Vehicular movements, driveways, car parking	Heavy metals, total petroleum hydrocarbons, BTEX	Incident involving release of oil or fuel	• Spill kits • Environmental awareness training • Sealed surfaces
Works required for additional car parking	Excavated soil, windblown waste and litter	Surface excavation, stockpiling of soil or release of soil and litter on site due to an incident	• Use of silt fences, hay bales as required • Sampling and analysis according to NSW EPA Waste Classification Guidelines and • Removal of excavated soil from site by a licensed contractor for appropriate disposal or reuse
General litter	Litter	Windblown in external area	Designated waste bins kept covered.

Safeguards recommended to protect soil are:

- Provide designated waste bins and keep these covered;
- Provide adequate bunding for the building, chemical storage areas and wastewater tanks;
- Provide suitable spill kits in high risk areas;
- Install silt fences and hay bales should these be required for any surface excavation works;
- Provide environmental awareness training to on site personnel;
- Use EPA Waste Classification Guidelines for any sampling and analysis required; and
- Use of a licensed waste contractor.

5.4.4 Statement of Potential Soil Impacts

Minor site works and the proposed use of the site have a low to negligible risk of causing contamination of the soil. Appropriate control measures have been recommended.

5.5 FLORA AND FAUNA

The proposal is located within an industrial area zoned IN1 – General Industrial. Results of desktop flora and fauna search are presented in the following sub-sections.

A targeted search for threatened and endangered species at the subject site and the surrounding area was undertaken to assess any possible impacts of the development on these species. The search was undertaken using data from the BioNet Atlas of NSW Wildlife website. The search criterion was an area approximately 10km x 10km with the proposed site in the centre of the area. The selected area was: North: -33.79 West: 150.88 East: 150.98 South: -33.9 and included public report of all Valid Records of Threatened (listed on TSC Act 1995) ,Commonwealth listed or Protected Entities in the selected area in the last 5 years.

There are no threatened or endangered flora or fauna populations or sightings listed or recorded on the NPWS Atlas for threatened or endangered species at the site. The closest reported sighting occurred approximately 250m North-west of the site. This was the Slender Onion Orchid, a protected species of flora.

Figure 5-10 provides a map locating valid records of fauna and flora species with reference to the location of the subject site. A list of threatened, endangered and vulnerable species found within the surrounding area using the targeted search is provided as Table 5-23.

Figure 5-10: Flora and Fauna Map

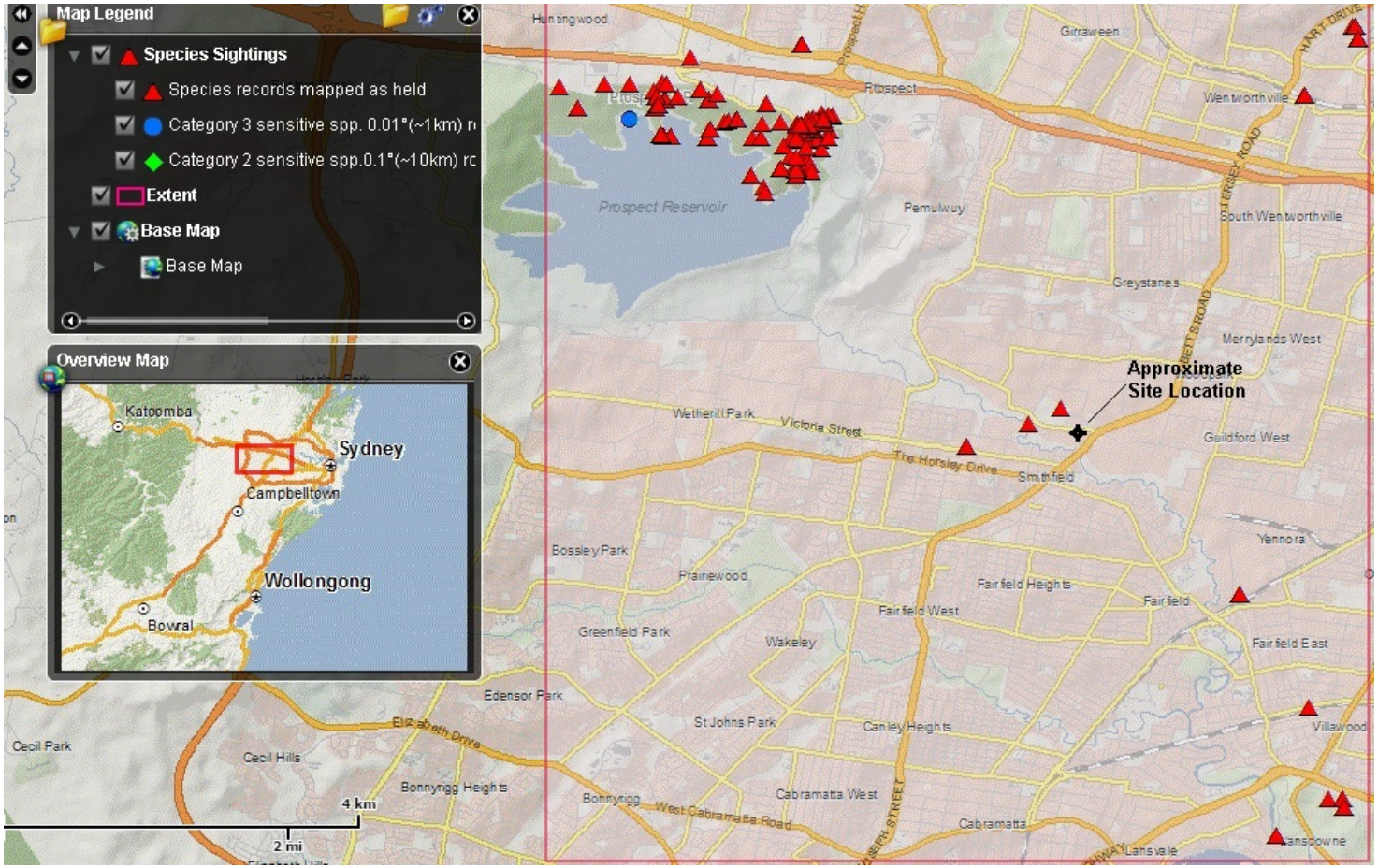


Table 5-23: List of Endangered and Vulnerable Flora (Plantae) and Fauna (Animalia) in surrounding area

Kingdom	Scientific Name	Common Name	NSW Status	Sightings
Animalia	^^Tyto novaehollandiae	Masked Owl	Vulnerable	1
Animalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	2
Animalia	Mormopterus norfolkensis	Eastern Freetail-bat	Vulnerable	4
Animalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	1
Animalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	7
Animalia	Myotis macropus	Southern Myotis	Vulnerable	2
Animalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	2
Animalia	Meridolum corneovirens	Cumberland Plain Land Snail	Endangered (E1)	2
Plantae	Marsdenia viridiflora subsp. viridiflora	Marsdenia viridiflora R. Br. subsp. viridiflora	Endangered (E2)	2
Plantae	Acacia pubescens	Downy Wattle	Vulnerable	8
Plantae	Pimelea spicata	Spiked Rice-flower	Endangered (E1)	56

5.5.1 Statement of Potential Flora and Fauna Impact

Given the outcomes from the analyses provided, and also that the site is located within an existing industrial estate and the proposed development would not significantly alter features of this built environment, the development is not expected to impact threatened flora and fauna in the local area.

5.6 Waste Generation and Management

This section addresses the waste generation and management of the proposed development.

Waste is described within the NSW EPA *Waste Classification Guidelines* as:

> *a) any substance whether solid, liquid or gaseous that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment; or*
> *b) any discarded, rejected, unwanted, surplus or abandoned substance; or*
> *c) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, reprocessing, recovery or purification.*

Waste would be generated and handled during the construction and operation of the proposed development. The raw materials of the operation are also considered to be a recyclable waste product. All waste material handled on site must be classified in accordance with the NSW EPA *Waste Classification Guidelines* as one of the following:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

Classification of waste enables the generator to determine the appropriate handling, transport and disposal requirements if the waste cannot be reused or recycled.

5.6.1 Relevant Legislation

5.6.1.1 Protection of the Environment Operations Act 1997

As established in Section 2 of this EIS, the facility is required to hold an environment protection licence under Part 1 of Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act) for '*Waste Processing (non thermal treatment)* includes *'non thermal treatment of liquid waste'* which is defined as *'the receiving of liquid waste (other than waste oil) from off site and its processing otherwise than by thermal treatment.*' '*Non-thermal treatment of liquid waste*' as it will having on site at any time more than 200 kilograms of liquid waste.

5.6.1.2 Protection of the Environment Operations (Waste) Regulation 2014

The *Protection of the Environment Operations (Waste) Regulation 2014* commenced on 1 November 2014, referred to as the "Waste Regulation". This regulation identifies provisions relating to waste management and disposal.

Part 3 of this Regulation requires scheduled waste facilities to keep records in relation to each delivery of waste received at the facility and each load of waste transported from the facility. The following is required:

Clause 27 – Waste and other material received at the facility

> *The occupier of a scheduled waste facility must record the following information in relation to each delivery of waste or other material received at the facility:*
>
> *(a) the amount of any waste delivered, its waste type and (except where the waste is trackable liquid waste) its waste stream,*
> *(b) the amount of any other material delivered and a description of the nature of that other material,*
> *(c) the amount of any waste delivered that is spoil generated by dredging activities,*
> *(d) if any of the waste delivered has been collected in accordance with a community service or activity, or arising from a biological outbreak or natural disaster, and been approved by the EPA for the purposes of clause 21:*
>
> *(i) the date of the approval and the code or number allocated by the EPA for the approval, and*
> *(ii) the amount of that waste, and*
> *(iii) particulars of the community service or activity, biological outbreak or natural disaster in respect of which the waste has been collected,*

Note : *The waste referred to in paragraphs (c) and (d) is exempted by clause 21 from the calculation of waste contributions payable by the occupier of the waste facility.*

(e) the date and time the delivery is made,
(f) the registration number of the vehicle used to make the delivery,
(g) in the case of waste transported to the waste facility from another waste facility,
(i) the name and address of the other facility, and
(ii) the code or number of any environment protection licence for the other facility,

(h) in the case of an occupier who is required to pay contributions under section of the Act - particulars of where any waste or other material delivered is placed at the facility.

Clause 28 – Waste and other materials transported from facility for use, recovery, recycling, processing or disposal

The occupier of a scheduled waste facility must record the following information in relation to each load of waste or other material transported from the facility for use, recovery, recycling, processing or disposal at another place:

(a) the amount of any waste contained in the load, its waste tyre and (except where the waste is trackable liquid waste) its waste stream,
(b) the amount of any other material contained in the load and a description of the nature of that other material,
(c)) the amount of any waste contained in the load that is spoil generated by dredging activities,
(d) if any of the waste in the load has been collected in accordance with a community service or activity, or arising from a biological outbreak or natural disaster, and been approved by the EPA for the purposes of clause 21:

(i) the date of the approval and the code or number allocated by the EPA for the approval, and
(ii) the amount of that waste, and
(iii) particulars of the community service or activity, biological outbreak or natural disaster in respect of which the waste has been collected,
Note : *The waste referred to in paragraphs (c) and (d) is exempted by clause 21 from the calculation of waste contributions payable by the occupier of the waste facility.*

(e) the date and time the load is transported from the facility,
(f) the registration number of the vehicle used to transport the load,
(g) the name and address of the place to which the load is transported and the code or number of any environment protection licence for that place,
(h) in the case of waste or other material in the load that is removed from a stockpile required to have a unique identification number under clause 31 (1) (a)-the unique identification number,
(i) in the case of an occupier who is required to pay contributions under section 88 of the Act -details of any recycling, mixing, blending or processing of any waste in the load, including the composition as a proportion of waste and other material in any waste-derived material in the load.

Clause 29 – Other records relating to vehicles

The occupier of a scheduled waste facility must record the following particulars in relation to vehicles that enter the facility for a purpose related to the operation of the facility (whether or not the vehicle is being, or is intended to be, used to deliver or transport waste):

- *(a) the date and time on which the vehicle enters the facility,*
- *(b) the date and time on which the vehicle leaves the facility,*
- *(c) the registration number of the vehicle,*
- *(d) the purpose of entry,*
- *(e) the weight of the vehicle.*

Records need to be maintained for six (6) years.

Part 4 details the requirements associated with tracking waste. Certain types of waste (listed in Schedule 1 of this legislation) which have the potential to be harmful to the environment are required to be tracked from the source to the waste disposal facility. Of relevance may be:

N190 – Filter cake contaminated with residues of substances that are referred to in this Part (Schedule 1 of the regulation)

N205 – Residues from industrial waste treatment/disposal operations

N120 – Soils contaminated with a substance or waste that is referred to in this Part (Schedule 1 of the regulation)

It is unlikely the facility would generate waste that requires tracking under this legislation. This is due to the nature of the slurry being a mixture of soils and clean water combined, essentially creating mud or sludge. Stringent procedures placed on the acceptance of slurry at the site would be implemented to ensure the facility meets obligation under the regulation. This is addressed further in Section 5.6.4.1.

A number of changes have been implemented and those relevant to the proposed development are discussed below.

The Proximity Principle

The proximity principle limits the distance waste can be transported to minimise unnecessary transportation of waste over long distances. Under the Waste Regulation, it is an offence to transport waste generated in NSW for disposal more than 150 kilometres from the place of generation unless it is going to one of the two nearest lawful disposal facilities.

The proposed facility would provide a waste facility for works generating slurry material from road and construction sites across Sydney. In addition, this principle applies in regard to the transport of the resulting filter cake should this not be able to be sent back to the site where it originated and requires disposal.

Reduced Licensing Thresholds for Waste Activities

The Waste Regulation introduced new thresholds that trigger the requirement to hold an environment protection licence. The proposed activity is '*Waste Processing (non thermal treatment).* However, the threshold for having on site at any time more than 200 kilograms of liquid waste did not change under the new Waste Regulation. This activity is required to be licensed.

Waste Tracking for Waste Transported outside NSW

The Waste Regulation introduced requirements for waste to be tracked if transported interstate. The requirements will apply to more than 10 tonnes of waste generated from a metropolitan levy area that is transported outside NSW. For low-risk materials waste consignors and transporters will be required to provide details on the consignment using the EPA's online waste tracking system.

It is unlikely that waste generated at DEMAST's facility will require interstate transportation. However, site management need to be aware of this requirement should the need arise.

Reforming the Waste Levy Framework

From 1 August 2015, the levy exemption that applied to storage, treatment and transfer stations will be removed from the Waste Regulation. All scheduled waste facilities will be liable to pay the levy.

Scheduled waste facilities are now required to hold a levy liability on all waste received at the facility, which will be extinguished once the waste is transported back off site for lawful re-use or disposal.

Payment of the levy is triggered where:

- waste is stockpiled on-site for more than 12 months, unless the waste has been processed at the facility to a standard required by a resource recovery order;
- waste is stockpiled above lawful limits; and
- waste is transported for unlawful disposal.

Facilities that are exempt include:

- facilities licensed for metallurgical activities;
- facilities that are only required to be licensed for clinical and related waste, liquid waste, hazardous or restricted solid waste;
- facilities operating as solely ceramic works, composting, container reconditioning, contaminated soil treatment, or paper or pulp production facilities.

DEMAST would be exempt from the waste levy as it is only required to be licensed for liquid waste. This would need to be confirmed by the NSW EPA.

New Reporting Requirements for Waste Facilities

Under the *Protection of the Environment Operations (Waste) Amendment (Contributions) Regulation 2014*, all scheduled waste facilities (including recycling facilities) that are not required to pay the waste levy are now required to provide an annual report to the EPA on the amount and type of waste that has been processed, stored, recycled and disposed of for that year.

The data is to be reported through a simple online tool and includes annual information on waste received and sent off site as follows:

- Amount;
- Type; and
- Destination.

It is expected that this requirement will apply to DEMAST's proposed facility.

5.6.1.3 Waste Avoidance and Resource Recovery Act 2001

The Waste Avoidance and Resource Recovery Act 2001 does not directly identify waste management requirements for companies such as DEMAST. Rather, it provides an overview of the guiding principles of waste management.

The objective of this Act is to ensure, among other items, the following:

- Efficient resource use is encouraged in accordance with the principles of Environmentally Sustainable Development;
- Waste management is considered where avoidance of unnecessary resource consumption is considered first, resource recovery is the second option, and finally disposal where alternative management methods are exhausted;
- The amount of waste being generated is continually reduced; and
- Waste management – reduce, reuse, recycle is further encouraged to minimise consumption and waste disposal.

5.6.1.4 NSW Waste Avoidance and Resource Recovery Strategy 2014-2021

The primary goal of the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* is "to enable all of the NSW community to improve environment and community well-being by reducing the environmental impact of waste and using resources more efficiently."

This sludge dewatering facility is an important initiative that contributes to waste reduction and resource recovery in NSW. The project enables waste products to be accepted, valuable resources to be recovered and allows the disadvantaged community to benefit from inexpensive technology.

5.6.1.5 NSW Waste Classification Guidelines

To ensure appropriate waste management and disposal, all waste must be classified according to the NSW EPA Waste Classification Guidelines. In accordance with this document, waste can be classified into 6 different streams.

Table 5-24: Waste Classes Identified in the NSW Waste Classification Guidelines

Class	Example
• Special waste	• Clinical and related wastes; • Asbestos waste; • Waste tyres.
• Liquid waste	• Waste that has an angle of repose <5 degrees; • Waste that becomes free flowing at or below 60ºC; • Is not generally capable of being picked up by a spade or shovel.
• Hazardous waste	• Waste with a pH ≤2 or ≥12.5; • Containers that have not been cleaned and contained dangerous goods within the meaning of the Australian Code for the Transport of Dangerous Goods by Road and Rail.
• Restricted solid waste	• This type of waste is determined by chemical tests.
• General solid waste (putrescible)	• Waste from litter bins collected by local councils; • Food waste; • Grit or screenings from sewage treatment systems that have been dewatered so that the grit of screenings do not contain free liquids.
• General solid waste (non-putrescible)	• Paper or cardboard; • Glass, plastic, rubber, plasterboard, ceramic, bricks, concrete or metal; • Containers previously containing dangerous goods as defined under the Australian Code for the Transport of Dangerous Goods by Road and Rail, from which residues have been removed by washing or vacuuming.

Waste generated by the site activities would need to be classed into the categories listed above.

5.6.2 Construction Waste

No construction activities are proposed. There may be works required for establishing additional car parking spaces at the frontage to Long Street. Minor surface excavation may be required that would generate no more than 5m^3 of spoil.

5.6.3 Operational Waste Streams and Management

Waste would be brought onto site and used as a raw material. Waste would also be generated as part of the site operations. All waste has been classified in this section.

Table 5-25: Waste Streams

Waste Type	Estimated Annual Quantity		Classification	On-Site Management
	Incoming	Outgoing		
Sludge	50,000 T	0	Liquid Waste	Loaded from vacuum truck into external hopper and pass through dewatering screen and SMU. Resulting wastewater would be held in holding tanks and filter cake transferred to skip bins inside the building.
Wastewater	0	31,000 kL	Liquid Waste	Temporarily stored on site in holding tanks then either transported back to the site or gravity fed to Sydney Water Sewer under a Tradewaste Agreement
Filter Cake	0	11,000 T	General Solid Waste (Non-putrescible)*	Held in skip bins inside the building awaiting transport back to the site of origin or disposed of as a general solid waste.
General waste	0	10 T	General Solid Waste (Putrescible)	Designated receptacles for rubbish and recycling. Serviced on an as needs basis by a licensed waste contractor.

* confirmation of filter cake waste classification needs to be undertaken using the NSW EPA Waste Classification Guidelines.

5.6.3.1 Sludge

"Sludge" or "Slurry" from construction sites across Sydney would be transported to the site via vacuum trucks. On average 40,000 to 50,000 litres of sludge would be accepted at the site per day, generally Monday to Friday. The source of the sludge would vary.

An incoming waste procedure is detailed in Section 5.6.4.1 and would apply to all incoming loads of sludge.

5.6.3.2 Wastewater

Wastewater would be generated from the dewatering process and be held in bunded 10,000 litre holding tanks inside the building. Where possible, the wastewater would be transported back to the site of origin. DEMAST have a conditional consent no. 37990 from Sydney Water to discharge the wastewater as tradewaste. The wastewater that cannot be sent back would be gravity fed into the sewer.

As part of the consent from Sydney Water the wastewater would need to meet certain criteria to be accepted as tradewaste. This would be established during the start-up phase of the development.

A photograph of the slurry before and after treatment is provided in Figure 5-11.

Figure 5-11: Slurry – Before treatment (right) and after treatment (left)

Source: DEMAST Pty Ltd

Benbow Environmental
13 Daking Street,
North Parramatta NSW 2151

5.6.3.3 Filter Cake

The second resulting bi-product of the dewatering process is the filter cake. Currently there is no analysis available. It is estimated that approximately 30 tonnes per day of filter cake could be generated. This material would be stored in skip bins and either transported back to the site of origin or disposed of at a licensed landfill.

DEMAST would need to ensure the site of origin of the untreated slurry has the correct approvals in order to be able to accept the filter cake back on-site before transportation is arranged.

Transport would be via a licensed waste transporter either a contractor or DEMAST themselves. A licence to transport any trackable waste would be required under Schedule 1, Part 2, Clause 48 – Transportation of trackable waste of the *Protection of the Environment Operations Act 1997* for transport of any trackable waste only.

5.6.4 Waste Management

This section presents a discussion of how waste would be managed from acceptance of waste at the site to the on-site storage and classification of resulting bi-products.

5.6.4.1 Incoming Waste Procedure

The waste slurry is generated from road and construction sites from non-destructive digging that requires high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank. The result of this process is a mixture of soils and clean water combine, essentially creating mud or sludge.

Acceptance of this waste would require the site of origin to confirm that the soil is not contaminated in any way. This can be confirmed through knowledge that the site has not been previously disturbed or that no potentially contaminating activities have previously taken place at the site. Should this not be possible, testing to confirm the nature or waste classification of the soil may be required.

An incoming waste procedure would be developed to incorporate the above requirements as part of the site's environmental management plan. This would need to be implemented from the first load accepted at the site.

5.6.4.2 Classification of Waste Procedure

Regular testing of the filter cake is recommended within the first year of operation to be undertaken to ascertain it's waste classification. Due to the origin of the incoming slurry continuously changing, it is recommended that the resulting filter cake be tested using the specific contaminant concentration (SCC) method detailed in *Step 5: Determining a waste's classification using chemical assessment* in the NSW EPA Waste Classification Guidelines.

A procedure for testing of filter cake would be prepared as part of DEMAST's Environmental Management Plan.

5.6.4.3 On-site Waste Storage

Storage of waste on site would include:

- Temporary storage of wastewater (a bi-product of the dewatering process) in bunded 10,000 litre tanks until transport of this water back to the point of origin or discharge to tradewaste;
- Storage of filter cake in skip bins within the building. Approximately 30 tonnes would be stored on site at any one time. Therefore a licence for waste storage is not required as this is well under the threshold of 1000 tonnes.

5.6.4.4 Waste Management Plan

A waste management plan has been completed as part of Holroyd City Council development application process. This plan identifies demolition and construction waste only. There is little waste generated as no demolition is proposed and construction only involves minor surface excavation for additional car parking. The waste management plan is provided as Attachment 5.

Operational waste has been identified in Section 5.6.3.

5.6.5 Waste Management Recommendations

To ensure waste is managed appropriately and efficiently, recommendations have been provided throughout this section and are summarised below:

- DEMAST shall keep records in relation to each delivery of waste received at the facility and each load of waste transported from the facility in accordance with Clause 27 and Clause 28 of the Waste Regulation respectively;
- DEMAST shall keep records in relation to vehicles that enter the facility in accordance with Clause 29 of the Waste Regulation.
- All waste records shall be kept for six (6) years.
- DEMAST shall provide an annual report to the EPA through a simple online tool in relation to waste received and sent off-site.
- DEMAST shall implement an incoming waste procedure that identifies the conditions of acceptance of waste slurry at the site.
- DEMAST shall implement a waste classification procedure to classify filter cake;
- DEMAST shall ensure that wastewater generated meets criteria set out by Sydney Water before discharge to sewer.

For any waste transportation undertaken by DEMAST, the NSW EPA provides the following suggestions:

- Know what types of waste are carried on your vehicle.
- Check the council development consent and environment protection licence for the waste facility to make sure it can lawfully accept the waste.
- Provide the waste facility with details of the waste (classification, origin and quantity).
- Ensure any vehicle used for the transport of waste is constructed and maintained to prevent spillage of waste.
- Check the containers used to transport waste are secured safely on the vehicle.
- Ensure any waste that is transported by a vehicle is covered during its journey (unless the waste consists solely of tyres and/or scrap metal).
- Keep accurate written records such as:
  - details of the waste (classification, name and address of its origin and quantity)
  - copies of waste dockets/receipts for the waste facility (date, time of delivery, name and address of the facility, its ABN, contact person).

5.7 HAZARDS AND RISKS

This section presents a preliminary risk screening, details of chemicals and dangerous goods, potential fire risk and bushfire hazard.

5.7.1 Preliminary Risk Screening

A preliminary risk screening of the proposed development in accordance with State Environment Planning Policy No. 33 – Hazardous and Offensive Development has been undertaken with results provided below.

Table 5-26: Comparison of Screening Threshold Quantities by SEPP 33

Class	Screening Threshold	Description	Site Specific Description	Quantity to be stored based on separation distances	Triggers SEPP33
Class 1.2	5 tonne	Explosives	None on site	None	No
Class 1.3	10 tonne	Explosives	None on site	None	No
Class 2.1	10 tonne or 16m^3 if stored above ground 40 tonnes or 64m^3 if stored underground or mounded	(LPG only – Not including auto retail outlets) Flammable Gases	LPG cylinders	150 L	No
Class 2.2	Not Relevant	Not relevant	Not relevant	Not relevant	Not relevant
Combustible Liquid C1	Not relevant	Combustible liquid such as diesel	80 L within onsite vehicles	None stored on site	Not Applicable
Combustible Liquid C2	Not relevant	Lubricating oils/hydraulic oils	None on site	Not Relevant	Not Applicable
Class 2.3	5 tonne	Anhydrous ammonia, kept in the same manner as for liquefied flammable gases and not kept for sale	None on site	None	No
	1 tonne	Chlorine and sulphur dioxide stored as liquefied gas in contains <100 kg	None on site	None	No
	2.5 tonne	Chlorine and sulphur dioxide stored as liquefied gas in containers > 100 kg	None on site	None	No
	100 kg	Liquefied gas kept in or on premises	None on site	None	No
	100 kg	Other poisonous gases	None on site	None	No
Class 3	Assessed by reference to figures 8 & 9 of applying Sepp 33	Flammable liquids PG I, II and III	None on site	None	No
Class 4.1	5 tonne	Flammable Solids	None on site	None	No
Class 4.2	1 tonne	Reactive in the air	None on site	None	No
Class 4.3	1 tonne	Spontaneous combustion in contact with water	None on site	None	No

Table 5-26: Comparison of Screening Threshold Quantities by SEPP 33

Class	Screening Threshold	Description	Site Specific Description	Quantity to be stored based on separation distances	Triggers SEPP33
Class 5.1	25 tonne	Ammonium nitrate – high density fertiliser grade, kept on land zoned rural where rural industry is carried out, if the depot is at least 50 metres from the site boundary.	None on site	None	No
Class 5.1	5 tonne	Oxidising substances	None on site	None	No
Class 5.1	2.5 tonne	Dry pool chlorine – if at a dedicated pool supply shop, in containers <30 kg	None on site	None	No
Class 5.1	1 tonne	Dry pool chlorine – if at a dedicated pool supply shop, in containers >30 kg	None on site	None	No
Class 5.1	5 tonne	Any other Class 5.1	None on site	None	No
Class 5.2	10 tonne	Organic peroxide	None on site	None	No
Class 6.1 PG1	0.5 tonne	Toxic substances	None on site	None	No
Class 6.1 PGII & III	2.5 tonne	Toxic substances	None on site	None	No
Class 6.2	0.5 tonne	Includes clinical waste	None on site	None	No
Class 7	All	Should demonstrate compliance with Australian codes	None on site	None	No
Class 8 PGI	5 tonne	Corrosive substance	None on site	None	No
Class 8 PGII	25 tonne	Corrosive substance	Chemicals for pH adjustment of wastewater	150 kg	No
Class 8 PGIII	50 tonne	Corrosive substance	None on site	None	No

As shown in the table, no dangerous goods quantities of any Class would exceed the threshold. Therefore, SEPP 33 does not apply.

5.7.2 Chemicals and Dangerous Goods

A limited number of chemicals considered to be dangerous goods would be stored and handled on site. A dangerous good is an article or substance capable of posing significant risk to health, safety or property. Dangerous goods are divided into different classes based on the particular risk posed by the product.

The only dangerous goods stored on site will be as follows:

- Liquefied petroleum gas cylinders, minor storage quantities of up to 4 cylinders; and
- Chemicals for adjusting pH of wastewater, most likely 98% sulfuric acid and 50% sodium hydroxide. Both of these chemicals are Class 8 Corrosive Substances of Packing Group II. Small quantities in 20L containers would be stored on site, up to 150kg at any one time.

These dangerous would be stored in compliance with AS 1940–2004.

Diesel fuel would be used on site within on-site vehicles however, no storage of diesel on site would be needed.

Dangerous goods of minor storage only would be used at the site and no placarding or notification to WorkCover is required.

5.7.3 Potential Fire Risk

The potential fire risk from the processes is limited to failure of an electric motor or a transport incident resulting in a fire. The sludge and resulting filter cake is non-combustible and minor chemicals are stored, therefore risk of a fire is very low.

The following safeguards and recommendations would be adhered to at the site to control potential fire risks:

- Fire hydrant systems are provided in accordance with AS 2419.1–2005/Amdt 1-2007.
- Hose reel systems are provided in accordance with AS 2441–2005/Amdt 1–2009.
- Fire services at the site are to be maintained in accordance with AS 1851–2012.
- Emergency lighting and exit signage are to be provided in accordance with the BCA and AS 2293–2005.
- Specific on site personnel are to be trained in specific site procedures, emergency procedures and the use of hose reels.
- Strict control of ignition sources to be enforced on site.
- Maintenance and housekeeping practices provided in accordance with AS/NZS 4745:2012 Amdt 1–2013.

No fire safety issues are considered warranting further investigation.

5.7.4 Bushfire Hazard

According to the 149(2) & (5) Planning Certificate, receipt no. 75133, the land is NOT bushfire prone land as defined in the *Environmental Planning and Assessment Act 1979*.

6. ENVIRONMENTAL IMPACTS AND SAFEGUARDS – SOCIAL IMPACTS ASPECTS

6.1 HEALTH

Health impacts of this development have been addressed with reference to the Health Impact Assessment Guidelines (enHealth, 2001). The Health Impact Assessment (HIA) process covers the following steps:

1. Screening – Determining the need for a Health Impact Statement;
2. Scoping – Identifying the potential impacts that need to be assessed, the boundaries of these impacts, and additional tasks and requirements to complete the assessment;
3. Profiling – Establishing a profile of communities likely to be impacted. Collecting data required to assess health impacts;
4. Risk Assessment – Assessing the significance of health impacts by qualitative and/or quantitative measures;
5. Risk Management – Investigation options to minimise potential risks;
6. Implementation and decision making – Justifying significant health impacts and providing recommendations to reduce potential impacts; and
7. Monitoring, environmental and health auditing, post-project evaluation – Evaluating health impacts and the success of the Health Impact Assessment and monitoring plans following development approval and implementation of recommendations.

Each of these seven aspects has been examined in relation to the proposed development.

6.1.1 Introduction

The proposed development involves establishment of a facility for the dewatering of a slurry generated from road and construction sites. The slurry is a result of Non Destructive Digging, a technology that uses high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank.

The result of the above process (the slurry) is a mixture of soils and clean water combined, essentially creating mud or sludge. This slurry would be transported to the site where an SMU separates the water from the soil, resulting in wastewater and filter cake.

6.1.2 Screening

Screening is an integral part of the HIA and the overall screening process. All proposed developments that are required to undergo an EIA should be screened for possible health impacts (enHealth, 2001).

Providing the nature of the health concerns are common for many industries, and the potential for impacts to be mitigated, a full scale Health Impact Assessment is not considered to be warranted. This is the case for this proposal as there would be no hazardous materials being brought to the site or handled on site.

6.1.3 Scoping

Potential environmental, physical and social health impacts associated with the development are listed in the following table.

Table 6-1: Potential Health Impacts Associated with the Development

Health Aspect	Positive Impacts	Negative Impacts
Environmental	• The proposed development would be located adjacent to the end user, reducing health impacts associated with long-distance transport. eg. Greenhouse gas emissions, air pollution, potential vehicle accidents.	• Increased resource use (energy and water) on site. • Noise impacts from heavy vehicle movements and the dewatering process. These will have minimal off-site impacts as identified in the Noise Impact Assessment. • Should environmental impacts not be controlled, there is the potential for contaminants (litter, sediment, windblown waste) to escape the site and enter the adjacent waterbody or groundwater.
Physical	—	• Health impacts associated with dust and exposure to sludge should an incident result in a spillage. Water sprays would be used as dust control in external areas as required. The sludge is non-hazardous and minimal dust would be generated. Off-site impacts will be minimal.
Social	• The development would increase employment opportunities in the region. • Economic "spin-off" effects in the local region.	—

Potential identified issues of concern are dust, noise and exposure to sludge.

The air impact assessment in Section 5.1 concluded that emissions of dust associated with the operation of the SMU are expected to be negligible.

The noise impact assessment in Section 5.2 found that compliance with the project specific noise levels was predicted for operational and road traffic impacts at all considered receptors.

The nature of the sludge is non-hazardous. It is anticipated to be a mixture of water and excavated soil and therefore resulting bi-products would be inert. Stringent procedures implemented at the site would ensure no toxic or hazardous materials are accepted at the site.

With consideration to the above scoping, there are no real issues of concern in relation to health impacts of the proposed development. Therefore no further examination is required.

6.1.4 Statement of Potential Health Impacts

Due to the nature of the incoming material, resulting bi-products and the method of treatment as examined above, the proposed development would pose negligible health concerns to the surrounding area.

6.1.5 Employee Health and Safety

The health and safety issues associated with the facility would relate to handling and processing of incoming sludge (raw materials) and the resulting wastewater and filter cake (finished product) and associated ancillary activities.

All employees would undergo appropriate training as part of site induction and be provided with appropriate Personal Protective Equipment (PPE) for their role. The employer would ensure the operation is conducted as approved and appropriate resources are available for work safety. The development operation would be required to comply with the following Acts and Regulations relating to health and safety:

- Work Health & Safety Act 2011; and
- Work Health & Safety Regulations 2011.

Employees would also be fitted and trained in the appropriate safety procedures and equipment to be used.

6.2 VISUAL IMPACTS

This section addresses the visual aspects of the proposed development.

6.2.1 Existing Visual Amenity

The existing visual amenity is one that is typical of an industrial area. The land surrounded the subject site is dominated by industrial installations. There is currently an industrial building that takes up the majority of the site, car parking, external hardstand areas around the building and landscaped or grassed areas at the frontage to Long Street.

The site cannot be seen from nearby residences.

The following provides a series of photographs of the site how it appears today.

Photograph 1: View of front of site from Long Street.

Photograph 2: View from driveway along eastern side of site toward the Long Street.

Photograph 3: View from driveway towards the rear of the site.

6.2.2 Visual Impacts of the Development

There would be minor changes to the site appearance as a result of the proposed development including additional car parking at the front of the site and minor modifications to the rear of the building to allow for receipt of the slurry.

A business identification sign would also be erected.

These minor changes would have a negligible impact on the visual amenity of the site.

6.3 HERITAGE

Under the S149 certificate, the land is not affected by an Interim Heritage Order under the provisions of the *Heritage Act 1997*.

The site is not listed as being a heritage item or containing items under the Holroyd Local Environmental Plan 2013.

A search of the NSW State Heritage Register also concluded there are no Heritage listed sites within the vicinity of the subject site. Consequently, no further heritage studies were justified.

6.3.1 Aboriginal Heritage

No Aboriginal heritage locations have been identified or uncovered on or in the vicinity of the site as stated in the local heritage register.

6.3.2 European Heritage

No European heritage locations have been identified or uncovered on or in the vicinity of the site as stated in the local heritage register.

6.4 INCIDENT MANAGEMENT

Incident management is a process used to identify, analyse, and correct hazards to prevent a future re-occurrence.

This section provides a summary of types of incidents that could occur on the site, what would be addressed in an Incident Reporting and Investigation procedure and the requirement for a Pollution Incident Response Management Plan.

6.4.1 Incidents

The following table lists the types of Incidents that could occur at the site:

Table 6-2:

Incident	Description
Pollution Incident	Defined under the *Protection of the Environment Operations Act, 1997* as: *an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.*
Injury or medical condition	Conditions resulting from accidents, stress, fatigue and psychological injury.
Accident	An unexpected, undesirable and noncompliant event which results in an injury, loss or damage.
Near miss incident	Incident that has the potential to result in injury, loss or damage to people and/or property.
Policy / procedure / legislation noncompliance	Incidents where policies and procedures are not complied with and where there is an impact or a potential impact on the effectiveness of the response, the system and the health, safety and well-being of personnel.
Evacuation	Incident requiring the evacuation of the site
Hazard identification	Anything with potential to harm the health, safety or well-being of a person or result in loss or damage to property
Property / plant / equipment damage	Deliberate or accidental damage to property, plant or equipment.
Product / service failure	Failed delivery or functioning of any product or service that impact on the safety of humans or the environment.
Complaint	Verbal or written complaint by stakeholders or the public where they are not satisfied with the operation of the site (eg, noise, waste, odour, air emission)
Security	Breaches in security (unauthorised entry) and/or theft of items from the site.
Emergency eg fire	Fire, flood, power failure or storm damage emergency that results in damage to property, plant and equipment and/or injury of personnel.
Threats	Threats are acts of coercion where a negative consequence is proposed to elicit a reaction/response, eg bomb threats, deliberate spread of disease.

Note: Definitions where not specified in the above table have been referenced from NSW Governement – Industry and Investment.

The incident reporting and investigation would address any of the above incidents.

A pollution incident response management plan (PIRMP) is required to be prepared for the site under Section 153A of the *Protection of the Environment Operations Act 1997*. This is discussed further in Section 8 of this EIS.

6.4.2 Incident Reporting and Investigation

An Incident Reporting and Investigation procedure would be implemented as part of the Pollution Incident Response Management Plan and would address the following:

- Reporting incidents on an incident report form within 24 hours of the occurrence of the incident.
- Incident Investigation as required under legislation, if multiple incidents occur, if the incident results in serious injury or death or property damage or to ensure the incident does not recur. Investigations would include a report to address:
  - Cause(s) of the incident;
  - Relative significance;
  - Probability of reoccurrence;
  - Effects/consequences of the incident;
  - Recommended treatments of the causes and effects.
- Monitoring and review of incidents to follow up actions required to prevent the recurrence of the incident and ensure these are implemented.

6.4.3 Environmental Protection Equipment

Environmental protection equipment that would be installed at the premises includes:

- Water sprays for dust control. The site would be regularly cleaned with a motorised sweeper. Water sprays would be used during the sweeping process.
- Bunding of the building. Bunding would be to a height of 100 mm, providing a containment capacity of 121,800L and made of an impervious material to ensure containment of any spillages.
- Bunding of storage areas. Water holding tanks would be bunded to a capacity of 110% of the largest tank within the bunded area.
- Spill Clean up kits. An absorbent material suitable for the clean up of sludge and chemicals would be required to be kept on site. It is recommended that a variety of loose absorbent material as well as socks and mats be available for use. Also required would be spill containment barriers that can be used in external areas to protect stormwater drains, brooms and shovels for clean up after the spill has been contained.
- Fire services would be maintained in accordance with AS 1851–2012 and would include:
  - Fire hydrant systems;
  - Hose reel systems; and
  - Emergency lighting and exit signage.

6.5 GREENHOUSE GAS EMISSIONS

The proposed development involves a number of activities, such as operation of machinery and transportation associated with the sludge dewatering process. All of these activities generate greenhouse gases. An assessment of the annual greenhouse gas emissions for the proposed development is provided in this section.

6.5.1 GHG Standards and Guidelines

The following standards, sources and guidelines have been used as part of this greenhouse gas (GHG) assessment:

- Australian Standard AS ISO 14064.1: 2006 – "Greenhouse gases" – "Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals";
- Department of Climate Change and Energy Efficiency, August 2015. *Australian National Greenhouse Accounts – National Greenhouse Accounts Factors*;
- Department of Climate Change and Energy Efficiency, July 2014. *National Greenhouse and Energy Reporting System Measurement – Technical Guidelines*;
- Department of Climate Change and Energy Efficiency, 2014. *Australian National Greenhouse Accounts, Quarterly Update of Australia's National Greenhouse Gas Inventory, September Quarter 2014; and*
- Greenhouse Gas Protocol, revised edition March 2004. *Corporate Accounting and Reporting Standard*.

DEMAST is not required to report GHG emissions under the *National Greenhouse and Energy Reporting Act 2007*, since total emissions from the site are below the 25,000 tonne of greenhouse gases and 100TJ of energy production and consumption thresholds for mandatory reporting.

The calculations used throughout this assessment are based on the *GHG Protocol Corporate Standard* and the *National Greenhouse Accounts (NGA) Factors*. The NGA factors are default emission factors provided by the Department of Climate Change and Energy Efficiency for use in calculating an organisation's greenhouse gas emissions, and are used here.

Estimations of annual energy consumption have been provided by the client or are based on assumptions. Not included in the assessment are any company owned trucks that may be used for transportation purposes. To gain a true understanding of GHG emissions from the site, this assessment would need to be reviewed with data after the first year of operation.

6.5.2 Direct and Indirect Emissions

Emissions are commonly classified as direct or indirect emissions, which are defined by the GHG Protocol as:

- Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity;
- Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

Direct and indirect emissions are further categorized into three broad scopes:

- Scope 1: All direct GHG emissions;
- Scope 2: Indirect emissions from consumption of purchased electricity, heat or steam;
- Scope 3: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

This assessment will examine all Scope 1 and 2 GHG emissions, and also some Scope 3 emissions.

Scope 1, 2 and 3 emissions from the proposed site operations include:

- LPG and diesel use (Scope 1);
- Electricity Use (Scope 2);
- Upstream extraction and processing of raw materials required for producing the LPG, diesel and electricity (Scope 3).

Management of the site activities would be undertaken to ensure all impacts, including GHG emissions, are mitigated and minimised. Apart from physical controls, procedural controls to be implemented would include a site environmental management system which would ensure ongoing compliance and identify opportunities for continual improvement.

6.5.3 Greenhouse Gas Emissions from Site Operations

6.5.3.1 Estimation of Scope 1 Greenhouse Gas Emissions

Scope 1 greenhouse gas emissions are produced as a result of operating equipment and on-site vehicles which are run on diesel fuel and LPG.

The National Greenhouse Accounts (NGA) Factors, August 2015 was used to estimate the Scope 1 GHG emissions. The following formula was adopted:

$$E = \frac{Q \times EC \times EF}{1{,}000}$$

where:

E is the amount of estimated greenhouse gas emissions in tonnes $CO_{2\text{-}e}$ (carbon dioxide equivalent)
Q is the volume of fuel combusted in kL
EC is the heat content of specific fuel type in GJ/kL
EF is the greenhouse gas emission factor specific to fuel type in kg $CO_{2\text{-}e}$/GJ

Diesel Fuel
Calculation of GHG emissions from use of diesel fuel is estimated based on the following assumptions:

- The heat content (EC) for diesel is 38.6 GJ/kL (NGA, 2015); and
- Assumed diesel consumption (Q) of approximately 4,160 L per year (4.16 kL per annum).

LPG
Calculation of GHG emissions from use of LPG is estimated based on the following assumptions:

- The heat content (EC) for LPG used for transport energy purposes is 26.2 GJ/kL (NGA, 2015); and
- Estimated LPG consumption (Q) of approximately 1020 kg per year (2 kL per annum).

Table 6-3 summarises the annual Scope 1 GHG emissions

Table 6-3: Estimated Scope 1 (Direct) Greenhouse Gas Emissions

Activity	Annual Consumption (kL)	Emission Factor (kg CO_2-e/GJ)			Annual GHG Emissions (tonne CO_2-e)
		CO_2	CH_4	N_2O	
Use of diesel	4.16	69.9	0.1	0.5	11.3
Use of LP Gas	2.00	60.2	0.6	0.7	3.2
Total Annual Scope 1 GHG Emissions					**14.5**

6.5.3.2 Estimation of Scope 2 Greenhouse Gas Emissions

Scope 2 GHG emissions are associated with the consumption of purchased electricity due to the use of fuels (e.g. coal) upstream at power generation plants. Electricity is used on site for the operation of on-site equipment and in office areas.

The 2015 NGA Factors were used to estimate the greenhouse gas emissions. The following formula was adopted:

$$E = \frac{Q \times EF}{1{,}000}$$

Where:
E is the amount of estimated greenhouse gas in tonnes CO_2-e
Q is the quantity of purchased electricity in kWh
EF is the greenhouse gas emission factor specific to fuel type in kg CO_2-e/kWh for the state of New South Wales.

GHG calculations are based on the following assumption:

- Annual electricity consumption (Q) will be approximately 31,755 kWh (Based on average daily usage of 87kWh)

The estimated annual Scope 2 greenhouse gas emissions is summarised in the following table:

Table 6-4: Estimated Scope 2 (Indirect) Greenhouse Gas Emissions

Activity	Annual Consumption (kWh)	Emission Factor (kg CO_2-e/kWh)	Annual GHG Emissions (tonne CO_2-e)
Electricity consumption	31,755	0.84	26.7
Total Annual Scope 2 GHG Emissions			**26.7**

6.5.3.3 Estimation of Scope 3 Greenhouse Gas Emissions

Scope 3 emissions encompass a wide range of potential sources. For this facility, only a few sources have been studied in this report due to availability of information. These are emissions from the extraction/processing of diesel fuel, and the extraction/processing of fuels burned at electricity generation plants, as well as indirect emissions due to transmission and distribution (T&D) losses.

Diesel Scope 3 emissions

The extraction, processing and transport of diesel fuel to site also have associated GHG emissions. A scope 3 emissions factor of 3.6 kg CO_2-e/GJ is provided in the NGA Factors (2015). Using the same methodology as used for Scope 1, we find that diesel scope 3 emissions total 0.6 tCO_2-e. Refer to Table 6-5 below.

LP Gas Scope 3 emissions

The extraction, processing and transport of LPG to site also have associated GHG emissions. A scope 3 emissions factor of 3.6 kg CO_2-e/GJ is provided in the NGA Factors (2015). Using the same methodology as used for Scope 1, we find that LPG scope 3 emissions total 0.2 tCO_2-e. Refer to Table 6-5 below.

Electricity Scope 3 emissions

Further GHG emissions are produced upstream of the site, due to the extraction, processing and transport of fuels to electricity power plants, as well as indirect emissions associated with compensating for transmission and distribution losses in the electricity network. A scope 3 emissions factor of 0.12 kg CO_2-e/kWh, for NSW, is provided in the NGA Factors (2015). Using the same methodology as used for Scope 2, we find that electricity Scope 3 emissions total 3.8 tonnes CO_2-e. Refer to Table 6-5 below.

Table 6-5: Total Estimated Scope 3 (Other Indirect) Greenhouse Gas Emissions

Activity	Annual Consumption	Emission Factor	Annual GHG Emissions (Tonne CO_2-e)
Diesel combustion	4.16	3.6 CO_2-e/GJ	0.6
LP Gas combustion	2.0	3.6 CO_2-e/GJ	0.2
Electricity consumption	31,755 kWh	0.12 CO_2-e/kWh	3.8
	Total Annual Scope 3 GHG Emissions		**4.6**

6.5.3.4 Summary

A summary of the above-calculated GHG emissions is shown in Table 6-6.

Table 6-6: Estimated Total Annual GHG Emissions

Emission Type	Annual GHG Emissions (Tonne CO_2-e)	%
Scope 1	14.5	31.7
Scope 2	26.7	58.3
Scope 3	4.6	10.0
Total (Scope 1 + 2 + 3)	**45.7**	**100**

The total amount of greenhouse gas emissions from the development is approximately 45.7 tonnes CO_2-e per annum.

The estimation of scope 1 and 2 emissions has been conducted based on primary activities only which include the use of fossil fuels in equipment and mobile vehicles, and use of purchased electricity. The calculations have been made based on the 2015 NGA factors, stated assumptions and also figures provided by the proponent.

The largest source of GHG emissions is direct emissions from the use of electricity (Scope 2) at 98.3%.

Year to March 2015 annual estimated greenhouse emissions for Australia are 533.9 Mt CO2-e (DCCEE, 2015). In comparison, the estimated annual greenhouse emission for the Project is 0.000046Mt CO2-e. Therefore, the annual contribution of greenhouse emissions from the project in comparison to the annual Australian greenhouse emissions to March 2015 is approximately 0.000009%.

6.5.4 Measures to Reduce Greenhouse Emissions

Opportunities to reduce greenhouse gas emissions are considered as an ongoing objective within the site's Environmental Management Plan. Understanding where the greenhouse gas emissions are generated is the first step in determining ways to reduce emission per unit of material processed.

Measures that are available to reduce greenhouse gas emissions include a fleet of current Australian designed standards for diesel engines, regular maintenance of mobile equipment and trucks and ensuring electric powered equipment, such as conveyors and pumps, are only operated as needed.

6.6 ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD)

Ecologically sustainable development is defined as "development that meets the need of the present generation without compromising the ability of future generations to meet their own needs".

Ecological sustainability requires a combination of good planning and an effective and environmentally sound approach to design, operations and management. The principles of ESD throughout the project's life cycle are outlined in the following paragraphs.

Decision making should be based on sound environmental management principles which consider not only the present, but also the future, particularly in relation to:

- Precautionary principle – if threats of serious or irreversible environmental damage exist, lack of full scientific evidence should not be used as a reason for postponing measures to prevent environmental degradation;
- Inter-generational equity – the present generation should ensure that health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- The conservation of biodiversity and ecological integrity – the conservation of biological diversity and ecological integrity should be a fundamental consideration; and
- The valuation of the environment and resources and the establishment for the efficient use of resources.

The above principles have been incorporated into the need for the project and overall design which is reflected in the studies prepared in this document. The nature of the proposed development being the treatment of waste sludge to produce potentially reusable bi-products is also in line with ESD principles.

Further, the EIS outlines safeguards that would be implemented on site so that the proposed operations would cause minimal harm to the environment and resources would be sustained to ensure availability to future generations, through reducing the communities need for virgin resources.

The main environmental safeguards to be implemented so that environmental harm is minimised as much as practicable are as follows:

- Hardstand area integrity management and maintenance;
- Waste management and stringent procedures to manage the incoming and outgoing waste; and
- Environmental management plan.

The proponents would pro-actively manage those areas of their operations that have the potential to impact on the surrounding environment. Management Plans would be introduced to control these potential impacts.

Multiple indicators, including those indicated in the Environmental Management Plan would continue to monitor the sustainable performance of the development.

The multiple indicators used to measure sustainability cover a broad range. These indicators are outlined below.

Table 6-7: Indicators Used to Measure Sustainability

Indicators	Comments and Description
Input rule	Renewables: The depletion rates of renewable resources would be within the regenerative capacity of the natural system that generates them. Non-renewables: The depletion rates of non-renewable resources would be equal to the rate at which sustained income or renewable substitutes are developed by human intervention or investment.
Output rule	The waste emission rates or other forms of degradation will be reduced from current levels, which is within the capacity of the environment to assimilate or regenerate, without unacceptable degradation of the ecological integrity, biodiversity or its future waste absorptive capacity.
Community	• Increase in employment opportunities; • Level of social services available increased; • Strengthening of local economy; • Level of education/knowledge based/research investment increased; • No net loss of heritage or other features, buildings, places of high community importance; • No net loss of flora and fauna species or natural environments of high community importance; • No loss of community integrity; • Increase in resource recovery; and • Increase in waste re-use and recycling.
Ecosystems	• No net reduction in richness or abundance of plant species in aquatic or terrestrial environments; • No net reduction in richness or abundance of fauna species in aquatic or terrestrial environments; • No net reduction in the existing landscaping of the site; • Increased or improved knowledge of ecosystem resources and management of threats; • No net increase of pests or disease threats to the health of the ecosystem; and • Reduction of natural hazards which are threats to the health of the ecosystem (fire, pollution, etc.).
Soils	• No net topsoil erosion; • No increase in area of land affected by salinisation; and • No reduction in soil pH below certain levels.
Water	• Stormwater controls in place, • No net increase in levels of acidification or toxic substances, heavy metals, nutrient and sediment levels; and • No net reduction in quality of water bodies as aquatic habitats.
Air	• No net reduction in air quality; Air controls in place; and • Comparable reduction in the use of “greenhouse” gas emissions through site location and management.
Energy	• Programs to reduce the use of fossil fuels for transportation and energy consumption in general; and • Increase in efficiency of transport for inputs and outputs.

The environmental management plan will be used to maintain the principles of ESD. The environmental management plan will be continually updated to ensure all new environmental measures are incorporated in line with the precautionary principle.

6.7 ROAD, TRAFFIC AND TRANSPORT

A Specialist Traffic and Transport Assessment of the proposed development was undertaken by Transport and Urban Planning. A summary of the findings is provided in point form below:

- Traffic counts at two intersections at each end of Long Street were undertaken and SIDRA modelling for current operations and operations with additional traffic from the proposal was carried out.

  Long Street / Gipps Street
  With additional traffic from the proposal, average delays in the AM peak would be unchanged and the PM peak would see an increase of 0.6 seconds. Level of service remains at C (satisfactory).

  Long Street / Cumberland Highway
  Average delays in the AM peak would be unchanged and an increase of 0.1 second at the PM peak would result from additional traffic from the proposal. Level of service remains at B (good).

  From the SIDRA analysis, there is expected to be small changes to signal operation and a negligible impact on the surrounding road network as a result of the proposal.

- The existing six (6) metre wide two way driveway would remain. The driveway already has "no stopping" restrictions on both sides and sight distances along Long Street from the driveway are satisfactory. HRV's will be able to enter and leave in a single left or right turn movement in accordance with AS 2890.2–2002.

- The proposal includes provision of nine (9) car parking spaces – three (3) spaces at the front of the site and six (6) at the rear. This exceeds the anticipated number of spaces needed for staff and visitors and also exceeds the number of spaces required in the RMS Guide for warehouses.

- Up to two (2) truck trips per hour between 7am to 6pm Monday to Friday would be generated; up to 22 truck trips per day. These will be HRV in size and a 12.5 m radius turning circle would be available in the rear yard for truck manoeuvring. Trucks would be able to enter and leave the site in a forward direction.

The report concludes that *"… the proposed development will be a low traffic generator and there will be a very low traffic impact on the surrounding road system. The access driveway and internal manoeuvring areas are satisfactory for the size and volume of vehicles that will access the site. Sufficient on site car parking is available for all staff and visitors."*

The complete report is provided as Appendix 2 of this EIS.

7. ENVIRONMENTAL IMPACTS AND SAFEGUARDS – CUMULATIVE IMPACTS

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions (Hegmann *et al.* 1999). An assessment of cumulative effects considers the combined and incremental impacts of a proposed development with existing and future developments in mind.

There is no prescribed method to undertake a cumulative impact assessment, the approach is usually dependent on the nature and scale of the proposal. This cumulative impact assessment broadly follows the guiding principles of the "Cumulative Effects Assessment Practitioners Guide", prepared for the Canadian Environmental Assessment Agency (Hegmann et al 1999).

The proposed development is for a sludge dewatering facility to be located within an industrial area of Smithfield.

This cumulative assessment considers the local impacts on potential land use, water, noise, air quality, traffic, flora and fauna, heritage, and visual impacts associated with the proposed development.

7.1 METHODOLOGY

Valued Ecosystem Components (VEC) were determined based on issues raised by Regulatory Authorities during the planning process and outcomes of assessments undertaken as part of the EIS. Table 7-1 presents the VEC's and the related regional issues of concern and indicators. It has been used as a guide in assisting assessment of cumulative impacts.

Table 7-1: Valued Ecosystem Components

Environmental Component	Regional Issues of Concern	Indicators
Waste management	Potential environmental and off-site impacts associated with an incident or recurring incidents involving the incoming waste and generation of waste products.	Waste data, waste classification, annual waste reports
Hazards and Risk	Hazards and risk involving chemicals and fire are minor due to the limited quantities stored and nature of the materials and processes proposed. The main issue in relation to hazards and risk would be an incident involving the release of sludge.	Incident reports
Air quality and odour	Dust, particulates, greenhouse gas emissions and impact of these emissions on nearby private receptors. Odour was considered to be negligible in the air assessment.	Visual emissions, Dust and particulate concentrations at sensitive receptors.

Table 7-1: Valued Ecosystem Components

Environmental Component	Regional Issues of Concern	Indicators
Noise and vibration	Annoyance due to noise generated by the use of equipment on site, and vehicles entering the site	Noise levels at sensitive receptors.
Soil and Water	Contamination of stormwater run-off and off-site impacts on nearby waterways and subsequently groundwater. Flooding issues.	Changes in water quality of nearby waterway. Flood hazard established as low.
Traffic and transport	Increased traffic in existing road network and the ability to support this increase.	Traffic volumes and noise levels.
Flora and Fauna (Biodiversity)	Potential impacts on any existing Flora and Fauna.	Presence of Flora and Fauna (including Threatened Species and Native Vegetation) – None at or close to site.
Visual	Visual impacts of the proposed site changes.	Changes negligible to visual appearance of site.
Heritage	Potential impacts on any existing heritage items	Presence of Heritage items on or close to site – none.

According to the above table, the following needs to be discussed further in relation to cumulative impacts:

- Waste – Management of waste on site;
- Hazards and risks – associated with an incident involving the release of sludge to the environment;
- Air quality – Dust, particulates, greenhouse gas emissions and impact of these emissions on nearby private receptors;
- Noise – Noise levels at sensitive receptors;
- Soil and Water – Contamination of stormwater run-off and off-site impacts on nearby waterways and subsequently groundwater. Flooding issues.
- Traffic and transport –traffic levels and volumes

7.2 SURROUNDING LAND USES

The proposed site is within an existing industrial estate and is bordered in all directions by neighbouring industrial facilities.

The nearest residential area is in Smithfield approximately 380m to the South of the site within the Fairfield Local Government Area. There are areas zoned “public recreation” 100m to the north east (Tait Street Park) and 230m to the south west along the foreshore of Prospect Creek. Adjacent to the public recreation area along Prospect Creek, closer to the creek is land zoned “environmental conservation”.

Cumulative impacts associated with the proposed development and surrounding land uses listed above have been divided into biophysical and socio-economic impacts and presented in the following sections.

7.3 INFRASTRUCTURE REQUIREMENTS

The site is a well established small industrial site containing one building, existing driveways and hardstand areas as well as car parking spaces. Additional parking spaces would be established.

The site is connected to mains water, domestic sewer and a conditional consent has been issued for discharge of tradewaste to Sydney Water sewer system. Stormwater infrastructure exists and is considered adequate for the proposal.

No transportation upgrades are required.

All infrastructure required for the proposed development exists. Therefore, there would be no long term impact as a result of additional infrastructure for the proposed development.

7.4 CUMULATIVE BIOPHYSICAL IMPACTS

7.4.1 Waste Management

The valued ecosystem components identified in Table 7-1 found that in terms of waste management required for the proposed development, potential environmental and off-site impacts would be associated with an incident or recurring incidents involving the incoming waste and the generation of waste products. Incidents include accidental spillages that have the potential to enter the surrounding environment causing land and water pollution. The following should be noted:

- The nature of the incoming waste is a mixture of soil and water from construction sites. An incoming waste procedure would be established to ensure that waste material accepted at the site would not be hazardous or contain hazardous materials.
- The treated waste would consist of wastewater that would be regularly tested to ensure it is suitable to be sent back to the site of origin or to tradewaste, as well as filter cake which would be tested to ensure it is able to be disposed of as general waste (non-putrescible).
- Safeguards would be established at the site to prevent release of the waste including bunded areas and spill kits.
- An Environmental Management Plan, Emergency Plan and Pollution Incident Response Management Plan would be implemented.
- Personnel would be trained in how to respond in the event of an incident.

With stringent procedures and safeguards in place, cumulative impacts of handling and management of waste would be negligible.

7.4.2 Hazards and risk

Hazards and risk associated with the proposed development are related to spillage or release of the incoming sludge, bi-products and chemicals stored at the site. Cumulative impacts are not expected due to the following:

- The procedures and safeguards listed in Section 7.4.1;
- Minor quantities of chemicals (up to 150L) stored and used at the site; and
- Chemicals would be stored in a bunded area.

7.4.3 Air quality

The air quality impact from the proposed development has been assessed in accordance with the NSW EPA *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*. This provides for cumulative air impacts to be determined, hence assessing the cumulative impact on the community.

Odour is not considered a potential source of air emissions due to the nature of the sludge being a mix of soil and clean water. Furthermore, emissions of dust associated with the operation of the SMU are expected to be negligible therefore modelling was not considered warranted.

The conclusions of the AQIA suggest that there would be negligible long term air impacts as a result of the proposed development.

7.4.4 Noise

Operational noise is a critical environmental impact in any industrial area with surrounding residential receivers. This, in itself, should not preclude development but rather result in the development and application of management plans for these employment generating areas. The existing background noise levels were used in the modelling of potential environmental impacts associated with the operational phase of the proposed development. Traffic noise was also assessed, hence assessing the cumulative impact on the community.

All relevant EPA noise criteria were readily satisfied, provided that all recommended noise controls are maintained throughout the life of the facilities operation.

7.4.5 Soil and Water

Potential for long term impacts to soil and water as a result of the proposed development are related to a spillage or release of waste or chemicals resulting in contamination of stormwater run-off and off-site impacts on nearby waterways and subsequently groundwater.

As discussed in Section 7.4.1, the potential for release of waste or chemicals from the site would be unlikely and able to be contained on the site. Therefore cumulative long term impacts are considered to be negligible.

7.5 CUMULATIVE SOCIO-ECONOMIC IMPACTS

7.5.1 Traffic

A traffic impact assessment was undertaken by Transport and Urban Planning found that additional traffic associated with the proposed development was not excessive and the existing road network would be able to support this increase.

7.6 STATEMENT OF CUMULATIVE IMPACTS

With the recommended control measures and management procedures in place, potential cumulative impacts from the operation of the proposed development would be largely avoided.

8. MITIGATION MEASURES

This section provides a summary of the mitigation measures required to ensure the surrounding environment is safeguarded from potential impacts of the proposed development and an outline of the management plans required to be implemented.

8.1 SUMMARY OF IMPACTS, CONTROLS AND MITIGATION MEASURES

Table 8-1 presents a summary of potential impacts of the site activities and identifies the environmental safeguards and control measures recommended throughout the EIS that are considered to provide a sufficient level of protection to the surrounding built and natural environment.

Table 8-1: Summary of Potential Impacts, Environmental Safeguards and Control Measures

Environmental Aspect	Potential Impact	Recommended Safeguards and Control Measures
Air Quality	Dust, particulates, greenhouse gas emissions and impact of these emissions on nearby private receptors considered negligible. Negligible potential odour.	• Dewatering operations undertaken within enclosed building • Filter cake stored in skip bins within enclosed building • Covered, designated waste bins
Noise	Annoyance due to noise generated by the use of equipment on site, and vehicles entering the site.	• All operational activities undertaken within an enclosed building • No further noise controls considered necessary
Soil and Water	Contamination of stormwater run-off and off-site impacts on nearby waterways and subsequently groundwater.	• Stored in bins • Testing of tradewaste prior to discharge • Licensed transport vehicles • Spill kits
Waste Management	Potential environmental and off-site impacts associated with an incident or recurring incidents involving the incoming waste and generation of waste products.	• Incoming waste procedure • Waste classification procedure • Bunded, enclosed building • Bunded, roofed water tanks • Bunded, roofed chemical storage areas • Testing of tradewaste prior to discharge • Licensed transport vehicles • Spill kits
Flora and Fauna	No threatened species or native vegetation on or close to site.	• None required.

Table 8-1: Summary of Potential Impacts, Environmental Safeguards and Control Measures

Environmental Aspect	Potential Impact	Recommended Safeguards and Control Measures
Hazards and Risk	Incident involving the release of sludge. Hazards and risk involving chemicals and fire are minor due to the limited quantities stored and nature of the materials and processes proposed.	• Incoming waste procedure • Waste classification procedure • Bunded, enclosed building • Bunded, roofed water tanks • Bunded, roofed chemical storage areas • Testing of tradewaste prior to discharge • Licensed transport vehicles • Spill kits • Fire services & equipment
Heritage	No heritage items on or close to site.	None required.
Traffic and transport	Existing road network would support the minor increased in traffic associated with the development.	None required.
Visual	Changes due to proposed development negligible to visual appearance of site.	None required.

8.2 SITE MANAGEMENT PLANS

Site Management Plans including the following reports should be established by the proponent prior to operation commencing:

- Emergency and Pollution Incident Response Management Plan; and
- Environmental Management Plan (EMP)

An outline of these reports is provided in the following sections.

8.2.1 Emergency and Pollution Incident Response Management Plan

Holders of environment protection licences (EPL) under the *Protection of the Environment Operations Act, 1997* are required to prepare and implement pollution incident response management plans for each licensed activity.

A Pollution Incident Response Management Plan would be incorporated into the site's Emergency Plan for ease of use to make the document an "Emergency and Pollution Incident Response Management Plan".

The plan would be prepared in accordance with the following:

- NSW Rural Fire Service Guidelines for the Preparation of Emergency/Evacuation Plans;
- AS 3745–2010: Planning for Emergencies in Facilities; and

- NSW EPA Environmental Guidelines: Preparation of Pollution Incident Response Management Plans.

The aims of the plan are:

- Provide a clear understanding of how to handle and react to any emergency or pollution situation that may occur at the Site in the form of effective control structures, procedures and directives;
- Prevent or minimise the impact of an emergency and pollution incident on human life, the community and surrounding environment; and
- Facilitate a return to *normal* or *safe* operations as soon as possible.

The procedures contained in the plan would be designed to protect life and where possible prevent or minimise damage to the equipment, site and installations at the site and facilitate a return to normal operations by providing effective utilisation of the safety features, systems and equipment installed at the site to protect people from fire and other emergencies.

The plan would contain information and instructions that provide a basis for handling various types of emergency situations, such as:

- fire,
- explosion,
- pollution incident,
- medical emergency,
- spills,
- gas-leaks, and
- bomb threats.

These instructions would be provided as continually improving guidelines to be adapted to cope with unanticipated situations.

8.2.2 Environmental Management Plan

An Environmental Management Plan would be prepared to aid environmental management of the site operations.

The EMP would address the following major elements:

- Legal and regulatory requirements;
- Site description including environmental characteristics and general infrastructure;
- Operational conditions and controls;
- Environmental management activities in relation to particular aspects and impacts;
- Reporting, staffing and training requirements;
- Environmental monitoring and review; and
- Environmental procedures.

The EMP would adopt the framework from the ISO 14001 standard. This would maximise consistency and simplicity in the administration and overriding policies, implementation and training of the EMP procedures. The environmental aspects and impacts of the activities would be identified and procedures developed to manage these impacts.

The implementation and operation element of the EMP would address the critical function of training and competency of the EMP. This would be the basis of the Environmental Management for the site.

Specific procedures deemed required for successful environmental management of the site are outlined below.

8.2.2.1 Workplace Inspections

A Workplace Inspection is a procedure aimed at ensuring a high standard of housekeeping is maintained in all operational, storage and external areas. Good housekeeping practices are beneficial for providing both preventative maintenance and prompt corrective actions should an environmental incident occur. The simplest method of implementing a workplace inspection would be by using a standard checklist. This would be provided in the EMP.

8.2.2.2 Incoming Waste Procedure

The incoming material is waste slurry produced as a result of non-destructive digging resulting is essentially a mixture of soils and water combined (sludge). An incoming waste procedure would be required to ensure that no hazardous materials are accepted at the site. This would be established by confirmation prior to acceptance of any loads at the site.

Acceptance of this waste would require the site of origin to confirm that the soil is not contaminated in any way. This would be confirmed through confirmation from the customer that the site has not been previously disturbed or that no potentially contaminating activities have previously taken place at the site. Should there be potential for contamination, testing to confirm the nature or waste classification of the soil would be required. Testing would be undertaken in accordance with the Waste Classification Procedure.

Step by step instructions would be provided in the Procedure to ensure incoming waste is not hazardous.

8.2.2.3 Waste Classification Procedure

Regular testing of the filter cake is recommended to be undertaken within the first year of the facility's operation to ascertain its waste classification. Due to the origin of the incoming slurry being from different sites with different soils, it is recommended that the resulting filter cake be tested using the specific contaminant concentration (SCC) method detailed in *Step 5: Determining a waste's classification using chemical assessment* in the NSW EPA Waste Classification Guidelines.

A procedure detailing the method for sampling, sampling frequency, sampling equipment, testing procedure and laboratory requirements would be detailed in the EMP. Review of the procedure after the first year of operation is recommended to determine whether testing of the filter cake needs to be continued.

9. STATEMENT OF COMMITMENTS

DEMAST Pty Ltd commits to the following course of action during the operation of the sludge dewatering facility at 7 Long Street Smithfield:

1. DEMAST will abide by all legal requirements, licence conditions and approvals pertaining to the site.

2. DEMAST will ensure the external areas are kept tidy and free of items to allow trucks to enter and leave in a forward direction.

3. DEMAST will implement and maintain the following safeguards and mitigation measures detailed in Section 8.1 of this EIS at the site including:

   i) Undertake all sludge dewatering activities within the existing enclosed building;
   ii) Daily motorised sweeping and application of water sprays to control dust and maintain good housekeeping of the site;
   iii) Storage of filter cake within skip bins inside the building;
   iv) Provide bunding to the building to a height of 100 mm. Bunding should be constructed of an impervious material and be maintained in good working condition to prevent the escape of any spillages within the building;
   v) Provide a bunded area within the building for the water holding tanks to a capacity of at least 110% of the largest tank within the bunding. Bunding should be constructed of an impervious material and maintained in good working condition;
   vi) Provide a bunded area within the building for the minor storage of chemicals;
   vii) Provide particulate pollutant traps and drains covers on all stormwater drains and maintain these in good working condition;
   viii) Provide spill kits;
   ix) Implement an incoming waste procedure;
   x) Implement a waste classification procedure;
   xi) Provide designated covered waste bins;
   xii) Ensure all waste and recycling contractors used are licensed;
   xiii) Provide fire services in accordance with BCA and relevant Australian Standards; and
   xiv) Ensure sources of ignition are controlled.

4. DEMAST will implement a site specific Environmental Management Plan and ensure it is updated to incorporate these commitments, safeguard measures and recommendations documented in this EIS.

5. DEMAST will implement an Emergency & Pollution Incident Response Management Plan at the site.

10. JUSTIFICATION AND CONCLUDING REMARKS

This section of the EIS examines the justification for the proposal and provides concluding remarks.

10.1 PROJECT JUSTIFICATION

The proposed development addresses an environmental by-product associated with many construction projects in the Sydney area by providing a permanent site to process this waste. It provides an environmental solution to the processing of slurry while achieving water positive recycling activities.

The development is justified for the following reasons.

- Recycling of wastes into products that have the potential to be reused is of vital importance to the wider community of Sydney and is strongly encouraged.
- The facility provides a permanent site to process waste generated by many construction projects across the Sydney area.
- The process provides an environmental solution to the processing of slurry producing reusable bi-products. Approval of the operations and allowing a facility that accepts this waste for recycling need to be supported.
- The site is not in a sensitive land use area.
- The development is a permitted use with consent.
- The development is a beneficial use as it fulfils the principles of ecologically sustainable development and is to be encouraged.
- The development generates local employment.
- The existing site has ample room available to house the operations.

10.1.1 Precautionary Principle

There are a number of aspects to the precautionary principle to which the proposal is evaluated.

10.1.1.1 Inter-Generational Equity

In simple terms this principle equates to the current generation to give consideration to their consumption of future generation's rights to an equal share of the Earth's resources.

The current consumption of fossil fuels and the diminishing resources of oil is the most glaring example of Inter-Generational Equity.

For the development the benefits of providing a permanent facility to process sludge generated by Sydney's construction industry generates significant benefits including the opportunity for the industry to have access to this alternate inexpensive technology.

The selection of the site avoiding the need to develop and construct new buildings provides a significant advantage in saving resources. The location of the site with direct access to State Road Network on the Cumberland Highway benefits transportation requirements.

10.1.1.2 Conservation of Biological Diversity and Ecological Integrity

The studies of flora and fauna and other associated environmental impacts for the proposal were undertaken so that the potential for biodiversity and ecological sensitivity of the site could be evaluated.

The study found that the site does not pose any threat to the ecological integrity of the surrounds.

10.1.1.3 Improved Valuation, Pricing and Incentive Mechanisms

The relevance of this aspect is assessed against the opportunities that the development provides for the business entity.

The site operations provide competitive pricing for acceptance and treatment of construction sludge. This would encourage efficiencies and incentives to achieve a high level of utilisation of the plant.

This is considered to fulfil the intent of the third aspect of the Precautionary Principle.

10.2 CONCLUDING REMARKS

The environmental assessment process has enabled the potential impacts to be evaluated and control strategies devised to ensure compliance with regulatory standards would be achieved.

The use of a site that is already developed with buildings and infrastructure in place is a major advantage. Being readily able to prevent the rise of amenity impacts on the residential community is also a benefit of this site.

The development is considered to be suited to this site and the request is made that approval be granted.

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11. REFERENCES

ABS, *Australian Bureau of Statistics*, 2011

Australian Greenhouse Emissions Information Systems (AGEIS)
http://ageis.climatechange.gov.au/

BioNet Atlas, NSW Wildlife, 2010-2015

BoM, *Bureau of Meteorology*, Horsley Park AWS Monitoring Station 67119, Meteorological File, 2014 Complete Year

Department of Environment, Climate Change and Water NSW, Environmental Benefits of Recycling, June 2010

Department of Climate Change and Energy Efficiency, National Greenhouse Accounts Factors, July 2011

Environmental Planning and Assessment Act 1979 (EP&A)

Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act)

Fairfield City Council, 5 Creeks Facts and Figures, All about Prospect Creek Catchment,
http://www.fairfieldcity.nsw.gov.au/upload/bwztj47212/Facts_Figures_doc_creek.pdf

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment

Georges River Combined Council's Committee, Georges River Estuary Coastal Zone Management Plan, July 2013

Holroyd City Council, *Holroyd Development Control Plan, 2013* (NSW)

Holroyd City Council, *Holroyd Local Environmental Plan 2013* (NSW)

Holroyd City Council, *Proposed Holroyd Local Environmental Plan 2013 – Housekeeping Amendements 2014* (NSW)

National Carbon Accounting Toolbox
http://www.climatechange.gov.au/government/initiatives/ncat.aspx

National Greenhouse Accounts (NGA) Factors, Australian Department of Climate Change (Latest release)

National Greenhouse and Energy Reporting System, Technical Guidelines (latest release) http://www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/tools-resources.aspx

Native Vegetation Act 2003

National Pollutant Inventory Emission Estimation Technique Manuals for *Sewage Sludge and Biomedical Waste Incineration* (1999)

National Pollutant Inventory Emission Estimation Technique Manuals for *Sewage and Wastewater Treatment* Version 2.1 (2011)

National Pollutant Inventory Emission Estimation Technique Manuals for *Fugitive Emissions,* (2012)

NSWEPA, New South Wales Environment Protection Authority, *"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales"*, 2005

NSWEPA, *New South Wales Environmental Protection Authority "Industrial Noise Policy"*

NSWEPA, *New South Wales Environmental Protection Authority "Road Noise Policy"*

NSWEPA, *New South Wales Environment Protection Authority*, Air Quality Data, Prospect Monitoring Station, 2014

NSWEPA, *New South Wales Environment Protection Authority* , Water Quality and River Flow Objectives, 2006

NSW Government, Land Property and Information, *Six Maps*, Accessed 2015

NSW Heritage Act 1977

Protection of Environment Operations Act, 1997

Protection of Environment Operations Regulation (Clean Air), 2010

State Environmental Planning Policy No 19 – Bushland in Urban Areas

State Environmental Planning Policy No 21 – Caravan Parks

State Environmental Planning Policy No 32 – Urban Consolidation (Redevelopment of Urban Lands)

State Environmental Planning Policy No 55 – Remediation of Land.

State Environmental Planning Policy No 64 – Advertising and Signage.

State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development.

State Environmental Planning Policy (Infrastructure) 2007.

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

State Environmental Planning Policy (Affordable Rental Housing) 2009.

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.

State Environmental Planning Policy No (Mining, Petroleum Production and Extractive Industries) 2007.

Sydney Regional Environmental Plan No 9 – Extractive Industry (No 2 - 1995).

Sydways Publishing Pty Ltd, Online Maps

The Greenhouse Gas Protocol: Corporate Standard, World Council for Sustainable Business Development & World Resources Institute http://www.ghgprotocol.org/standards/corporate-standard

Threatened Species Conservation Act 1995

USEPA, United States Environment Protection Authority, AP 42, Compilation of Air Pollutant Emission Factors

APPENDICES

Appendix 1: SEARS

Environmental Assessment Requirements

Section 78A (8) of the *Environmental Planning and Assessment Act 1979.*

Designated Development

SEAR Number	958
Proposal	Construction of a sludge dewatering plant, capable of processing approximately 50,000 tonnes per annum.
Location	7 Long Street, Smithfield, Holroyd LGA (Lot 16 DP 238072)
Applicant	DEMAST Pty Ltd
Date of Issue	August 2015
General Requirements	The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*
Key Issues	The EIS must include an assessment of all potential impacts of the proposed development on the existing environment (including cumulative impacts if necessary) and develop appropriate measures to avoid, minimise, mitigate and/or manage these potential impacts. As part of the EIS assessment, the following matters must also be addressed. • **strategic context** – including: – a detailed justification for the proposal and suitability of the site for the development; – a demonstration that the proposal is consistent with all relevant planning strategies, environmental planning instruments, development control plans (DCPs), or justification for any inconsistencies; and – a list of any approvals that must be obtained under any other Act or law before the development may lawfully be carried out. • **waste management** – including: – details of the type, quantity and classification of waste to be received at the site; – details of the resource outputs and any additional processes for residual waste; – details of waste handling including, transport, identification, receipt, stockpiling and quality control; and – the measures that would be implemented to ensure that the proposed development is consistent with the aims, objectives and guidelines in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.* • **hazards and risk** – including: – a preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* and Applying SEPP 33 (DoP, 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the development. Should preliminary screening indicate that the project is "potentially hazardous" a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). • **air quality and odour** – including: – a description of all potential sources of air emissions and odour; – an air quality impact assessment in accordance with relevant Environment Protection Authority Guidelines; and – a description and appraisal of air quality impact mitigation and monitoring measures. • **noise and vibration** – including:

	- a description of all potential noise and vibration sources during construction and operation, including road traffic noise; - a noise and vibration assessment in accordance with the relevant Environment Protection Authority Guidelines; and - a description and appraisal of noise and vibration mitigation and monitoring measures. • **soil and water** – including: - a description of local soils, topography, drainage and landscapes; - the details of stormwater, leachate, and wastewater management; - the details of sediment and erosion controls; - the details of water usage including water supply and licences; - an assessment of impacts to surface and groundwater resources, soil and agricultural resources, flooding impacts, and impacts to groundwater dependant ecosystems; and - a description and appraisal of impact mitigation and monitoring measures. • **traffic and transport** – including: - details of road transport routes and access to the site; - road traffic predictions for the development during construction and operation; and - an assessment of impacts to the safety and function of the road network and the details of any road upgrades required for the development. • **incident management** – including technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill cleanup equipment and fire management and containment measures. • **biodiversity** – including a description of any vegetation clearing that may be required. • **visual** – including an impact assessment at private receptors and public vantage points. • **heritage** – including Aboriginal and non-Aboriginal cultural heritage.
Environmental Planning Instruments and other policies	The EIS must assess the proposal against the relevant environmental planning instruments, including but not limited to: • *Holroyd Local Environmental Plan 2013*; • *State Environmental Planning Policy (Infrastructure) 2007*; • *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;* and • Relevant development control plans and section 94 plans.
Guidelines	During the preparation of the EIS you should consult the Department's Register of Development Assessment Guidelines which is available on the Department's website at planning.nsw.gov.au under Development Proposals/Register of Development Assessment Guidelines. Whilst not exhaustive, this Register contains some of the guidelines, policies, and plans that must be taken into account in the environmental assessment of the proposed development.
Consultation	During the preparation of the EIS, you must consult the relevant local, State and Commonwealth government authorities, service providers and community groups, and address any issues they may raise in the EIS. In particular, you should consult with the: • Holroyd City Council; • Environment Protection Authority; • Roads and Maritime Services; • Department of Primary Industries; and • The surrounding landowners and occupiers that may be impacted by the proposal. Details of the consultation carried out and issues raised must be included in the EIS.

Further consultation after 2 years	If you do not lodge an application under Section 78A (8) of the *Environmental Planning and Assessment Act 1979* within 2 years of the issue date of these SEARs, you must consult with the Secretary in relation to any further requirements for lodgement.

Patrick Copas

From: JEGATHESAN Jana <Jana.JEGATHESAN@rms.nsw.gov.au>
Sent: Wednesday, 29 July 2015 2:50 PM
To: Patrick Copas
Subject: RE: Request for Input - SEAR 958 - Sludge Dewatering Plant - Smithfield - Holroyd LGA

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: SEAR Response

Hi Patrick,

Please find Roads and Maritime comments regarding subject development. Roads and Maritime provide the following comments for the Sludge Dewatering Plant:

1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvements works (if required).

   The key intersections to be examined/modelled include:

   - Long Street/Cumberland Highway
   - Long Street/Gipps Road

2. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).

3. Proposed number of car parking spaces and compliance with the appropriate parking codes.

4. Details of service vehicle movements (including vehicle type and likely arrival and departure times).

Regards,

Jana Jegathesan
Land Use Planner
Network Management | Journey Management
T 02 8849 2313
www.rms.nsw.gov.au
Every journey matters

Roads and Maritime Services
Level 7 27 Argyle Street Parramatta NSW 2150

From: Patrick Copas [mailto:Patrick.Copas@planning.nsw.gov.au]
Sent: Tuesday, 21 July 2015 2:53 PM
To: Development Sydney; planning.matters@environment.nsw.gov.au; landuse.enquiries@dpi.nsw.gov.au
Cc: water.referrals@dpi.nsw.gov.au
Subject: Request for Input - SEAR 958 - Sludge Dewatering Plant - Smithfield - Holroyd LGA

Proposal – Sludge Dewatering Plant, 7 Long Street, Smithfield (Lot 16 DP 238072), EARs ID No. 958

Good Afternoon

DEMAST Pty Ltd (the Applicant) has requested the requirements of the Secretary of the Department of Planning and Environment for the preparation of an Environmental Impact Statement (EIS) for the above local designated development located in the Holroyd LGA. The proposal is for a sludge dewatering plant, capable of processing up to 50,000 tonnes of waste each year.

Under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000,* the Secretary is requesting your requirements for the EIS.

It would be greatly appreciated if we could receive your advice by **COB 4 August 2015**, otherwise the Secretary (or Delegate) will advise the Applicant to consult you directly for your requirements. If this occurs, it would be appreciated if you would forward a copy of any requirements to us for our records.

I have attached a copy of the applicant's request and accompanying report for your reference.

If you have any questions regarding the proposal, please do not hesitate to contact me on the details below.

Kind Regards

Patrick Copas
Student Planner
Industry Assessment
Department of Planning & Environment
Level 3, Room 311 | 23-33 Bridge Street | GPO Box 39 SYDNEY NSW 2001
T 02 9228 6466 E patrick.copas@planning.nsw.gov.au

NSW GOVERNMENT | Planning & Environment

Industry Assessments
Contact: Patrick Copas
Phone: (02) 9228 6466
Fax: (02) 9228 6455
Email: patrick.copas@planning.nsw.gov.au

R T Benbow
Benbow Environmental Pty Ltd
PO Box 687
PARRAMATTA NSW 2124

15/11289

Dear Mr Benbow

Sludge Dewatering Plant, 7 Long Street, Smithfield, Holroyd LGA
Secretary's Environmental Assessment Requirements (SEAR) 958

Thank you for your request for the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the above development proposal. I have attached a copy of these requirements.

In support of your application, you indicated that your proposal is both designated and integrated development under Part 4 of the *Environmental Planning and Assessment Act 1979* and requires an approval under the *Protection of the Environment Operations Act 1997*.

In preparing the SEARs, the Department has consulted with the Environment Protection Authority, the Roads and Maritime Services and the Department of Primary Industries – Water. A copy of their requirements for the EIS is attached.

If other integrated approvals are identified before the Development Application is lodged, you must undertake your own direct consultation with the relevant agencies, and address their requirements in the EIS.

You should ensure that the EIS characterises the development in a manner for the consent authority to be satisfied that the proposal is not State significant development.

If your proposal contains any actions that could have a significant impact on matters of National Environmental Significance, then it will require an additional approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. If you have any questions about the application of the EPBC Act to your proposal, you should contact the Commonwealth Department of the Environment on (02) 6274 1111.

Should you have any further enquiries, please contact Patrick Copas, Planning Services, at the Department on (02) 9228 6466.

Yours sincerely

C. Ritchie 14/9/15

Chris Ritchie
Director
Industry Assessments
as delegate of the Secretary

Department of Planning & Environment
Sydney NSW 2001

Attention: Patrick Copas

Notice Number	1532640
File Number	EF15/12222
Date	03-Aug-2015

RE: Proposal – Sludge Dewatering Plant, 7 Long Street, Smithfield (Lot 16 DP 238072), EARs ID No. 958

I refer to your request for the Environment Protection Authority's (EPA) requirements for the Environmental Impact Statement (EIS) in regard to the above proposal received by EPA on 21 July 2015.

The EPA has considered the details of the proposal as provided by Demast Pty Ltd (the Proponent) and has identified the information it requires to issue its general terms of approval in Attachment A. In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

1. Air quality issues (including odour and dust management);

2. Noise impacts;

3. Waste and chemical management; and

4. Stormwater management and wastewater management.

In carrying out the assessment, the proponent should refer to the General EIS requirements outlined in Attachment B, relevant guidelines as listed in Attachment C and any relevant industry codes of practice and best practice management guidelines.

Please note that this response does not cover biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

The Proponent should be made aware that any commitments made in the EIS may be formalised as approval conditions and may also be placed as formal licence conditions.

The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* (the Act) the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and required as a condition of an Environment Protection Licence (EPL).

In addition, as a requirement of an EPL, the EPA will require the Proponent to prepare, test and implement a Pollution Incident Response Management Plan and/or Plans in accordance with Section 153A of the Act.

The EIS must provide sufficient information for a full assessment of the proposed works against the EPA's statutory responsibilities and in particular, the requirements of section 45 of the Act in order for the EPA to provide appropriate general terms of approval.

The EPA requests that an electronic copy of the EIS be submitted for assessment. This document should be sent to waste.operations@epa.nsw.gov.au.

If there are any questions about this matter, please contact Alex Bourne on (02) 9995 5595.

Yours sincerely

9995 5795

131 555

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Jacqueline Ingham

Unit Head

Waste & Resources - Waste Management

(by Delegation)

ATTACHMENT A

Specific Environmental Impact Statement Requirements

Demast Pty Ltd - Sludge Dewatering Plant, 7 Long Street, Smithfield (Lot 16 DP 238072), EARs ID No. 958

1. Air Quality

The EIS should include a detailed air quality and impact assessment ("AQIA") provided by a suitably qualified expert. The AQIA should:

Describe baseline conditions

- Provide a description representing the existing land uses and surrounding land uses of the Premises;
- Detail the existing air quality in the area including supporting data; and
- Contextualise the proposal within the receiving environment (local, regional and inter-regional where appropriate) including a description of meteorology and climate; topography; surrounding land use and receptors; and ambient air quality.

Assess impacts

- An air impact assessment must be conducted by a suitably qualified expert in line with the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2011). All processes that could result in air pollution must be identified and described in a detailed description of the proposal (including construction and operational stages). A sufficient level of detail will be required to accurately communicate and characterise and quantity of all emissions proposed on the Premises; and
- A quantitative assessment of the air quality impacts arising from the project on surrounding landowners and sensitive receptors (particularly dust and odour).
- Include air dispersion modelling where there is a risk of adverse air quality impacts, or where there is sufficient uncertainty to warrant a rigorous numerical impact assessment. Air dispersion modelling must be conducted in accordance with the approved *Methods for the Modelling and Assessment of Air Pollutants in NSW 2005*, which can be accessed via http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf

Management and mitigation

- Provide an air pollutant management plan that must include details of the various methods that will be employed to control pollutants (with particular reference to dust) at the Premises, including operational practices and specifications of pollution control equipment (including manufacturer's performance guarantees where available).
- Demonstrate the proposal's ability to comply with the relevant regulatory framework, particularly the *Protection of the Environment Operation Act 1997* ("the POEO Act") and the *POEO Clean Air Regulation 2010.*
- Include a consideration of worst case emission scenarios and impacts at proposed emission limits.

2. Noise

The EIS should address the following matters in relation to noise, for all stages of the proposal (including construction and operational stages).

Describe baseline conditions

- Determine the existing background ambient noise levels in accordance with the *NSW Industrial Noise Policy, 2000.*
- Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy.*

Assess impacts

A noise assessment must be undertaken by a suitably qualified consultant in accordance with *NSW Industrial Noise Policy, 2000.* The assessment must:

- Identify all existing and proposed noise sources from the Premises;
- Identify any noise sensitive locations which may be affected by activities at the Premises.
- Quantify the cumulative noise impacts of the Premises for surrounding receivers.
- Assess all construction noise associated with the proposal using the *Interim Construction Noise Guideline* (DECC, 2009). Accessed via http://www.environment.nsw.gov.au/noise/constructnoise.htm .
- Specify the proposed operating hours for the Premises and the types of machinery used during this period. If the development is proposing to operated 24 hours a day, seven days a week, an assessment of the maximum noise levels during the night-time period (10pm-7am) needs to be analysed.
- Assess any increased road traffic generated at the Premises. Include details such as locations of access roads, internal roads, and potential environmental impacts from increased vehicle movements as a result of the proposal.

Management and mitigation

- Determine noise management and mitigation measures including appropriate controls for both construction and operational noise.
- In relation to traffic noise impacts, provide a description of any improvement measures considered. These may include an investigation into the use of alternative transportation modes, alternative routes, or other methods of avoiding the excessive road usage.
- Describe ongoing mitigation and management measures in regards to noise that will be employed throughout the life of the proposal. This may include limiting traffic times or speeds, resurfacing roads, or using noise barriers or bunds.

3. Waste and Chemical Management

The EIS should:

Describe baseline conditions

- Describe any waste or chemical operations related to the Premises.

Assess Impacts

- Provide details regarding the source, quantity and types of all wastes that will be generated accepted, handled, processed or treated at the Premises.
- Waste both incoming and outgoing from the Premises will need to be classified in accordance with the *EPA's Waste Classification Guidelines 2014.*
- Provide details regarding the proposed transportation, receival, and handling of waste to arrive at or be generated at the Premises;
- Detail the wastes to be stored at the Premises including the estimated average and maximum amount of materials to be stored at any one time and per annum; stockpile heights; the approximate locations of these stockpiles; and the proposed containment of materials and stockpiles;
- Assess each waste processing activity related to the proposal, including reuse, recycling, reprocessing or treatment of waste;
- Assess the estimated emissions arising from the handling, storage, treatment, processing and reprocessing of waste at the Premises.
- Provide details of the methods and locations for disposing of wastes recovered or produced from the Premises.
- Provide details of the methods and processes that will be employed to produce recycled or processed waste materials so that they comply with the requirements of the POEO Act and the POEO *(Waste Regulation) 2014.*
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.

Management and Mitigation

- Detail acceptance procedures to reduce the incident of non-complying wastes arriving at the Premises, e.g. asbestos and contaminated material.
- Outline measures to avoid the generation of waste and promote the legitimate reuse and recycling of waste at the Premises.
- Assess the adequacy of the proposed measures to minimise natural resource consumption and minimise impact from the handling, transporting, storage, processing and reprocessing of waste.
- Assess the adequacy of the proposed measures to minimise impact from the handling, transporting and storage of chemical substances.

4. Surface water and wastewater management

Note: No proposal or activity should breach clause 120 of the *Protection of the Environment Operations Act 1997* (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).

The EIS should:

Describe baseline conditions

- Describe in relation to the entire proposal, the intake and discharge of water at the Premises. This should include volumes, water quality and frequency of all water discharges;
- Describe existing surface and groundwater quality. An assessment needs to be undertaken for any water resource likely to be affected by the proposal;
- Describe any existing surface water and wastewater controls at the Premises; and
- Provide details and diagrams of site drainage and surface runoff yield and capacity of the stormwater system.

Assess impacts

- Assess and provide details of all surface water, groundwater and wastewater impacts that are likely to occur during and as a result of discharges at the Premises;
- Assess all water bodies and receiving waters that are likely to be affected by the proposal and for all foreseeable conditions (e.g. a wet weather sampling programme may be required during high rainfall)
- Assess the types of soils and materials at the Premises that are likely to impact on surface water and groundwater quality and hence require controls;
- Demonstrate that all practical options to avoid discharge have been implemented and environmental impact minimised where discharge is necessary;
- Include a water balance for the proposal including water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options; and
- Assess impacts on groundwater and groundwater dependant ecosystems.

Management and Mitigation

- Include control measures to be implemented to minimise wastewater generation, erosion, and sediment mobilisation at the Premises during both set up and operational phases of the proposal. The Proponent should consider which measures are appropriate for the types of soils and materials on site (such as sediment traps, diversion banks, sediment fences, bunds and geofabric liners) using *Managing Urban Stormwater - Soils and Construction: Landcom* 2004 ("the Blue Book") and *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000);
- Provide details of the sites surface water catchments and the capacity to ensure there is no water run-off for events greater than a 1 in 10 year rain event;
- Provide details of structures and systems (including staff training and operational practices) that will be used to prevent the tracking of mud and dust onto the street from vehicle movements at the Premises;
- Describe how stormwater will managed both during and after construction; and
- Describe how predicted impacts will be monitored and assessed over time.

ATTACHMENT B

General Environmental Impact Statement Requirements

Demast Pty Ltd - Sludge Dewatering Plant, 7 Long Street, Smithfield (Lot 16 DP 238072), EARs ID No. 958

How to use these requirements

The EPA provides the following structure as an example of the requirements for an environment impact statement ("EIS") in accordance with the Department of Planning and Environment EIS Guidelines. It is suggested that the Proponent use a similar structure when preparing their EIS to ensure that each impact is sufficiently assessed. This will enable the EPA to determine and implement appropriate limits and conditions for an environment protection licence ("EPL") if development consent is granted.

A. Executive summary

B. The proposal

C. The location

D. Identification and prioritisation of issues

E. The environmental issues

F. List of approvals and licences

G. Compilation of mitigation measures

H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
  a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
  b) a life cycle approach to the production, use or disposal of products
  c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
  d) the staging and timing of the proposal and any plans for future expansion
  e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
  a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
  b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
  a) measures to minimise waste (typically through addressing source reduction)
  b) proposals for use or recycling of by-products
  c) proposed disposal methods for solid and liquid waste
  d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
  e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
  f) soil contamination treatment and prevention systems.
- Outline construction works including:
  a) actions to address any existing soil contamination
  b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)

c) construction timetable and staging; hours of construction; proposed construction methods

d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.

Air

- Identify all sources of air emissions from the development.
  Note: emissions can be classed as either:
  - *point (eg emissions from stack or vent) or*
  - *fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).*
- Provide details of the project that are essential for predicting and assessing air impacts including:
  a) the quantities and physio-chemical parameters (eg concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
  b) an outline of procedures for handling, transport, production and storage
  c) the management of solid, liquid and gaseous waste streams with potential for significant air impacts.

Noise and vibration

- Identify all noise sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters:
  a) including the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on http://www.environment.nsw.gov.au/ieo/index.htm, using technical criteria derived from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000)
  b) the management of discharges with potential for water impacts
  c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts eg effluent ponds) and showing potential areas of modification of contours, drainage etc.

- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Waste and chemicals

- Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the EPA's *Waste Classification Guidelines* (as in force from time to time);.
- Provide details of liquid waste and non-liquid waste management at the facility, including:
  a) the transportation, assessment and handling of waste arriving at or generated at the site
  b) any stockpiling of wastes or recovered materials at the site
  c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
  d) the method for disposing of all wastes or recovered materials at the facility
  e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
  f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
  a) the quantity of spoil material likely to be generated
  b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
  c) the need to maximise reuse of spoil material in the construction industry
  d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
  e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the guidelines: EPA's *Waste Classification Guidelines* (as in force from time to time).

ESD

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
  - an assessment of a range of options available for use of the resource, including the benefits of each option to future generations proper valuation and pricing of environmental resources
  - identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

4. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
  a) sites and site layouts
  b) access modes and routes
  c) materials handling and production processes
  d) waste and water management
  e) impact mitigation measures
  f) energy sources
- Selection of the preferred option should be justified in terms of:
  a) ability to satisfy the objectives of the proposal
  b) relative environmental and other costs of each alternative
  c) acceptability of environmental impacts and contribution to identified environmental objectives
  d) acceptability of any environmental risks or uncertainties
  e) reliability of proposed environmental impact mitigation measures
  f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
  a) meteorological data (eg rainfall, temperature and evaporation, wind speed and direction)
  b) topography (landform element, slope type, gradient and length)
  c) surrounding land uses (potential synergies and conflicts)
  d) geomorphology (rates of landform change and current erosion and deposition processes)
  e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
  f) ecological information (water system habitat, vegetation, fauna)
  g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may effect plume dispersion.
- Provide and analyse site representative data on following meteorological parameters:
  a) temperature and humidity
  b) rainfall, evaporation and cloud cover
  c) wind speed and direction
  d) atmospheric stability class
  e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
  f) katabatic air drainage
  g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: http://www.environment.nsw.gov.au/ieo/index.htm should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
  a) relevant NSW government guidelines
  b) industry guidelines
  c) EISs for similar projects
  d) relevant research and reference material
  e) relevant preliminary studies or reports for the proposal
  f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
  a) all issues identified including local, regional and global impacts (eg increased/ decreased greenhouse emissions)
  b) key issues which will require a full analysis (including comprehensive baseline assessment)
  c) issues not needing full analysis though they may be addressed in the mitigation strategy
  d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.

- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:

  a) operational procedures to manage environmental impacts

  b) monitoring procedures

  c) training programs

  d) community consultation

  e) complaint mechanisms including site contacts

  f) strategies to use monitoring information to improve performance

  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

2. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (eg potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- For potentially odorous emissions provide the emission rates in terms of odour units (determined by techniques compatible with EPA procedures). Use sampling and analysis techniques for individual or complex odours and for point or diffuse sources, as appropriate.

  Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.
- Reference should be made to: *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2001)*; Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (DEC, 2007)*; Assessment and Management of Odour from Stationary Sources in NSW* (DEC, 2006)*; Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006).*

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

3. Noise and vibration

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels in accordance with the *NSW Industrial Noise Policy*.
- Determine the existing road traffic noise levels in accordance with the *NSW Environmental Criteria for Road Traffic Noise*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:

  a) details of equipment used for the measurements

  b) a brief description of where the equipment was positioned

  c) a statement justifying the choice of monitoring site, including the procedure used to choose the site, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*

d) details of the exact location of the monitoring site and a description of land uses in surrounding areas

e) a description of the dominant and background noise sources at the site

f) day, evening and night assessment background levels for each day of the monitoring period

g) the final Rating Background Level (RBL) value

h) graphs of the measured noise levels for each day should be provided

i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*

j) determination of LAeq noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:

  a) determination of the intrusive criterion for each identified potentially affected receiver

  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver

  c) determination of the amenity criterion for each receiver

  d) determination of the appropriate sleep disturbance limit.

- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Where LA1(1min) noise levels from the site are less than 15 dB above the background LA90 noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in Appendix B of the *NSW Environmental Criteria for Road Traffic Noise*.

- Determine expected noise level and noise character (eg tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:

  a) site establishment

  b) construction

  c) operational phases

  d) transport including traffic noise generated by the proposal

  e) other services.

  Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.

- The noise impact assessment report should include:

  a) a plan showing the assumed location of each noise source for each prediction scenario

b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site

c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc

d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated

e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions

f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate

g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived

h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy.*

- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:

  a) locations where the noise level exceeds the criteria and extent of exceedence

  b) numbers of people (or areas) affected

  c) times when criteria will be exceeded

  d) likely impact on activities (speech, sleep, relaxation, listening, etc)

  e) change on ambient conditions

  f) the result of any community consultation or negotiated agreement.

- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:

  a) bench height, burden spacing, spacing burden ratio

  b) blast hole diameter, inclination and spacing

  c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include

selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.

- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:

  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage

  b) control of traffic (eg: limiting times of access or speed limitations)

  c) resurfacing of the road using a quiet surface

  d) use of (additional) noise barriers or bunds

  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern

  f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension

  g) driver education

  h) appropriate truck routes

  i) limit usage of exhaust breaks

  j) use of premium muffles on trucks

  k) reducing speed limits for trucks

  l) ongoing community liaison and monitoring of complaints

  m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

  Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) *or be approved and analyses undertaken by accredited laboratories).*

- Provide site drainage details and surface runoff yield.

- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: http://www.environment.nsw.gov.au/ieo/index.htm. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.

- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANCECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.

- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries or the NSW Salinity Strategy (DLWC, 2000) (http://www.environment.nsw.gov.au/salinity/government/nswstrategy.htm).

- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.

- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:

  a) lake or estuary flushing characteristics

  b) specific human uses (e.g. exact location of drinking water offtake)

  c) sensitive ecosystems or species conservation values

  d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc

e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment

f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with the technical guidelines section 'Bunding and Spill Management' of the *Authorised Officers Manual* (EPA, 1995) (http://www.epa.nsw.gov.au/mao/bundingspill.htm) and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:

  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and

  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.

- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

  Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to: *Managing Urban Stormwater: Soils and Construction* (Landcom, 2008), *Guidelines for Fresh and Marine Water Quality* ANZECC 2000), *Environmental Guidelines: Use of effluent by Irrigation* (DEC, 2004).

Describe management and mitigation measures

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (eg preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.
- Describe geomorphological impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising instream works
  d) treating existing accelerated erosion and deposition
  e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to: *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011); *Contaminated Sites – Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report* (EPA, 2003).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
  c) proposals for the management of these soils – see *Assessing and Managing Acid Sulfate Soils,* Environment Protection Authority, 1995 (note that this is the only methodology accepted by the EPA).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to EPA's *Waste Classification Guidelines* (as in force from time to time).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (eg water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (eg travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (eg outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT C: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+140+1997+cd+0+N
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.epa.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N
Noise and Vibration	
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
Industrial Noise Policy Application Notes	http://www.epa.nsw.gov.au/noise/applicnotesindustnoise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.epa.nsw.gov.au/resources/noise/roadnoise.pdf
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.epa.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.epa.nsw.gov.au/noise/railnoise.htm

Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 1996)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/solidlandfill.pdf
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf
Waste Classification Guidelines (EPA, 2014)	http://www.epa.nsw.gov.au/wasteregulation/classify-waste.htm
Resource recovery exemption	http://www.epa.nsw.gov.au/waste/RRecoveryExemptions.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	http://www.environment.nsw.gov.au/acidsulfatesoil/
Acid Sulfate Soils Planning Maps	http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm
Contaminated Sites Assessment and Remediation	
Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/assessingdev/pdf/gu_contam.pdf
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from EPA's Environment Line

National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.scew.gov.au/nepms/assessment-site-contamination
Soils – general	
Managing land and soil	http://www.environment.nsw.gov.au/soils/landandsoil.htm
Managing urban stormwater for the protection of soils	http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

Department of Primary Industries
Water

Contact: Wayne Conners
Phone: (02) 8838 7531
Fax: (02) 8838 7554
Email: wayne.conners@dpi.nsw.gov.au

Our ref: Sears 958

6th August, 2015

NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Patrick Copas

Dear Patrick,

Re: Sludge Dewatering Plant, 7 Long Street Smithfield, Holroyd LGA, Lot 16 DP238072, SEARs ID No. 958

I refer to your request for Secretary's Environmental Assessment Requirements from the Department of Primary Industries, Water (DPI Water) in relation to the development of a Sludge Dewatering Plant at 7 Long Street Smithfield.

DPI Water has highlighted the potential key issues and assessment requirements to be addressed in Attachment A.

Further Information

Should you require further information or clarification please don't hesitate to contact me on (02) 8838-7531 or wayne.conners@dpi.nsw.gov.au.

Yours sincerely

Wayne Conners
Senior Water Regulation Officer
Department of Primary Industries – Water

ATTACHMENT A

DPI Water General Assessment Requirements for general projects

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the DPI Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (*WMA 2000*), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)
Key points:

- Volumetric licensing in areas covered by water sharing plans
- Works within 40m of waterfront land
- No exemptions for volumetric licensing apply as a result of the *EP&A Act*.
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*
- Maximum penalties of $2.2 million plus $264,000 for each day an offence continues apply under the *WMA 2000*

Water Act 1912 (WA 1912)
Key points:

- Volumetric licensing in areas where no water sharing plan applies
- Monitoring bores
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000*.
- Flood management works
- No exemptions apply to licences or permits under the *WA 1912* as a result of the *EP&A Act*.
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011
Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Water Sharing Plans

It is important that the proponent understands and describes the ground and surface water sharing plans, water sources, and management zones that apply to the project. The relevant water sharing plans can be determined spatially at www.ourwater.nsw.gov.au. Multiple water sharing plans may apply and these must all be described.

The *Water Act 1912* applies to all water sources not yet covered by a commenced water sharing plan.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
    - Sufficient market depth to acquire the necessary entitlements for each water source.
    - Ability to carry out a "dealing" to transfer the water to relevant location under the rules of the WSP.
    - Daily and long-term access rules.
    - Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Aquifer Interference Policy (NOW, 2012)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

DPI Water policies can be accessed at the following links:
http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx
http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx

An assessment framework for the NSW Aquifer Interference Policy can be found online at: http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:
http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- The known or predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to DPI Water by submitting a "Form A" template. DPI Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.

- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
  - the effect of the proposal on the recharge to groundwater systems;
  - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
  - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Specific Information Requirements

The site is within the Water Sharing Plan for the Greater Metropolitan Groundwater Sources, which commenced on 1 July 2011. The proposed sludge dewatering plant is also within the Sydney Basin Central Groundwater Source.

It is recommended that the EIS be required to include:

- Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan **if the proponent intends to take water from those sources.**
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Proposed surface and groundwater monitoring activities and methodologies.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.

- Consideration of relevant policies and guidelines.
- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).

Consultation and general enquiries
General licensing enquiries can be made to Advisory Services:
water.enquiries@dpi.nsw.gov.au, 1800 353 104.

Assessment or state significant development enquiries, or requests for review or consultation should be directed to the Strategic Stakeholder Liaison Unit, water.referrals@dpi.nsw.gov.au.

A consultation guideline and further information is available online at:
www.water.nsw.gov.au/water-management/law-and-policy/planning-and-assessment

End Attachment A

Appendix 2: Traffic Impact Assessment

TRANSPORT & URBAN PLANNING PTY LTD
TRAFFIC ENGINEERING - TRANSPORT PLANNING -
ROAD SAFETY & PROJECT MANAGEMENT CONSULTANTS

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ABN 51 164 127 422
ACN 164 127 422

26 October, 2015

Linda Zanotto
Senior Environmental Engineer
Benbow Environmental Pty Ltd

Dear Linda,

Re: Proposed Sludge Dewatering Facility at
7 Long Street, Smithfield

Transport and Urban Planning Pty Ltd has prepared this traffic assessment statement in response to the RMS SEARS email comments dated 29 July 2015. The RMS requirements are for a proposed sludge dewatering facility which will occupy an existing industrial building at 7 Long Street, Smithfield.

In response to the numbered points in the RMS email, the following information is provided:

1. The proposed development is planned to operate between 7am and 6pm Monday to Friday. Truck traffic that will regularly be generated by the facility will be either garbage trucks or rigid trucks up to HRV dimensions. The facility will generate one to two of these trucks per hour throughout the operating hours, i.e. up to 22 truck trips per day assuming two trucks per hour. Each truck trip will involve one movement in and one movement out, so the peak hour truck generation will be up to two movements in and two movements out. On average this will be up to one movement every 15 minutes.

   The expected trip distribution is 50% to/from the west and 50% to/from the east along Long Street. The impact of the truck generation at the two key access intersections of Long Street with Gipps Street and with Cumberland Highway is one additional movement in each direction per hour.

   The facility will also generate light vehicles during peak periods. The RMS Guide to Traffic Generating Developments (2002) provides traffic generation rates for industrial development. The proposal will have a low number of staff and is assessed as having the traffic and parking characteristics of a warehouse.

   The RMS Guide indicates a warehouse will generate 0.5 peak hour trips per 100sqm GFA. The building has a floor area of 1,218sqm, and is therefore expected to generate six car trips in the peak hour.

   These trips will be into the site in the AM peak and out of the site in the PM peak, and are expected to split 50/50 along Long Street. This will equate to three additional vehicles per hour at the two key access intersections, or one every 20 minutes.

   We have undertaken traffic counts at the two access intersections at each end of Long Street and carried out SIDRA modelling for current operation and for operation with the additional traffic from the facility included. Copies of the counts and SIDRA results are attached.

Long Street / Gipps Street

The existing operation of signals at this intersection is at Level of Service C (defined as satisfactory) in both AM and PM peak hours, with an average delay to all vehicles of 29.3 and 30.7 seconds respectively.

With the additional development traffic added, average delays in the AM peak are unchanged, while in the PM peak there is an increase of only 0.6 seconds. The Level of Service remains at C (satisfactory).

Long Street / Cumberland Highway

The existing operation of signals at this intersection is at Level of Service B (good with acceptable delays and spare capacity) in both AM and PM peak hours, with an average delay to all vehicles of 26.4 and 21.6 seconds respectively.

With the additional development traffic added, average delays in the AM peak are unchanged, while in the PM peak there is an increase of only 0.1 seconds. The level of Service remains at B (good).

The SIDRA analysis shows the development will only cause very small changes to signal operation because the additional traffic generated by the proposal is very low in comparison to current volumes using each intersection.

We also note the proposal is basically a change of use of an existing industrial building, and so the traffic generated by the proposal will simply replace the traffic that was previously generated from the site. We therefore conclude that the proposed development will be a low traffic generator that will have negligible traffic impact on the surrounding road network.

2. The existing six metre wide, two way driveway on Long Street is not being altered under this proposal. Under AS2890.1-2004, this driveway will be a Category 1 driveway, which can be a combined two way driveway, six metres wide. The driveway already has “No Stopping” restrictions on both sides and sight distances along Long Street from the driveway are satisfactory for the local road environment.

   With the wide traffic lanes available on Long Street, HRV’s will be able to enter and leave the driveway in a single left or right turn movement in accordance with AS2890.2-2002.

3. The proposal includes provision of three new car parking spaces at the front of the premises and a further six marked spaces will be available at the rear. Each of the spaces dimensions meets AS2890.1. Two of the spaces at the front of the site will be tandem spaces. The use of these spaces will be managed to ensure no operational difficulties will occur.

   The provision of nine car parking spaces exceeds the anticipated number of spaces that will be needed for all staff and visitors to the site. It also exceeds the number of parking spaces required in the RMS Guide for warehouses, which is 1 space per 300sqm, equalling 4 spaces for this site.

4. As indicated in point 1, up to two truck trips per hour will be generated by the proposed facility. These will be HRV in size, and a 12.5 metre radius turning circle will be available in the rear yard for truck manoeuvrability. All trucks will be able to use the area in the rear yard so they can enter and leave the site in a forward direction.

   The access driveway to the rear yard along the eastern side of the property is 5.4 metres wide, which is only just adequate for two way traffic. However, the traffic volumes using the access way will be very low and a one lane access would be permitted for two way use under AS2890.1. The access is also existing and no alterations are being made to the building which could allow it to be widened. The access is assessed as acceptable.

In summary, the proposed development will be a low traffic generator and there will be a very low traffic impact on the surrounding road system. The access driveway and internal manoeuvring areas are satisfactory for the size and volume of vehicles that will access the site. Sufficient on site car parking is available for all staff and visitors.

Yours faithfully

Geoff Morris
Senior Traffic Consultant
Transport and Urban Planning Pty Ltd

TRANSPORT & URBAN PLANNING PTY LTD
Ph: 02 9545 1411

AM DATA

Site : **Long St and Gipps Rd, Smithfield. 15203**
Day/Date : **Wednesday 14 Oct 2015** **TCS No 2731**
Weather : Fine

Light Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0715	65	99	26	19	139	67	**415**
0715 - 0730	68	145	25	15	124	90	**467**
0730 - 0745	84	164	28	19	153	82	**530**
0745 - 0800	97	171	38	15	98	89	**508**
0800 - 0815	83	151	49	15	101	72	**471**
0815 - 0830	79	145	47	21	117	79	**488**
0830 - 0845	64	122	39	22	132	84	**463**
0845 - 0900	78	137	46	24	96	75	**456**
Per End	**618**	**1134**	**298**	**150**	**960**	**638**	**3798**

Heavy Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0715	3	3	24	2	6	15	**53**
0715 - 0730	9	7	15	4	6	7	**48**
0730 - 0745	5	4	15	8	7	12	**51**
0745 - 0800	9	5	17	6	8	19	**64**
0800 - 0815	3	12	19	5	5	22	**66**
0815 - 0830	8	9	26	6	4	20	**73**
0830 - 0845	7	5	22	2	6	19	**61**
0845 - 0900	5	4	24	7	6	23	**69**
Per End	**49**	**49**	**162**	**40**	**48**	**137**	**485**

Combined

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0715	68	102	50	21	145	82	**468**
0715 - 0730	77	152	40	19	130	97	**515**
0730 - 0745	89	168	43	27	160	94	**581**
0745 - 0800	106	176	55	21	106	108	**572**
0800 - 0815	86	163	68	20	106	94	**537**
0815 - 0830	87	154	73	27	121	99	**561**
0830 - 0845	71	127	61	24	138	103	**524**
0845 - 0900	83	141	70	31	102	98	**525**
Per End	**667**	**1183**	**460**	**190**	**1008**	**775**	**4283**

Light Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0800	314	579	117	68	514	328	**1920**
0715 - 0815	332	631	140	64	476	333	**1976**
0730 - 0830	343	631	162	70	469	322	**1997**
0745 - 0845	323	589	173	73	448	324	**1930**
0800 - 0900	304	555	181	82	446	310	**1878**

Heavy Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0800	26	19	71	20	27	53	**216**
0715 - 0815	26	28	66	23	26	60	**229**
0730 - 0830	25	30	77	25	24	73	**254**
0745 - 0845	27	31	84	19	23	80	**264**
0800 - 0900	23	30	91	20	21	84	**269**

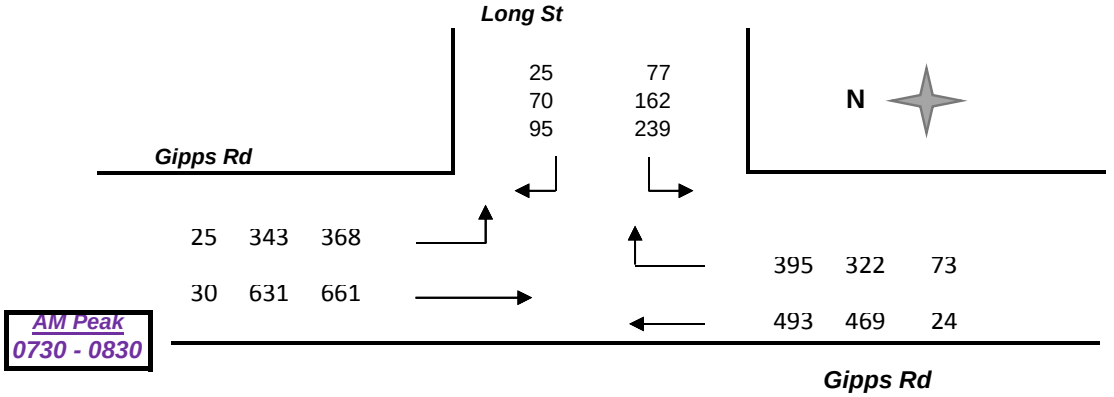
Combined

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	**L**	**T**	**L**	**R**	**T**	**R**	**TOT**
0700 - 0800	340	598	188	88	541	381	**2136**
0715 - 0815	358	659	206	87	502	393	**2205**
0730 - 0830	368	661	239	95	493	395	**2251**
0745 - 0845	350	620	257	92	471	404	**2194**
0800 - 0900	327	585	272	102	467	394	**2147**

Peds

	NORTH	EAST	SOUTH	
Time Per	*Gipps Rd*	*Long St*	*Gipps Rd*	**TOT**
0700 - 0715	0	0	0	**0**
0715 - 0730	0	0	0	**0**
0730 - 0745	0	0	1	**1**
0745 - 0800	0	0	0	**0**
0800 - 0815	0	0	0	**0**
0815 - 0830	0	1	0	**1**
0830 - 0845	0	1	0	**1**
0845 - 0900	0	0	0	**0**
Per End	**0**	**2**	**1**	**3**

Peak Hour	*Gipps Rd*	*Long St*	*Gipps Rd*	TOT
	0	**2**	**0**	**2**



TRANSPORT & URBAN PLANNING PTY LTD
Ph: 02 9545 1411

PM DATA

Site : **Long St and Gipps Rd, Smithfield. 15203**
Day/Date : **Wednesday 14 Oct 2015** **TCS No 2731**
Weather : Fine

Light Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	L	T	L	R	T	R	TOT
1530 - 1545	17	161	92	59	140	38	**507**
1545 - 1600	16	164	87	55	131	36	**489**
1600 - 1615	19	144	109	92	151	31	**546**
1615 - 1630	18	173	113	66	143	29	**542**
1630 - 1645	19	130	113	88	154	35	**539**
1645 - 1700	15	134	122	90	163	30	**554**
1700 - 1715	12	156	127	86	184	32	**597**
1715 - 1730	14	141	69	46	141	18	**429**
Per End	**130**	**1203**	**832**	**582**	**1207**	**249**	**4203**

Heavy Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	L	T	L	R	T	R	TOT
1530 - 1545	2	4	17	2	7	21	**53**
1545 - 1600	4	5	18	3	9	17	**56**
1600 - 1615	1	6	12	1	5	23	**48**
1615 - 1630	3	3	16	1	3	18	**44**
1630 - 1645	3	5	12	1	4	9	**34**
1645 - 1700	3	4	16	1	2	9	**35**
1700 - 1715	4	2	17	0	3	7	**33**
1715 - 1730	3	3	11	0	2	6	**25**
Per End	**23**	**32**	**119**	**9**	**35**	**110**	**328**

Combined

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Time Per	L	T	L	R	T	R	TOT
1530 - 1545	19	165	109	61	147	59	**560**
1545 - 1600	20	169	105	58	140	53	**545**
1600 - 1615	20	150	121	93	156	54	**594**
1615 - 1630	21	176	129	67	146	47	**586**
1630 - 1645	22	135	125	89	158	44	**573**
1645 - 1700	18	138	138	91	165	39	**589**
1700 - 1715	16	158	144	86	187	39	**630**
1715 - 1730	17	144	80	46	143	24	**454**
Per End	**153**	**1235**	**951**	**591**	**1242**	**359**	**4531**

Light Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	L	T	L	R	T	R	TOT
1530 - 1630	70	642	401	272	565	134	**2084**
1545 - 1645	72	611	422	301	579	131	**2116**
1600 - 1700	71	581	457	336	611	125	**2181**
1615 - 1715	64	593	475	330	644	126	**2232**
1630 - 1730	60	561	431	310	642	115	**2119**

Heavy Veh

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	L	T	L	R	T	R	TOT
1530 - 1630	10	18	63	7	24	79	**201**
1545 - 1645	11	19	58	6	21	67	**182**
1600 - 1700	10	18	56	4	14	59	**161**
1615 - 1715	13	14	61	3	12	43	**146**
1630 - 1730	13	14	56	2	11	31	**127**

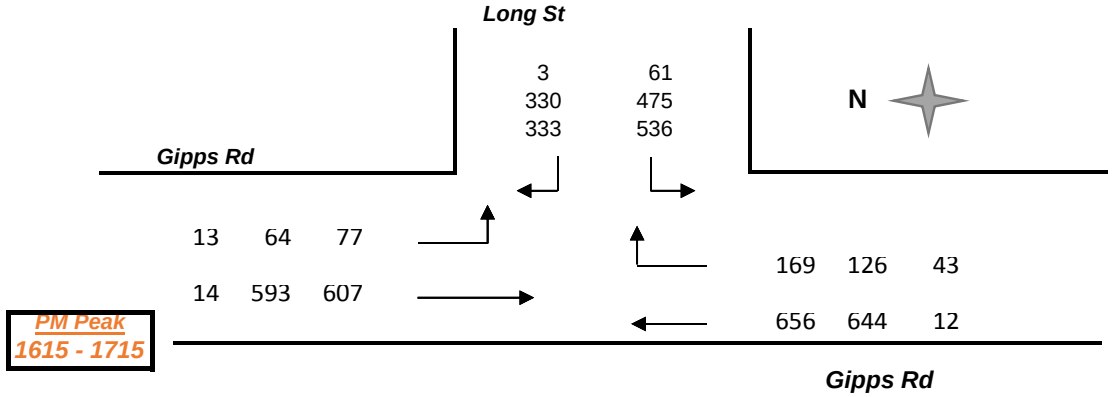
Combined

	NORTH		EAST		SOUTH		
	Gipps Rd		*Long St*		*Gipps Rd*		
Hourly	L	T	L	R	T	R	TOT
1530 - 1630	80	660	464	279	589	213	**2285**
1545 - 1645	83	630	480	307	600	198	**2298**
1600 - 1700	81	599	513	340	625	184	**2342**
1615 - 1715	77	607	536	333	656	169	**2378**
1630 - 1730	73	575	487	312	653	146	**2246**

Peds

	NORTH	EAST	SOUTH	
Time Per	*Gipps Rd*	*Long St*	*Gipps Rd*	TOT
1530 - 1545	0	0	0	**0**
1545 - 1600	0	0	0	**0**
1600 - 1615	0	0	0	**0**
1615 - 1630	0	0	0	**0**
1630 - 1645	0	0	0	**0**
1645 - 1700	0	0	0	**0**
1700 - 1715	0	0	1	**1**
1715 - 1730	0	0	0	**0**
Per End	**0**	**0**	**1**	**1**

Peak Hour	*Gipps Rd*	*Long St*	*Gipps Rd*	TOT
	0	**0**	**1**	**1**



TRANSPORT & URBAN PLANNING PTY LTD
Ph: 02 9545 1411

AM DATA

Site : **Cumberland Hwy and Long St, Smithfield**
Day/Date : **Tuesday 20 Oct 2015** **TCS 2427**
Weather : Showers

Light Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	6	342	20	9	1	41	50	509	1	0	0	1	**980**
0715 - 0730	4	355	17	14	2	33	61	553	8	2	1	0	**1050**
0730 - 0745	5	339	15	12	5	37	71	598	7	1	0	2	**1092**
0745 - 0800	4	368	19	11	1	34	55	558	2	1	2	0	**1055**
0800 - 0815	2	341	15	7	3	30	58	595	4	2	0	0	**1057**
0815 - 0830	1	325	23	14	1	28	63	560	3	1	1	2	**1022**
0830 - 0845	3	309	25	13	2	38	49	507	2	3	0	0	**951**
0845 - 0900	4	302	22	9	3	30	55	435	6	3	1	1	**871**
Period End	**29**	**2681**	**156**	**89**	**18**	**271**	**462**	**4315**	**33**	**13**	**5**	**6**	**8078**

Heavy Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	4	33	7	12	2	12	11	18	2	0	0	2	**103**
0715 - 0730	1	27	8	10	1	6	9	25	2	2	1	0	**92**
0730 - 0745	2	27	5	10	0	6	9	22	6	1	0	1	**89**
0745 - 0800	5	21	9	7	1	7	7	22	4	0	0	2	**85**
0800 - 0815	3	20	8	11	0	6	13	29	4	3	1	3	**101**
0815 - 0830	5	29	6	16	3	9	12	18	5	3	0	4	**110**
0830 - 0845	10	24	10	7	2	6	5	24	1	6	1	7	**103**
0845 - 0900	7	15	3	6	2	13	7	36	0	3	0	2	**94**
Period End	**37**	**196**	**56**	**79**	**11**	**65**	**73**	**194**	**24**	**18**	**3**	**21**	**777**

Light Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	19	1404	71	46	9	145	237	2218	18	4	3	3	**4177**
0715 - 0815	15	1403	66	44	11	134	245	2304	21	6	3	2	**4254**
0730 - 0830	12	1373	72	44	10	129	247	2311	16	5	3	4	**4226**
0745 - 0845	10	1343	82	45	7	130	225	2220	11	7	3	2	**4085**
0800 - 0900	10	1277	85	43	9	126	225	2097	15	9	2	3	**3901**
PEAK HOUR	**15**	**1403**	**66**	**44**	**11**	**134**	**245**	**2304**	**21**	**6**	**3**	**2**	**4254**

Heavy Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	12	108	29	39	4	31	36	87	14	3	1	5	**369**
0715 - 0815	11	95	30	38	2	25	38	98	16	6	2	6	**367**
0730 - 0830	15	97	28	44	4	28	41	91	19	7	1	10	**385**
0745 - 0845	23	94	33	41	6	28	37	93	14	12	2	16	**399**
0800 - 0900	25	88	27	40	7	34	37	107	10	15	2	16	**408**
PEAK HOUR	**11**	**95**	**30**	**38**	**2**	**25**	**38**	**98**	**16**	**6**	**2**	**6**	**367**

Combined

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	10	375	27	21	3	53	61	527	3	0	0	3	**1083**
0715 - 0730	5	382	25	24	3	39	70	578	10	4	2	0	**1142**
0730 - 0745	7	366	20	22	5	43	80	620	13	2	0	3	**1181**
0745 - 0800	9	389	28	18	2	41	62	580	6	1	2	2	**1140**
0800 - 0815	5	361	23	18	3	36	71	624	8	5	1	3	**1158**
0815 - 0830	6	354	29	30	4	37	75	578	8	4	1	6	**1132**
0830 - 0845	13	333	35	20	4	44	54	531	3	9	1	7	**1054**
0845 - 0900	11	317	25	15	5	43	62	471	6	6	1	3	**965**
Period End	**66**	**2877**	**212**	**168**	**29**	**336**	**535**	**4509**	**57**	**31**	**8**	**27**	**8855**

Peds

	NORTH	WEST	SOUTH	EAST	
	Cumberland Hwy	*Long St*	*Cumberland Hwy*	*Herbert Pl*	
Time Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0700 - 0715	0	0	0	0	**0**
0715 - 0730	0	1	0	1	**2**
0730 - 0745	2	0	0	0	**2**
0745 - 0800	1	0	1	0	**2**
0800 - 0815	0	0	0	1	**1**
0815 - 0830	0	1	0	0	**1**
0830 - 0845	1	0	0	0	**1**
0845 - 0900	0	0	1	1	**2**
Period End	**4**	**2**	**2**	**3**	**11**

Combined

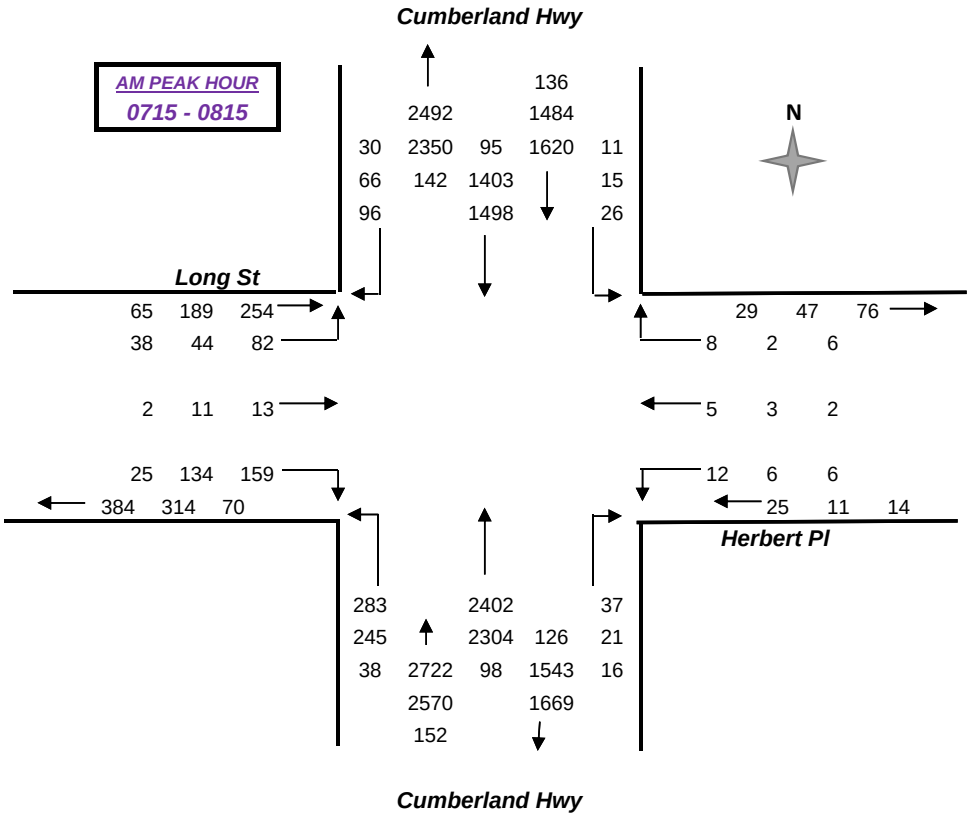
	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0800	31	1512	100	85	13	176	273	2305	32	7	4	8	**4546**
0715 - 0815	26	1498	96	82	13	159	283	2402	37	12	5	8	**4621**
0730 - 0830	27	1470	100	88	14	157	288	2402	35	12	4	14	**4611**
0745 - 0845	33	1437	115	86	13	158	262	2313	25	19	5	18	**4484**
0800 - 0900	35	1365	112	83	16	160	262	2204	25	24	4	19	**4309**
PEAK HOUR	**26**	**1498**	**96**	**82**	**13**	**159**	**283**	**2402**	**37**	**12**	**5**	**8**	**4621**

Peds

	NORTH	WEST	SOUTH	EAST	
	Cumberland Hwy	*Long St*	*Cumberland Hwy*	*Herbert Pl*	
Peak Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
0700 - 0800	3	1	1	1	**6**
0715 - 0815	3	1	1	2	**7**
0730 - 0830	3	1	1	1	**6**
0745 - 0845	2	1	1	1	**5**
0800 - 0900	1	1	1	2	**5**
PEAK HR	**3**	**1**	**1**	**2**	**7**

TRANSPORT & URBAN PLANNING PTY LTD
Ph: 02 9545 1411

Site : **Cumberland Hwy and Long St, Smithfield**
Day/Date : **Tuesday 20 Oct 2015**



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PM DATA

Site : Cumberland Hwy and Long St, Smithfield
Day/Date : Tuesday 20 Oct 2015 **TCS 2427**
Weather : Showers

Light Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1545	4	556	19	17	0	95	22	381	0	9	3	8	**1114**
1545 - 1600	5	520	17	18	1	43	19	403	1	12	6	5	**1050**
1600 - 1615	4	551	12	28	0	95	29	390	0	8	0	4	**1121**
1615 - 1630	1	535	10	24	0	65	19	412	1	7	4	6	**1084**
1630 - 1645	3	502	8	34	0	80	25	403	1	3	3	4	**1066**
1645 - 1700	0	488	8	15	0	41	16	313	1	3	1	3	**889**
1700 - 1715	2	372	14	20	0	52	14	356	0	0	4	1	**835**
1715 - 1730	0	391	9	22	0	46	11	327	0	1	1	0	**808**
Period End	**19**	**3915**	**97**	**178**	**1**	**517**	**155**	**2985**	**4**	**43**	**22**	**31**	**7967**

Heavy Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1545	3	30	10	9	0	6	12	23	2	3	3	2	**103**
1545 - 1600	3	25	12	8	2	3	8	26	1	1	1	1	**91**
1600 - 1615	2	22	8	9	1	3	4	20	1	1	5	0	**76**
1615 - 1630	1	26	9	7	0	6	5	18	1	0	2	2	**77**
1630 - 1645	1	24	10	7	0	3	6	12	3	1	1	4	**72**
1645 - 1700	1	25	7	6	1	4	5	22	0	0	1	0	**72**
1700 - 1715	1	19	7	4	0	5	2	19	1	1	0	1	**60**
1715 - 1730	0	21	8	2	0	3	2	14	0	1	1	1	**53**
Period End	**12**	**192**	**71**	**52**	**4**	**33**	**44**	**154**	**9**	**8**	**14**	**11**	**604**

Light Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1630	14	2162	58	87	1	298	89	1586	2	36	13	23	**4369**
1545 - 1645	13	2108	47	104	1	283	92	1608	3	30	13	19	**4321**
1600 - 1700	8	2076	38	101	0	281	89	1518	3	21	8	17	**4160**
1615 - 1715	6	1897	40	93	0	238	74	1484	3	13	12	14	**3874**
1630 - 1730	5	1753	39	91	0	219	66	1399	2	7	9	8	**3598**
PEAK HOUR	**14**	**2162**	**58**	**87**	**1**	**298**	**89**	**1586**	**2**	**36**	**13**	**23**	**4369**

Heavy Veh

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1630	9	103	39	33	3	18	29	87	5	5	11	5	**347**
1545 - 1645	7	97	39	31	3	15	23	76	6	3	9	7	**316**
1600 - 1700	5	97	34	29	2	16	20	72	5	2	9	6	**297**
1615 - 1715	4	94	33	24	1	18	18	71	5	2	4	7	**281**
1630 - 1730	3	89	32	19	1	15	15	67	4	3	3	6	**257**
PEAK HOUR	**9**	**103**	**39**	**33**	**3**	**18**	**29**	**87**	**5**	**5**	**11**	**5**	**347**

Combined

	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Time Per	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1545	7	586	29	26	0	101	34	404	2	12	6	10	**1217**
1545 - 1600	8	545	29	26	3	46	27	429	2	13	7	6	**1141**
1600 - 1615	6	573	20	37	1	98	33	410	1	9	5	4	**1197**
1615 - 1630	2	561	19	31	0	71	24	430	2	7	6	8	**1161**
1630 - 1645	4	526	18	41	0	83	31	415	4	4	4	8	**1138**
1645 - 1700	1	513	15	21	1	45	21	335	1	3	2	3	**961**
1700 - 1715	3	391	21	24	0	57	16	375	1	1	4	2	**895**
1715 - 1730	0	412	17	24	0	49	13	341	0	2	2	1	**861**
Period End	**31**	**4107**	**168**	**230**	**5**	**550**	**199**	**3139**	**13**	**51**	**36**	**42**	**8571**

Peds

	NORTH	WEST	SOUTH	EAST	
	Cumberland Hwy	*Long St*	*Cumberland Hwy*	*Herbert Pl*	
Time Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
1530 - 1545	1	0	0	0	**1**
1545 - 1600	1	1	0	0	**2**
1600 - 1615	2	0	1	1	**4**
1615 - 1630	1	2	0	0	**3**
1630 - 1645	0	1	0	1	**2**
1645 - 1700	1	0	0	0	**1**
1700 - 1715	0	1	0	0	**1**
1715 - 1730	0	0	0	0	**0**
Period End	**6**	**5**	**1**	**2**	**14**

Combined

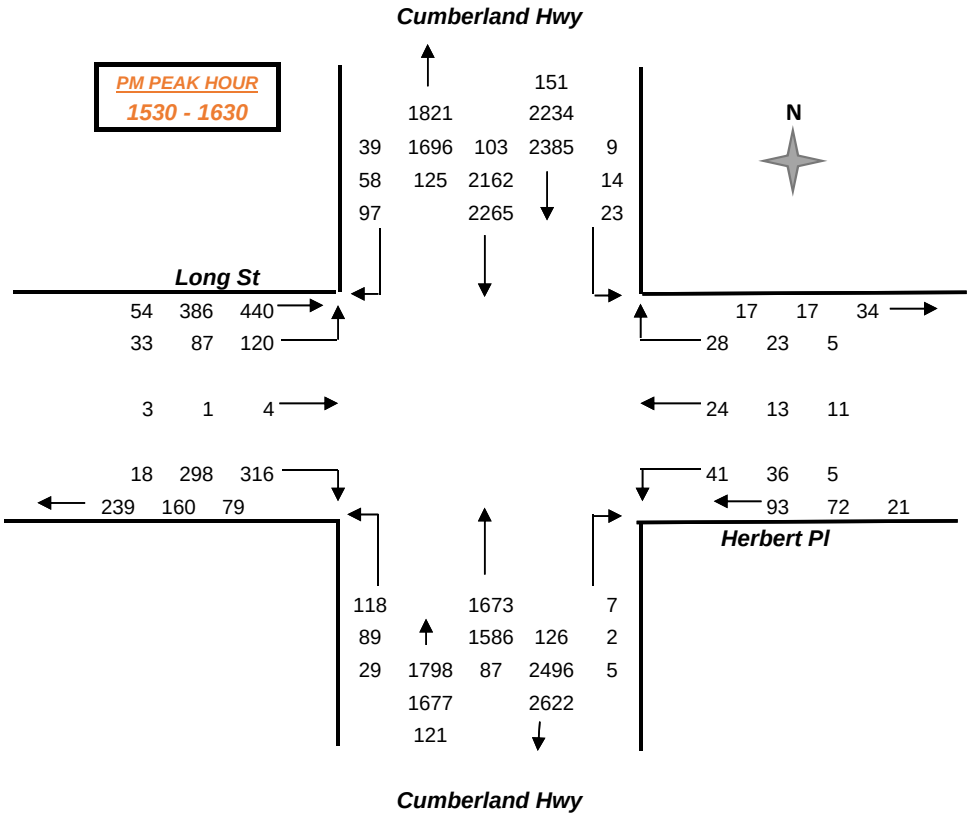
	NORTH			WEST			SOUTH			EAST			
	Cumberland Hwy			*Long St*			*Cumberland Hwy*			*Herbert Pl*			
Peak Time	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1530 - 1630	23	2265	97	120	4	316	118	1673	7	41	24	28	**4716**
1545 - 1645	20	2205	86	135	4	298	115	1684	9	33	22	26	**4637**
1600 - 1700	13	2173	72	130	2	297	109	1590	8	23	17	23	**4457**
1615 - 1715	10	1991	73	117	1	256	92	1555	8	15	16	21	**4155**
1630 - 1730	8	1842	71	110	1	234	81	1466	6	10	12	14	**3855**
PEAK HOUR	**23**	**2265**	**97**	**120**	**4**	**316**	**118**	**1673**	**7**	**41**	**24**	**28**	**4716**

Peds

	NORTH	WEST	SOUTH	EAST	
	Cumberland Hwy	*Long St*	*Cumberland Hwy*	*Herbert Pl*	
Peak Per	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**UNCLASSIFIED**	**TOT**
1530 - 1630	5	3	1	1	**10**
1545 - 1645	4	4	1	2	**11**
1600 - 1700	4	3	1	2	**10**
1615 - 1715	2	4	0	1	**7**
1630 - 1730	1	2	0	1	**4**
PEAK HR	**4**	**4**	**1**	**2**	**11**

TRANSPORT & URBAN PLANNING PTY LTD
Ph: 02 9545 1411

Site : **Cumberland Hwy and Long St, Smithfield**
Day/Date : **Tuesday 20 Oct 2015**



MOVEMENT SUMMARY

Site: Long St and Gipps Rd, Smithfield. AM Peak Existing

0730-0830
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gipps Rd (south)											
2	T1	519	4.9	0.382	5.1	LOS A	8.6	62.8	0.41	0.37	55.4
3	R2	416	18.5	0.881	53.2	LOS D	18.5	150.1	1.00	1.16	31.5
Approach		935	10.9	0.881	26.5	LOS B	18.5	150.1	0.67	0.72	41.4
East: Long St											
4	L2	252	32.2	0.377	24.0	LOS B	7.4	66.2	0.71	0.77	41.6
6	R2	174	42.4	0.848	56.3	LOS D	8.8	83.6	1.00	0.98	30.3
Approach		425	36.4	0.848	37.2	LOS C	8.8	83.6	0.83	0.86	36.1
North: Gipps Rd (north)											
7	L2	387	6.8	0.351	13.9	LOS A	7.9	58.8	0.51	0.73	47.6
8	T1	696	4.5	0.884	36.7	LOS C	34.1	247.7	0.99	1.05	37.4
Approach		1083	5.3	0.884	28.6	LOS C	34.1	247.7	0.82	0.94	40.5
All Vehicles		2443	12.9	0.884	29.3	LOS C	34.1	247.7	0.77	0.84	40.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Gipps Rd, Smithfield. AM Peak After Development

0730-0830
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gipps Rd (south)											
2	T1	519	4.9	0.382	5.1	LOS A	8.6	62.8	0.41	0.37	55.4
3	R2	417	18.4	0.883	53.6	LOS D	18.6	151.1	1.00	1.16	31.4
Approach		936	10.9	0.883	26.7	LOS B	18.6	151.1	0.67	0.72	41.3
East: Long St											
4	L2	253	32.5	0.379	24.0	LOS B	7.5	66.7	0.71	0.77	41.5
6	R2	174	42.4	0.848	56.3	LOS D	8.8	83.6	1.00	0.98	30.3
Approach		426	36.5	0.848	37.2	LOS C	8.8	83.6	0.83	0.86	36.1
North: Gipps Rd (north)											
7	L2	391	7.0	0.354	13.9	LOS A	8.0	59.6	0.51	0.73	47.6
8	T1	696	4.5	0.884	36.7	LOS C	34.1	247.7	0.99	1.05	37.4
Approach		1086	5.4	0.884	28.5	LOS C	34.1	247.7	0.82	0.94	40.5
All Vehicles		2448	12.9	0.884	29.3	LOS C	34.1	247.7	0.77	0.84	40.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Gipps Rd, Smithfield. PM Peak Existing

1615-1715
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gipps Rd (south)											
2	T1	691	1.8	0.589	11.3	LOS A	18.3	129.9	0.66	0.59	50.6
3	R2	178	25.4	0.520	38.4	LOS C	6.8	58.0	0.93	0.87	36.0
Approach		868	6.7	0.589	16.9	LOS B	18.3	129.9	0.71	0.65	46.7
East: Long St											
4	L2	564	11.4	0.893	42.2	LOS C	26.2	201.3	0.84	0.95	34.7
6	R2	351	0.9	0.747	41.3	LOS C	15.0	106.0	0.98	0.88	35.2
Approach		915	7.4	0.893	41.9	LOS C	26.2	201.3	0.89	0.93	34.9
North: Gipps Rd (north)											
7	L2	81	16.9	0.070	9.9	LOS A	1.1	8.5	0.32	0.65	49.9
8	T1	639	2.3	0.869	36.3	LOS C	30.4	217.3	0.99	1.03	37.6
Approach		720	3.9	0.869	33.3	LOS C	30.4	217.3	0.92	0.99	38.7
All Vehicles		2503	6.1	0.893	30.7	LOS C	30.4	217.3	0.84	0.85	39.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Gipps Rd, Smithfield. PM Peak After Development

1615-1715
Signals - Fixed Time Cycle Time = 90 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gipps Rd (south)											
2	T1	691	1.8	0.600	12.0	LOS A	18.8	133.7	0.68	0.61	50.1
3	R2	178	25.4	0.532	39.6	LOS C	6.8	58.4	0.93	0.89	35.6
Approach		868	6.7	0.600	17.7	LOS B	18.8	133.7	0.73	0.67	46.2
East: Long St											
4	L2	567	11.5	0.881	39.2	LOS C	25.2	194.0	0.82	0.94	35.7
6	R2	352	0.9	0.718	39.4	LOS C	14.6	103.0	0.97	0.87	35.9
Approach		919	7.4	0.881	39.3	LOS C	25.2	194.0	0.88	0.91	35.8
North: Gipps Rd (north)											
7	L2	82	17.9	0.071	9.9	LOS A	1.1	8.7	0.32	0.65	49.9
8	T1	639	2.3	0.894	41.0	LOS C	32.5	231.7	1.00	1.08	35.9
Approach		721	4.1	0.894	37.4	LOS C	32.5	231.7	0.92	1.03	37.1
All Vehicles		2508	6.2	0.894	31.3	LOS C	32.5	231.7	0.84	0.86	39.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Cumberland Hwy. AM Peak Existing

0715-0815
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy (south)											
1	L2	283	13.4	0.180	7.4	LOS A	1.5	11.5	0.16	0.63	56.1
2	T1	2402	4.1	0.897	35.0	LOS C	47.3	343.0	0.90	0.90	42.1
3	R2	37	43.2	0.498	72.5	LOS F	2.3	22.1	1.00	0.74	28.0
Approach		2722	5.6	0.897	32.6	LOS C	47.3	343.0	0.82	0.87	42.9
East: Herbert Pl											
4	L2	12	50.0	0.020	8.5	LOS A	0.1	1.3	0.25	0.58	45.0
5	T1	5	40.0	0.066	62.0	LOS E	0.3	2.8	0.98	0.64	30.0
6	R2	8	75.0	0.134	70.2	LOS E	0.5	5.6	0.98	0.67	24.7
Approach		25	56.0	0.134	39.0	LOS C	0.5	5.6	0.63	0.62	33.0
North: Cumberland Rd (north)											
7	L2	26	42.3	0.021	7.7	LOS A	0.1	1.1	0.13	0.60	55.0
8	T1	1498	6.3	0.448	11.6	LOS A	11.4	84.2	0.43	0.38	57.4
9	R2	96	31.3	0.307	37.9	LOS C	1.7	15.4	0.96	0.74	38.1
Approach		1620	8.4	0.448	13.1	LOS A	11.4	84.2	0.45	0.40	55.7
West: Long St											
10	L2	82	46.3	0.180	30.4	LOS C	3.1	30.1	0.77	0.72	35.9
11	T1	13	15.4	0.048	47.2	LOS D	0.7	5.2	0.88	0.62	34.1
12	R2	159	15.7	0.467	49.0	LOS D	4.0	31.7	0.98	0.76	32.9
Approach		254	25.6	0.467	42.9	LOS D	4.0	31.7	0.91	0.74	33.9
All Vehicles		4621	7.9	0.897	26.4	LOS B	47.3	343.0	0.70	0.70	45.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Cumberland Hwy. AM Peak After Development

0715-0815
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy (south)											
1	L2	286	13.6	0.182	7.4	LOS A	1.5	11.6	0.16	0.63	56.1
2	T1	2402	4.1	0.897	35.0	LOS C	47.4	343.4	0.90	0.90	42.0
3	R2	37	43.2	0.498	72.5	LOS F	2.3	22.1	1.00	0.74	28.0
Approach		2725	5.6	0.897	32.6	LOS C	47.4	343.4	0.82	0.87	42.9
East: Herbert Pl											
4	L2	12	50.0	0.020	8.5	LOS A	0.1	1.3	0.25	0.58	45.0
5	T1	5	40.0	0.066	62.0	LOS E	0.3	2.8	0.98	0.64	30.0
6	R2	8	75.0	0.134	70.2	LOS E	0.5	5.6	0.98	0.67	24.7
Approach		25	56.0	0.134	39.0	LOS C	0.5	5.6	0.63	0.62	33.0
North: Cumberland Rd (north)											
7	L2	26	42.3	0.021	7.7	LOS A	0.1	1.1	0.13	0.60	55.0
8	T1	1498	6.3	0.448	11.6	LOS A	11.4	84.2	0.43	0.38	57.4
9	R2	97	30.9	0.309	37.9	LOS C	1.8	15.6	0.96	0.74	38.1
Approach		1621	8.4	0.448	13.1	LOS A	11.4	84.2	0.45	0.41	55.6
West: Long St											
10	L2	83	47.0	0.183	30.5	LOS C	3.1	30.7	0.77	0.72	35.8
11	T1	13	15.4	0.048	47.2	LOS D	0.7	5.2	0.88	0.62	34.1
12	R2	159	15.7	0.467	49.0	LOS D	4.0	31.7	0.98	0.76	32.9
Approach		255	25.9	0.467	42.9	LOS D	4.0	31.7	0.91	0.74	33.9
All Vehicles		4626	8.0	0.897	26.4	LOS B	47.4	343.4	0.70	0.70	45.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Long St and Cumberland Hwy. PM Peak Existing

1530-1630
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy (south)											
1	L2	118	24.6	0.081	7.6	LOS A	0.7	5.7	0.16	0.62	55.5
2	T1	1673	5.2	0.604	22.2	LOS B	20.2	148.0	0.68	0.60	49.3
3	R2	7	71.4	0.109	70.8	LOS F	0.4	4.8	0.98	0.67	28.1
Approach		1798	6.7	0.604	21.4	LOS B	20.2	148.0	0.64	0.60	49.5
East: Herbert Pl											
4	L2	41	12.2	0.068	13.0	LOS A	0.8	6.3	0.41	0.64	48.8
5	T1	24	45.8	0.325	64.3	LOS E	1.5	14.4	1.00	0.71	29.5
6	R2	28	17.9	0.343	69.8	LOS E	1.7	13.8	1.00	0.72	27.8
Approach		93	22.6	0.343	43.4	LOS D	1.7	14.4	0.74	0.68	34.9
North: Cumberland Rd (north)											
7	L2	23	39.1	0.018	7.4	LOS A	0.1	0.6	0.11	0.59	55.2
8	T1	2265	4.5	0.673	13.9	LOS A	23.0	167.5	0.57	0.52	55.4
9	R2	97	40.2	0.326	38.2	LOS C	1.8	16.7	0.97	0.74	37.9
Approach		2385	6.3	0.673	14.8	LOS B	23.0	167.5	0.58	0.53	54.4
West: Long St											
10	L2	120	27.5	0.237	30.6	LOS C	4.6	39.5	0.79	0.74	37.8
11	T1	4	75.0	0.020	47.2	LOS D	0.2	2.3	0.88	0.58	34.1
12	R2	316	5.7	0.868	64.1	LOS E	9.0	65.7	1.00	1.03	29.7
Approach		440	12.3	0.868	54.8	LOS D	9.0	65.7	0.94	0.94	31.6
All Vehicles		4716	7.4	0.868	21.6	LOS B	23.0	167.5	0.64	0.60	48.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

MOVEMENT SUMMARY

Site: Long St and Cumberland Hwy. PM Peak After Development

1530-1630
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cumberland Hwy (south)											
1	L2	118	24.6	0.081	7.6	LOS A	0.7	5.7	0.16	0.62	55.5
2	T1	1673	5.2	0.604	22.2	LOS B	20.2	148.0	0.68	0.60	49.3
3	R2	7	71.4	0.109	70.8	LOS F	0.4	4.8	0.98	0.67	28.1
Approach		1798	6.7	0.604	21.4	LOS B	20.2	148.0	0.64	0.60	49.5
East: Herbert Pl											
4	L2	41	12.2	0.068	13.0	LOS A	0.8	6.3	0.41	0.64	48.8
5	T1	24	45.8	0.325	64.3	LOS E	1.5	14.4	1.00	0.71	29.5
6	R2	28	17.9	0.343	69.8	LOS E	1.7	13.8	1.00	0.72	27.8
Approach		93	22.6	0.343	43.4	LOS D	1.7	14.4	0.74	0.68	34.9
North: Cumberland Rd (north)											
7	L2	23	39.1	0.018	7.4	LOS A	0.1	0.6	0.11	0.59	55.2
8	T1	2265	4.5	0.673	13.9	LOS A	23.0	167.5	0.57	0.52	55.4
9	R2	98	40.8	0.330	38.3	LOS C	1.8	16.9	0.97	0.74	37.9
Approach		2386	6.4	0.673	14.8	LOS B	23.0	167.5	0.58	0.53	54.4
West: Long St											
10	L2	121	27.3	0.238	30.6	LOS C	4.6	39.8	0.79	0.74	37.8
11	T1	4	75.0	0.020	47.2	LOS D	0.2	2.3	0.88	0.58	34.1
12	R2	319	6.0	0.877	65.3	LOS E	9.1	67.2	1.00	1.04	29.4
Approach		444	12.4	0.877	55.6	LOS D	9.1	67.2	0.94	0.95	31.4
All Vehicles		4721	7.4	0.877	21.7	LOS B	23.0	167.5	0.64	0.60	48.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Appendix 3: Sydney Water Application #37990

Sydney WATER

Application for Consent to Discharge Industrial Trade Wastewater

Business Customer Services

ACCOUNT NUMBER AS PER SYDNEY WATER ACCOUNTS
— — — — — — — — — —

FULL NAME OF APPLICANT (BLOCK LETTERS)
DEMAST PTY LTD

ADDRESS OF THE BUSINESS WHERE DISCHARGE TO SEWER WILL OCCUR	
7 LONG ST, SMITHFIELD	TEL: 02 8916 8264
POST CODE: 2164	FAX: 02 9756 4776

POSTAL ADDRESS FOR CORRESPONDENCE	
80A LONG ST, SMITHFIELD 2164	TEL: 02 8916 8264
POST CODE:	FAX: 02 9756 4776

TRADING NAME OF THE BUSINESS AT THE PREMISES
DEMAST PTY LTD

AUSTRALIAN COMPANY NUMBER (ACN)
168 661 514

FULL NAME OF OCCUPIER IF OTHER THAN APPLICANT

FULL NAME OF CONTACT PERSON AT THE PREMISES		
BRAD KING		TEL: 0417408980
POSITION IN COMPANY	GENERAL MANAGER	FAX:
EMAIL ADDRESS	brad@austeire.com.au	

EMERGENCY CONTACT PERSON OUT-OF-HOURS	
BRAD KING	TEL: 0417408980
PRINCIPAL BUSINESS ACTIVITY	Dewatering SLUDGE/SLURRY PRODUCED FROM ACTIVITIES SUCH AS ~~NON-DESTRUCTIVE~~ EXCAVATION

PROCESSES GENERATING TRADE WASTEWATER
1. Processing and clearing of sludge
2. waste through the separation of
3. sediments and liquids
4.

(IF SPACE INSUFFICIENT – PLEASE ATTACH SEPARATE LIST)

OFFICE USE ONLY	
PROCESS DESCRIPTION	CODE

NOTE: A DESCRIPTION OF THE GENERAL NATURE OF THE BUSINESS, INCLUDING DETAILS OF THE WASTEWATER CHARACTERISTICS MUST BE COMPLETED ON "APPENDIX C" OF THIS FORM. (MORE INFORMATION CAN BE FOUND UNDER "APPENDIX C" IN THE INFORMATION PACKAGE).

1. Does the property currently discharge trade wastewater to the sewer? ☐ YES

☒ NO ☞ EXPECTED COMMENCEMENT DATE OF DISCHARGE | JULY | 2015 | MONTH | YEAR

2. Does the property have MORE than one connection to the sewer? ☒ NO

☐ YES ☞ HOW MANY? _____

NOTE: A SEPARATE APPLICATION SHOULD BE COMPLETED FOR EACH TRADE WASTEWATER CONNECTION TO SYDNEY WATER'S SEWER

3. IS ANY OF THE TRADE WASTEWATER TREATED PRIOR TO DISCHARGE TO THE SEWER?

☐ NO ☞ DETAILS OF PROPOSED PRE-TREATMENT FACILITIES MUST BE ATTACHED AS "APPENDIX D". (REFER TO "APPENDIX D" IN THE INFORMATION PACKAGE)

☒ YES ☞ DETAILS OF EXISTING PRE-TREATMENT FACILITIES MUST BE ATTACHED AS "APPENDIX D". (REFER TO "APPENDIX D" IN THE INFORMATION PACKAGE)

4. GREASE TRAPS will need to be cleaned by a Contractor registered with Sydney Water's Wastesafe system. The frequency of cleaning will be determined by Sydney Water. Please provide details:

GREASE TRAP CLEANING CONTRACTOR	CONTRACTORS WASTESAFE NO
* we believe a grease trap will not be necessary	T _____

5. Will the trade wastewater finally (ie. AFTER pre-treatment) be pumped to the sewer? ☒ NO

☐ YES ☞ PUMP MANUFACTURER'S SPECIFICATION/BROCHURE MUST BE ATTACHED AS "APPENDIX E". (REFER TO "APPENDIX E" IN THE INFORMATION PACKAGE)

6. Is a WATER meter fitted to the premises? ☒ NO ☞ A WATER METER WILL HAVE TO BE FITTED

☒ YES, SUPPLY YOUR BUSINESS ONLY ☞ HOW MANY METERS? 1

☐ YES, SUPPLY BUSINESSES/RESIDENCES IN ADDITION TO YOURS ☞ HOW MANY METERS? _____

List the serial number(s) stamped on the meter(s) CDLF0059

7. Is/Will water OTHER than Sydney Water's supply being/be used on the premises (eg. Bore Water)? ☒ NO

☐ YES ☞ GIVE DETAILS

NOTE: FOR ASSISTANCE WITH QUESTIONS 8, 9 AND 10:

- A fully open tap will supply approximately 0.3 litres per second (or 1,000 litres per hour)
- As a guide, the MAXIMUM daily discharge is likely to be 20 percent (%) more than the AVERAGE figure

8. Estimate the MAXIMUM INSTANTANEOUS rate of discharge to the sewer * GRAVITY FED 2" pipe litres per second

9. Estimate the MAXIMUM DAILY discharge volume to the sewer 80,000 litres

10. Estimate the AVERAGE DAILY discharge volume to the sewer 16,000 litres

Note: Sydney Water's Trade Waste Policy requires an approved flowmeter to be installed. For more information and publications on flow measurement guidelines, please visit the trade waste section of our website at www.sydneywater.com.au

11. Is a discharge FLOW METER installed? ☐ YES ☒ NO

12. What is the brand and model of the existing discharge or proposed discharge flow meter?

Brand	Model

Note: Water meters have been found to be totally unsuitable for measuring the quantity of trade wastewater discharged and are not permitted for this purpose.

14. Are there any discharges to sewer, which can possibly contain rainwater? ☒ NO

☐ YES ☞ DETAILS MUST BE COMPLETED IN "APPENDIX F" (REFER TO "APPENDIX F" IN THE INFORMATION PACKAGE)

15. Hours when discharge of trade wastewater to sewer will occur?

Monday	06:00 TO 18:00	Thursday	06:00 TO 18:00	Saturday	06:00 TO 14:00
Tuesday	06:00 TO 18:00	Friday	06:00 TO 18:00	Sunday	: TO :
Wednesday	06:00 TO 18:00				

16. How many people are (or will be) employed at the premises?

(THIS ALLOWS SYDNEY WATER TO ESTIMATE THE VOLUME OF WATER USED FOR DOMESTIC PURPOSES)

2 - 4 People

17. Have you lodged a DEVELOPMENT APPLICATION with your Local Council? ☒ YES ☐ NO

18. Are you (The Applicant) the OWNER or MANAGING AGENT for the property? ☒ YES ☐ NO

As the Owner/Managing Agent, I am aware of this Application and that this business will be (or is being) carried out on the property

SIGNATURE of OWNER or MANAGING AGENT	PRINT NAME	DATE
[signature]	MARK HAUGH	12-6-15

☒ Owner

☐ Managing Agent

Agency Stamp

FULL NAME of APPLICANT (BLOCK LETTERS)		POSITION IN COMPANY
~~BRX~~ DEMAST PTY LTD	BRAD KING	GENERAL MANAGER

SIGNATURE of APPLICANT		DATE
[signature]		17-6-15

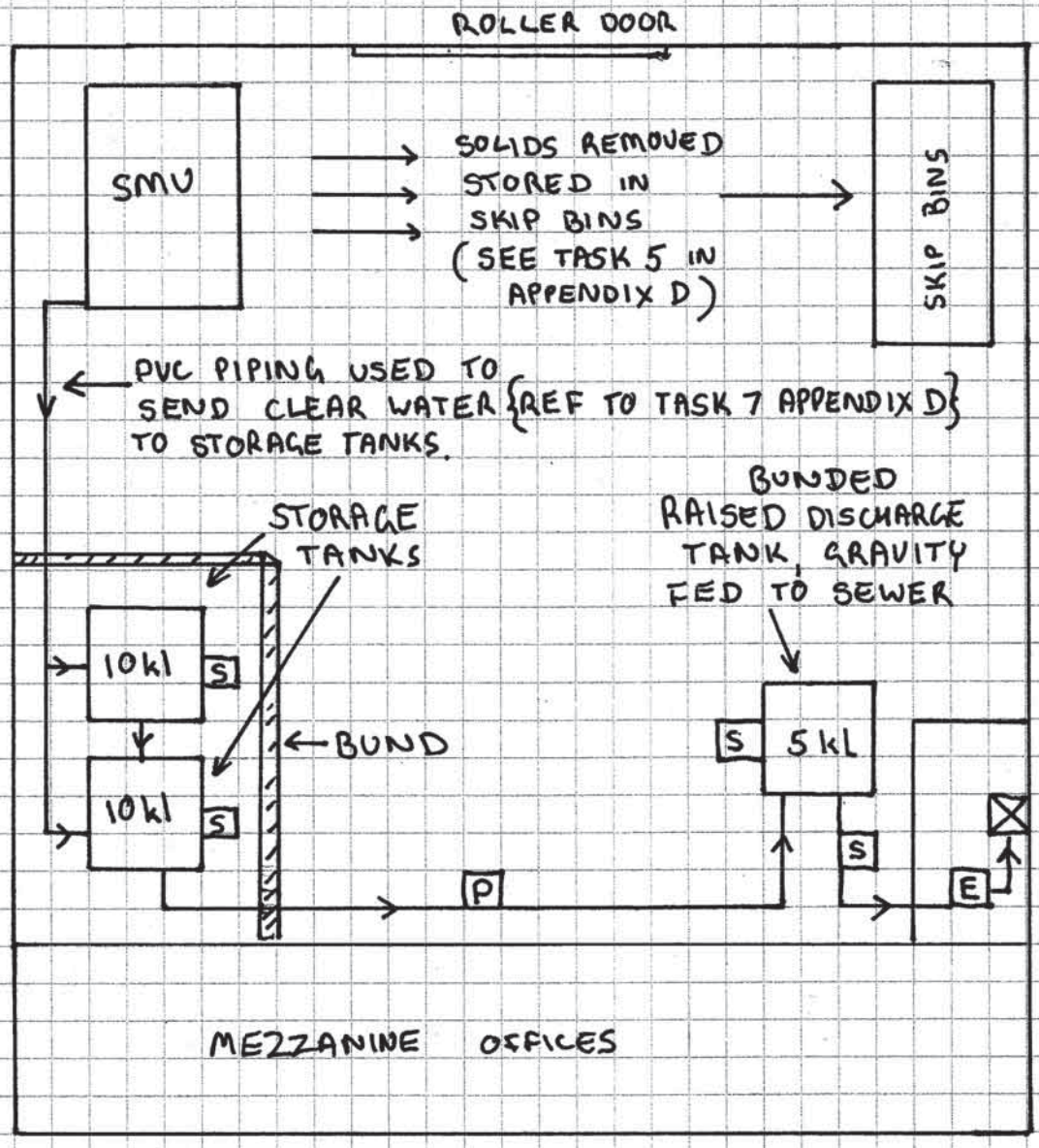
SIGNATURE of WITNESS		PRINT NAME (BLOCK LETTERS)
[signature]		MIA LEITCH.

NOTE

APPENDICES A to F, plus any other relevant Appendices, must be attached to this Application (REFER TO THE INFORMATION PACKAGE).

Appendix A	Site plan	☒ YES	☐ NO
Appendix B	Plan of any proposed drainage	☐ YES	☒ NO
Appendix C	Nature of processes of the business completed	☒ YES	☐ NO
Appendix D	Details of existing and/or proposed pre-treatment equipment	☒ YES	☐ NO
Appendix E	Pump specifications	☐ YES	☒ NO
Appendix F	Details of any discharges to sewer that may contain rainwater	☐ YES	☒ NO

WAREHOUSE INTERNAL LAYOUT



[S] SAMPLE POINT

[X] DISCHARE TO SEWER

[E] ELECTROMAGNETIC FLOW METER

[P] FLOAT SWITCH PUMP

→ PVC PIPING

Sydney WATER

Flow measurement

For trade waste dischargers

2006

CONTENTS

INTRODUCTION

The following guidelines have been compiled to provide technical service information in flow measurement, open area requirements and other equipment used in the monitoring of trade wastewater discharges to Sydney Water's sewerage system. The information is designed to assist Sydney Water's Customers in understanding discharge requirements. This guide is by no means exhaustive, and neither recommendation nor endorsement is given to the manufacturers, agents or products listed.

This booklet should be read in conjunction with Sydney Water's Trade Waste Policy

When any of the listed product manufacturers or agents is contacted, reference to the Sydney Water Specification should be made.

When a flow measurement system is installed ensure that the manufacture or their agent completes the commissioning.

The availability of the following data should assist in the pre-planning of projects involving trade wastewater discharges and allow for early submission of applications to avoid delays in the negotiation of a Trade Waste Service Agreement.

SPECIAL NOTE:

The design of flow measurement systems to suit particular site conditions is a specialist consulting function. Many consultants, manufacturers and suppliers can provide equipment that is entirely suitable, but the integration of these various items of equipment into a flow measurement system, which will meet your individual site conditions, is a specialist function that cannot be carried out over the telephone.

FLOW MEASUREMENT

1. FLOW MEASUREMENT FACILITIES ... WHY?

Flow Measurement facilities are required by Sydney Water to enable accurate information to be obtained concerning the rates, volumes and frequencies of significant Trade Waste discharges to the sewerage system from non-residential properties. The measured Trade Waste volume is used for calculating masses of pollutants discharged.

The information gathered is used for:

- Allowing Sydney Water to assess **quality** (trade wastewater) and **quantity** (sewerage usage) charges against non-residential discharges. This is a more accurate, and fairer, basis of assessing charges compared to an estimation.
- Determining a **discharge factor** that could be used to assess trade wastewater, sewerage usage and meter size charges.
- Providing the Customer with the means to have a greater awareness of discharge patterns. This information can improve efficiencies within the process of manufacture, and therefore, lessen charges.
- Providing the Customer with data so that they can more effectively manage their trade wastewater discharge and as a performance indicator to assess any reduction in sewer usage.
- Providing data for a "user-pays" charging system.
- Allowing "flow-proportional" sampling of the trade wastewater to be carried out.
- Assessing the necessity of sewer amplification in certain areas to cover increased loads and future growth.
- Providing hydraulic data for improved sewer design and to ensure equitable allocation of sewer quality and quantity capacity.

2. REQUIREMENTS FOR FLOW MEASUREMENT FACILITIES

Sydney Water's Trade Waste Policy and Management Plan states the following:

The rates and volumes of trade wastewater discharged into Sydney Water's sewer under an agreement or conditional permit will be determined as follows:

- Where the maximum daily discharge of trade wastewater is 5,000 litres per day or less, Sydney Water may apply a trade wastewater discharge factor. This represents the percentage of the metered water consumption discharged to Sydney Water's sewer as trade wastewater. It will be either an industry 'standard' decided by Sydney Water or 100 per cent if no standard has been set.
- Where the maximum daily discharge of trade wastewater is greater than 5,000 litres a day, the customer shall provide an approved flow measurement device and approved

instrumentation to record an instantaneous readout of flow rate in litres per second and total volume in kilolitres on a continuous basis.

NOTE:

i) A Certificate of Calibration will need to be submitted to Sydney Water at intervals of not more than 12 months for the flow measurement instrumentation installed. Calibration is to be carried out onsite using a volumetric method or a check flowmeter, with instrumentation and methods having full traceability to National Standards through a N.A.T.A. registered laboratory.

ii) The primary measurement device and approved instrumentation should, within practical limitations, be installed in a location that excludes the domestic wastewater generated on the site.

iii) Water meters are not suitable for trade wastewater discharge because they are constructed of different materials and corrode in industrial effluent.

v) The use of positive displacement flow meters are no longer permitted in industries where suspended solids are high, often lumpy of has fibrous materials, e.g. in the food industry, laundries.

3. LOCATION OF FLOW MEASUREMENT FACILITIES ON SITE

The flow measurement facility should be:

a) Located in a position as close as possible to the pollutant source or immediately downstream of the pre-treatment plant such that it will allow the total discharge to be monitored. To enable flow proportional sampling it is important to have the flow converter/totaliser adjacent to the sampling point so that the automatic sampler can be connected to the appropriate plug.

b) Equipped with a 240-volt AC power supply. The flow meter must be ‘hardwired’ to the electrical supply. In addition, a suitable (weather proof), 240-volt AC power outlet must be available.

4. DISCHARGE FACTORS

WHAT IS A DISCHARGE FACTOR?

A discharge factor generally represents the percentage of the metered water consumption, which is discharged to Sydney Water's sewer from a non-residential property.

There are two types of discharge factor:

- SEWERAGE USAGE (SUDF)
- TRADE WASTEWATER (TWDF)

HOW IS THE SEWERAGE USAGE DISCHARGE FACTOR DETERMINED?

This volume of wastewater includes **all** discharge to sewer, that is, **trade wastewater** *plus* **domestic wastewater** *plus* any other liquids that form part of the wastewater stream. In certain cases, standard factors are established for some generic business processes. It is important to have this factor accurate as it forms the basis of your sewerage usage charge and a component of your meter size service charge.

***NOTE**:i) Where contaminated ground water or open area 'first flush' systems discharge to sewer, a discharge volume has to be determined using a **flow** meter.*

ii) When calculating Sewerage Usage volumes, an estimate of the domestic component (of the flow) may be made by allowing 100 litres per person a day.

HOW IS THE TRADE WASTEWATER DISCHARGE FACTOR CALCULATED?

This volume of wastewater is only that which emanates from the TRADE WASTEWATER process. The factor is calculated by determining the volume of trade wastewater and expressing this volume as a percentage of incoming metered water consumption. This volume is determined using one of the following methods:

i) **Measurement of flow to sewer** by the use of flow meters.

ii) **Measurement of water to product** which means that the balance is going to sewer. This can be measured by the installation of flow metering devices to the process area.

iii) **Measurement of water not discharged to sewer**, for example the installation of a 'check' water meter on irrigation pipe work.

iv) **Estimation of water in product** from a customer's production figures or other meaningful data.

v) **Industry standard discharge factors** if previously determined.

5. PRIMARY MEASUREMENT DEVICES

WHAT IS A PRIMARY MEASUREMENT DEVICE

A primary measurement device is a structure/fitting located within a pipe or open channel, which will be used as a point of reference to calculate the rate of discharge of wastewater. The rate of discharge may be calculated at this point using a known formula or rating tables. The manufacturer of the flume should provide rating tables for flumes.

The primary measurement device should be installed in a location that excludes the domestic wastewater generated on the site.

Flow measurement instrumentation shall be fitted to the primary measurement device to calculate and display the rate of discharge and the total flow.

PRIMARY MEASUREMENT DEVICES FOR FULL PIPE FLOW

Where the discharge to sewer can be intercepted in an above ground conduit which flows full at all times, the provision of an appropriately sized adaptor fitting to allow the installation of a flow meter should be carried out.

The use of pipelines instead of open channels has many advantages. Pipelines prevent loss of water by evaporation and seepage. Operation costs are reduced because less maintenance is required due to sedimentation/sludge on the bottom, or the build up of foam/scum on the surface.

PRIMARY MEASUREMENT DEVICES FOR OPEN CHANNEL FLOW

Measurement of flow rates in open channels is difficult because of non-uniform channel dimensions and variations in velocities across the channel. Weirs and flumes allow wastewater to be routed through a structure of known dimensions, permitting flow rates to be measured as a function of depth of flow through the structure. Thus, one of the simplest and most accurate methods of measuring water flow in open channels is by the use of weirs and flumes.

Flumes and weirs are specially designed shapes that characterise the flow of wastewater in open channels. The choice of flume or weir type depends on the application: flow rate, channel shape and solids content of the water

6 INSTRUMENT SPECIFICATION and INSTALLATION PROCEDURES for TRADE WASTEWATER

Specifications for flow measurement

All flow meters are to comply with the following requirements:

The preferred method of flow measurement is an in line electromagnetic flow meter. Other types of flow measurement within full pipes are insertion electromagnetic, clamp on ultrasonic, in line ultrasonic and paddle wheel flow meters. Additional specifications for open channel flow measurement are listed following the general specifications.

Standard pipe sizes:	25 mm to 150 mm Larger size pipes may be used with prior approval.
Measurement range:	0.3 to 8 metres per second velocity.

Accuracy:	+ or- 2% of the actual flow at the lowest typical flows. All discharge to sewer is to be recorded.

Output signals:	A facility must be included to allow an interface between the flow metering instrumentation, and automatic sampling equipment and data logger/recording equipment.
	To achieve this the following two “Amphenol” type plugs should be provided.
	• For connection of data logger or chart recorder.
	  o Analogue output: 1 to 5 volts DC (4 – 20 milliamps).
	  o Serial No MS3102A14S9P – positive to pin “A” and negative to pin “B”.
	• For connection of an automatic sampler for flow proportional sampling.
	  o Voltage free (isolated) pulse output, with a minimum duration of 300 milliseconds, for each unit count on the totaliser unit.
	  o Serial No: MS3102A14S6P - pulse output connected to pins "A" and "C".
	  o Pulse output is to be set at 1 kL unless it is for a small volume dischargers or companies with low flows, the pulse output may be set in multiples of litres i.e. 100 L. Any change from kilolitres should be displayed on the instrumentation and enclosure.
	  o Companies with a Risk Index 1 to 4 may be required to install two connections with pulse output for flow proportional sampling from two automatic samplers.

Power supply:	• A 240-volt G.P.O. is required as near as is practicable to the instrumentation for the connection of an automatic sampler, and/or recording equipment. • 240 volt AC outlet - “Rowco" RC310, or similar. • Instrumentation is to be **hardwired** and housed in a weatherproof inclosure with a clear front and located in a position that will allow ease of access. • All electrical work is to be carried out by a licensed electrician to Australian Standards.
Conductivity of process fluid (where applicable):	Minimum 20 μS/cm
Visual displays:	Visual displays should be as follows:

- Preferred display: LCD or LED digital format.
- Instantaneous flow rate in litres per second (to one decimal place).
- Totaliser in kilolitres (minimum six digit) **with NO external reset**.
  In some instances such as a small volume dischargers or companies with low flows, the totaliser may be set in litres. Consultation must be made with Sydney Water before giving approval for this change. Any change from kilolitres should be displayed on the instrumentation and enclosure.
- Totaliser must be capable of retaining its reading in the event of a power failure.

Enclosure:

A waterproof (outdoor) enclosure is to be installed to house the instrumentation. It is to be securely lockable with a transparent window to allow external viewing of visual displays.

Installation procedures:

Following is some general installation considerations for full pipe flow measurement. Installations may vary depending on type and manufacturer of the flow meter. Reference should be made to the documentation supplied by the manufacturer.

Installation notes:

- An isolating valve is to be installed upstream of the meter for maintenance purposes. This valve is not required for pumped discharges.
- Pipework into and out of the flowmeter shall be designed to ensure that the flowmeter section remains full at all times.
- The flow meter should be installed a minimum of 15 diameters downstream, and 10 diameters upstream of any flow disturbance in the discharge line.
- Support the pipeline on both sides of the flow meter to avoid vibration.
- Make sure there is sufficient room next to the pipe flanges to install nuts and stud bolts.
- Use adaptor pipes to permit axial shifting of counter flanges to facilitate installation of large meter sizes.
- For vortex or corkscrew flow, increase inlet and outlet sections or install flow straighteners.

Avoid installation of the flow meter in the vicinity of strong electromagnetic fields.

Additional specifications for open channel flow measurement:

Preferred level sensing method	Ultrasonic.
Sensor	Must be water tight, and in some cases would need to be explosion proof.
Measurement range	0 to 3 metres (minimum).
Temperature compensation	The sensor shall have temperature compensation unless it can be guaranteed by the manufacturer that the meter can achieve 2% accuracy over the expected range of flows.
Installation procedures:	Following is some general installation considerations for open channel flow measurement. Installations may vary depending on the manufacturer of the flow meter. Reference should be made to the documentation supplied by the manufacturer. Installation notes: The primary measurement device is to be installed in accordance with the theory of hydromechanics.

7 FLOW MEASUREMENT PRODUCTS, SUPPLIERS AND SERVICES

The design of flow measurement systems to suit particular site conditions is a specialist consulting function. Many consultants, manufacturers and suppliers can provide equipment that is entirely suitable, but the integration of these various items of equipment into a flow measurement system, which will meet your individual site conditions, is a specialist function that cannot be carried out over the telephone. Flow measurement instrumentation can be expensive and very technical pieces of equipment. The equipment is to be installed by qualified personnel, and not a plumber who has no experience in this field.

When the flow meter is installed ensure that the manufacture or their agent completes the commissioning. This includes onsite calibration.

When any product manufacturers or agents are contacted, reference to the Sydney Water specification should be made. These specifications are included at the end of this document.

Water meters are not suitable for trade wastewater discharge because they are constructed of different materials and corrode in industrial effluent.

Following is a list of consultants, manufacturers and/or suppliers of various flow meters. Several of the listed companies manufacture different types of meters, not all will be suitable for all applications. This list is not final, and will be updated regularly to include new meters or changes in contact details. Other manufacturers and/or suppliers may be available in the Yellow Pages or by searching the Internet.

Customers must contact Sydney Water's Commercial and Industrial Services for approval prior to installation of the flow measurement system.

Consultancy services

Company name and contact	Contact Details	Website
Crow Instrumentation	Keith Krahe 02 9670 1229 0413 941 096 keithk@iprimus.com.au	
Fidera	(02) 88256222 sales@fidera.com.au	http://www.fidera.com.au/
Geoff Thomas Plumbing	Geoff Thomas 02 9610 6521 0412 444 886	
Joe Hajdu	02 9872 8184	
Hydrometric Consulting Services Pty Ltd	Glen Murphy 02 9892 4588 0402 134 092 glen@hydrometric.com.au	http://www.hydrometric.com.au/
Max Fleming Pty Ltd	02 4571 4278 mail@m-w-f.com	

Suppliers of Electromagnetic flow meters - Full pipe

Preferred method of flow measurement

Company name	Address	Contact Details	Website
ABB Australia Pty Ltd	Bapaume Road Moorebank NSW 2170	02 9821 0957 sales@au.abb.com	http://www.abb.com/au
Endress + Hauser **Australia (Pty) Ltd**	Unit 12, 277 Lane Cove Road North Ryde NSW 2113	Michael Moore 02 8877 7000 0409 302 418 michael.moore@au.endress.com	http://www.au.endress.com/
Fidera	6, 20-22 Foundry Road, Seven Hills NSW 2147.	(02) 88256222 sales@fidera.com.au	http://www.fidera.com.au/
Krohne Australia Pty **Ltd**	10/287 Victoria Rd Rydalmere NSW 2116	Phil King 02 8846 1700 phil@krohne.com.au	http://www.krohne.com.au/
Manu Electronics Pty **Ltd** Agent for ABB	41 Carter Road Brookvale NSW 2100	Alex Manu 02 9905 4324 alex@manuelectronics.com.au	http://www.manuelectronics.com.au/
Siemens Ltd Taken over Danfoss	Cnr Herring and Talavera Roads, Macquarie Park North Ryde NSW 2113	Col Gassman 02 9491 5658 0423 558 033 col.gassman@siemens.com	http://www.siemens-milltronics.com/

Tyco Environmental Systems	268 - 292 Milperra Rd Milperra NSW 2214	02 9792 0201	http://www.tycoflowcontrol.com.au/
Yokogawa	Tower A 112 - 118 Talavera Road North Ryde NSW 2113	Robert Abrahamian 02 9805 0699 rabrahamian@yokogawa.com.au	http://www.yokogawa.com.au/

Suppliers of other flow meters

Whilst there are many other types of meters available, not all are suitable for the measurement of trade wastewater. If a meter that is different from an electromagnetic meter is to be installed, it is essential that the CSR conduct a thorough site inspection prior to approval. Other types of meters include paddlewheel, insertion magnetic, Doppler, clamp on ultrasonic, open channel ultrasonic etc.

Company name	Address	Contact Details	Website
ABB Australia Pty Ltd	Bapaume Road Moorebank NSW 2170	02 9821 0957 sales@au.abb.com	http://www.abb.com/au
Ecotech Pty Ltd Sigma	8/20-30 Stubbs Street Silverwater NSW 2128	02 9748 7111 sydney@ecotech.com.au	http://www.ecotech.com.au/
Endress + Hauser **Australia (PTY) Ltd**	Unit 12, 277 Lane Cove Road North Ryde NSW 2113	Michael Moore 02 8877 7000 0409 302 418 michael.moore@au.endress.com	http://www.au.endress.com/
Fidera	6, 20-22 Foundry Road, Seven Hills NSW 2147.	(02) 88256222 sales@fidera.com.au	http://www.fidera.com.au/
George Fischer Pty. Ltd. Signet	186-190 Kingsgrove Road Kingsgrove NSW 2208	02 9554 3977 sales@georgefischer.com.au	http://www.gfsignet.com/
John Morris Scientific Isco	61-63 Victoria Avenue, Chatswood, NSW 2067	1800 251 799 nswbo@johnmorris.com.au	http://www.johnmorris.com.au/
Krohne Australia Pty Ltd	10/287 Victoria Rd Rydalmere NSW 2116	Phil King 02 8846 1700 phil@krohne.com.au	http://www.krohne.com.au/

Manu Electronics Pty Ltd	41 Carter Road Brookvale NSW 2100	Alex Manu 02 9905 4324 alex@manuelectronics.com.au	http://www.manuelectronics.com.au/
Measuring & Control Equipment (MACE) Pty Ltd	1/2a Pioneer Ave, Thornleigh NSW 2120	Robert Vetisch 02 9980 2692 0427 219 164 sales@mace.com.au	http://www.mace.com.au/
Measurement Plus Pty Ltd	46 Lucas Road Seven Hills NSW 2147	Tony Moon 1300 367 736 0409 907 126 mp.aust@measurement-plus.com.au	www.measurement-plus.com.au
Measurement Resources Pty Ltd	33-37 College Street Gladesville NSW 2111	02 9816 3377 admin@measurement-resources.com.au	http://www.measurement-resources.com.au/
Measurement Solutions Pty Ltd	PO Box 6826 Baulkham Hills NSW 2153	02-9894-4300 info@measurement-solutions.com	http://www.drexelbrook.com/
Siemens Ltd Taken over Danfoss	Cnr Herring and Talavera Roads, Macquarie Park North Ryde NSW 2113	Col Gassman 02 9491 5658 0423 558 033 col.gassman@siemens.com	http://www.siemens-milltronics.com/
Trimec Industries Pty Ltd	Unit 1 / 19 - 21 Northumberland Road Caringbah NSW 2229	02 9540 4433 sales@trimecind.com.au	www.trimecind.com
Tyco Environmental Systems	268 - 292 Milperra Rd Milperra NSW 2214	02 9792 0201	http://www.tycoflowcontrol.com.au/
Yokogawa	Tower A 112 - 118 Talavera Road North Ryde NSW 2113	Robert Abrahamian 02 9805 0699 rabrahamian@yokogawa.com.au	http://www.yokogawa.com.au/

8 COMMISSIONING, MAINTENANCE and CALIBATION of FLOW METERS

Commissioning of flow meters

When a flow meter is installed, ensure that the meter is commissioned before use. This will include having the desired units of measure, i.e. litres per second, kilolitres etc entered as well as any factors required. The pulse output information is required to be entered.

The commissioning of the flow meter is usually included in the price of the meter, but when purchased by the customer and installed in house, the commissioning is not carried out.

Maintenance of flow meters

Ensure that the flow meter is maintained in working order as per the manufacture's instructions.

- For full pipe flow meters ensure that there is no build-up of grease or solids in the pipeline
- For paddlewheel flow meters ensure that there is no fibres or threads wrapped around the paddlewheel
- For open channel flow measurement ensure that the primary measurement device is maintained as follows:
    - Maintenance of the flume and the approach channel is important to secure accurate continuous measurements. It is essential that the throat and approach channel to flumes shall be kept clean free from algal growths. Ensure that there is no buildup of solids directly downstream of the flume. Particular attention should be paid to the sampling tube if installed.
    - Maintenance of the weir and the weir channel is necessary to ensure accurate measurements. The approach channel shall be kept free of silt, vegetation and obstructions that might have deleterious effects on the flow conditions specified for the standard installation. Ensure that there is no buildup of solids behind the weir plate. The pit/weir tank should be pumped out on a regular basis to avoid this happening. The downstream channel shall be kept free of obstructions that might cause submergence or inhibit full ventilation of the nappe under all conditions of flow. The weir plate shall be kept clean and firmly secured. In the process of cleaning, care shall be taken to avoid damage to the crest or notch, particularly the upstream edges and surfaces. Construction specifications for these most sensitive features should be reviewed before maintenance is undertaken.

Calibration of flow meters

Flow meters are tested and calibrated by the manufacturers prior to leaving the factory. This is done under known conditions. When installed the flow meter is required to be tested in the installed environment. The calibration is to be verified. Most problems with flow meters are related to the environment and the installation.

Flow meters are to be calibrated in the field every 12 months, and in some instances more often. The method of calibration and the pulse output intervals are to be recorded.

A Certificate of Calibration will need to be submitted to Sydney Water at intervals of not more than 12 months for the flow measurement instrumentation installed. Calibration is to be carried out onsite using a volumetric method or a check flow meter, with instrumentation and methods having full traceability to National Standards through a N.A.T.A. registered laboratory

If a flow meter is required to be taken off site for calibration/repairs, verification is required when the flow meter is returned to the site. A replacement meter is to be installed whilst the original meter is taken off site.

On Site Calibration Report

Agreement No	
Company	
Address	
Contact No	

ALL SECTIONS TO BE COMPLETED

Flow meter reading

Start of calibration		End of calibration	

Flow meter specification

Type of flow meter			
Model			
Serial No			
Primary measurement device			
Size			
Flow range			
Totaliser units (kL)		Instantaneous flow rate (L/s)	
Output pulse rate			

Flow meter calibration

Accuracy of flow meter					
Flow range at full scale					
Method of calibration: Volumetric		Reference meter		Rating tables	
Other *(please specify)*					
Next calibration due					
Comments:					

Details of Calibration Company

Company name	
Address	
Contact No	

I certify that this unit has been calibrated on site by:

Name *(please print)*	
Signature	
Date of calibration	

Completed form is to be sent to Sydney Water within seven days of calibration

Notes:

COMMERCIAL & INDUSTRIAL CUSTOMER SERVICES

Business Hours: 8.30 am to 5.00 pm, Monday to Friday

ROCKDALE: 77 Chapel Street, Rockdale 2216.Phone: (02) 9551 4620 Fax: (02) 9551 4388

SEVEN HILLS: 18 Leabons Lane, Seven Hills. Phone: (02) 9622 2244 Fax: (02) 9831 2464

BUSINESS HEADQUARTERS:
Level 7 Old Building Head Office
P.O. Box A53 Sydney South
NSW 1232

Email: tradewaste@sydneywater.com.au

Sydney Water Customer Centres

CITY: Ground Floor, 115 Bathurst Street, Sydney 2000.

KATOOMBA: 103 Katoomba Street, Katoomba 2780.

WOLLONGONG: 120 Smith Street, Wollongong 2500.

CUSTOMER ENQUIRIES

13 20 92

SERVICE DIFFICULTIES & EMERGENCY SERVICES

13 20 90

www.sydneywater.com.au

APPENDIX C: NATURE OF THE BUSINESS

INTRODCUTION

Excavation techniques have changed in recent times with the ever increasing presence of buried services such as fibre optic cables, water services and electricity etc. The preferred method of excavation by most councils and major contractor is non destructive excavation.

Non Destructive Digging is a safe solution to avoid hitting or breaking existing services underground. This technology uses high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank. This method of excavating is fast becoming the preferred method of excavating for authorities such as councils to avoid damaging services.

The result of the above process is a mixture of soils and clean water (which is essentially mud).

Our process involves separating the water from the soil.

In conjunction with our existing Environmental Protection License (No: 20519) from the EPA we can only accept uncontaminated classified material which is produced through Non Destructive Excavation.

ADVANTAGES:

By separating the clean water from the soil, we minimise the amount of material taken to land fill. Therefore the ultimate goal is to recycle as much water and soil as possible by:

(a) sending the recycled water and soil back to the site of origin.

(b) sourcing local high water users, such as truck washers and selling or donating water to these businesses.

This will all result in:

- Less truck movements
- Less material ending up in land fill
- Improvement in resources recovering.
- Water savings.
- Reduction of costs to business.

PROCESS FLOW CHART

TASK 1: Wet material is produced on site, for example, bi product of non-destructive excavation

TASK 2: Material is taken to premises currently proposed at (7 Long St, Smithfield)

TASK 3: Material is emptied into containerised dewatering screen with a 0.5-3mm aperture

TASK 4: Material greater than 0.5 -3mm is separated and placed in bins

TASK 5: All other material under 0.5-3mm is pumped to the filter chamber which produces a solid dry material and clean water.

TASK 6: All solid material is recycled back to site of origin for reuse or taken to appropriate landfill site as general waste

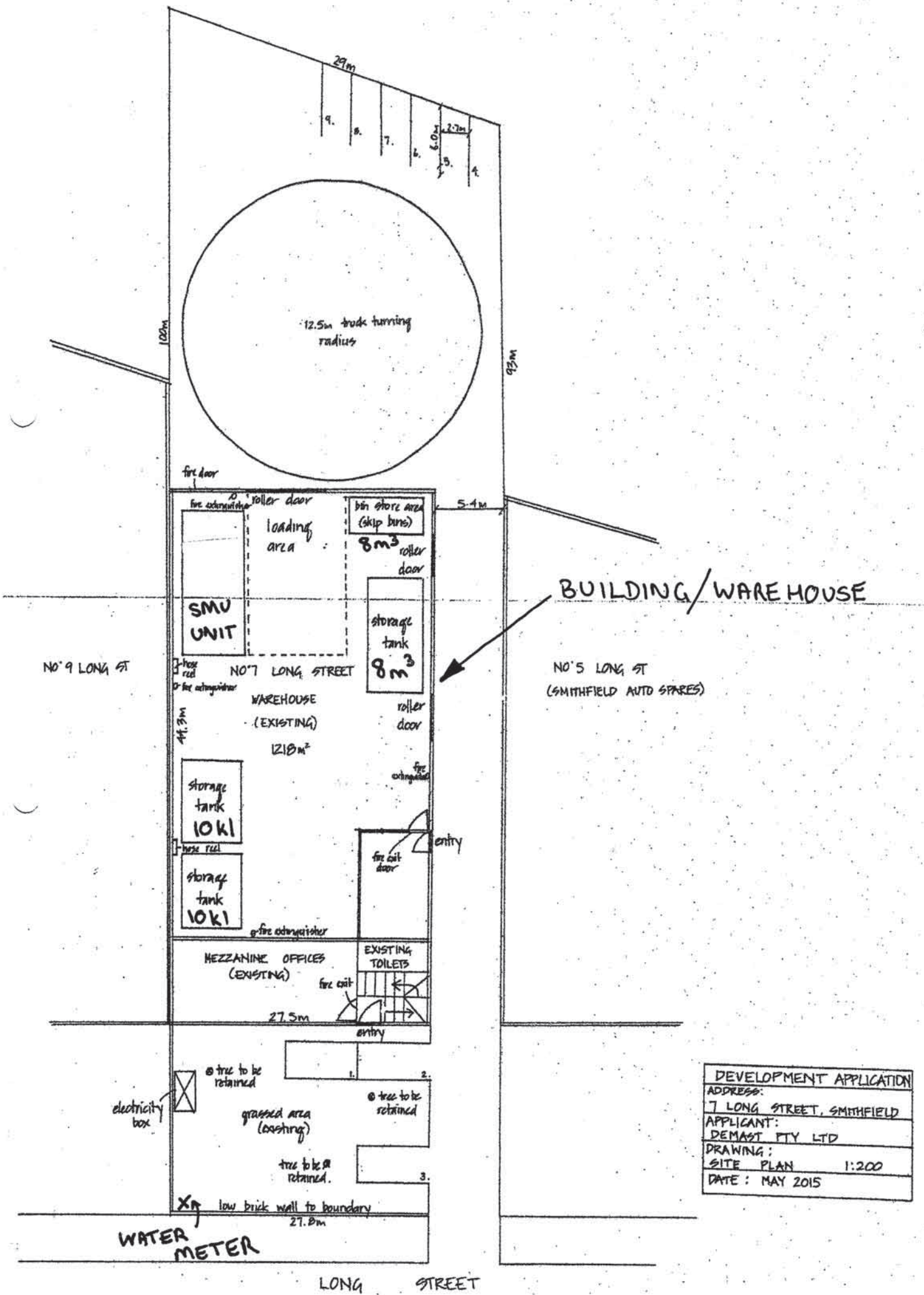
TASK 7: Clear water is tested for such things as turbidity and Ph.

Liquid before and after **TASK 5**

TASK 8:

- Water is recycled on site.
- Water is recycled back to site of origin.
- Water Donated/Sold to appropriate high water use local businesses.
- Discharged using a trade wastewater consent through Sydney Water.

APPENDIX A : SITE PLAN



DEVELOPMENT APPLICATION	
ADDRESS:	
7 LONG STREET, SMITHFIELD	
APPLICANT:	
DEMAST PTY LTD	
DRAWING:	
SITE PLAN	1:200
DATE : MAY 2015	

APPENDICES:

(A) Site Plan

(B) n/a

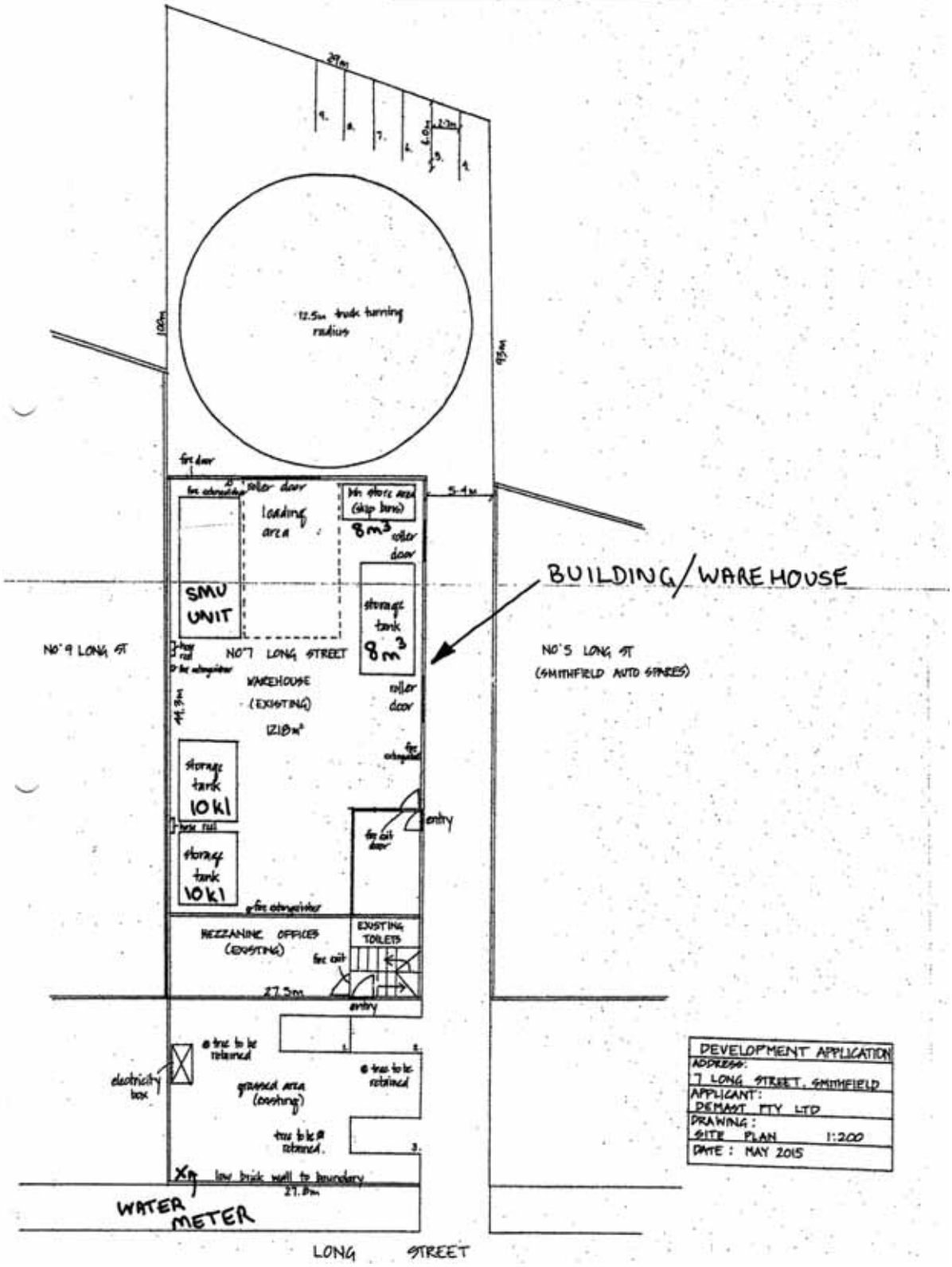
(C) Nature Of Business

(D) Pre-Treatment Process (Flow Chart)
Including Table 1: Substances

(E) n/a Pump Specifications

(F) n/a Open Area

APPENDIX A : SITE PLAN



APPENDIX B: N/A

APPENDIX C: NATURE OF THE BUSINESS

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Non Destructive Digging is a safe solution to avoid hitting or breaking existing services underground. This technology uses high pressure clean water to dig holes whilst a specialised nozzle vacuums the spoil into a holding tank. This method of excavating is fast becoming the preferred method of excavating for authorities such as councils to avoid damaging services.

The result of the above process is a mixture of soils and clean water (which is essentially mud).

Our process involves separating the water from the soil.

In conjunction with our existing Environmental Protection License (No: 20519) from the EPA we can only accept uncontaminated classified material which is produced through Non Destructive Excavation.

Advantages:

By separating the clean water from the soil, we minimise the amount of material taken to land fill. Therefore the ultimate goal is to recycle as much water and soil as possible by:

(a) sending the recycled water and soil back to the site of origin.

(b) sourcing local high water users, such as truck washers and selling or donating water to these businesses.

This will all result in:

- Less truck movements
- Less material ending up in land fill
- Improvement in resources recovering.
- Water savings.
- Reduction of costs to business.

APPENDIX D: PRE-TREATMENT PROCESS FLOW CHART

TASK 1: Wet material is produced on site, for example, bi product of non-destructive excavation

TASK 2: Material is taken to premises currently proposed at (7 Long St, Smithfield)

TASK 3: Material is emptied into containerised dewatering screen with a 0.5-3mm aperture

TASK 4: Material greater than 0.5 -3mm is separated and placed in bins

TASK 5: All other material under 0.5-3mm is pumped to the filter chamber which produces a solid dry material and clean water.

TASK 6: All solid material is recycled back to site of origin for reuse or taken to appropriate landfill site as general waste

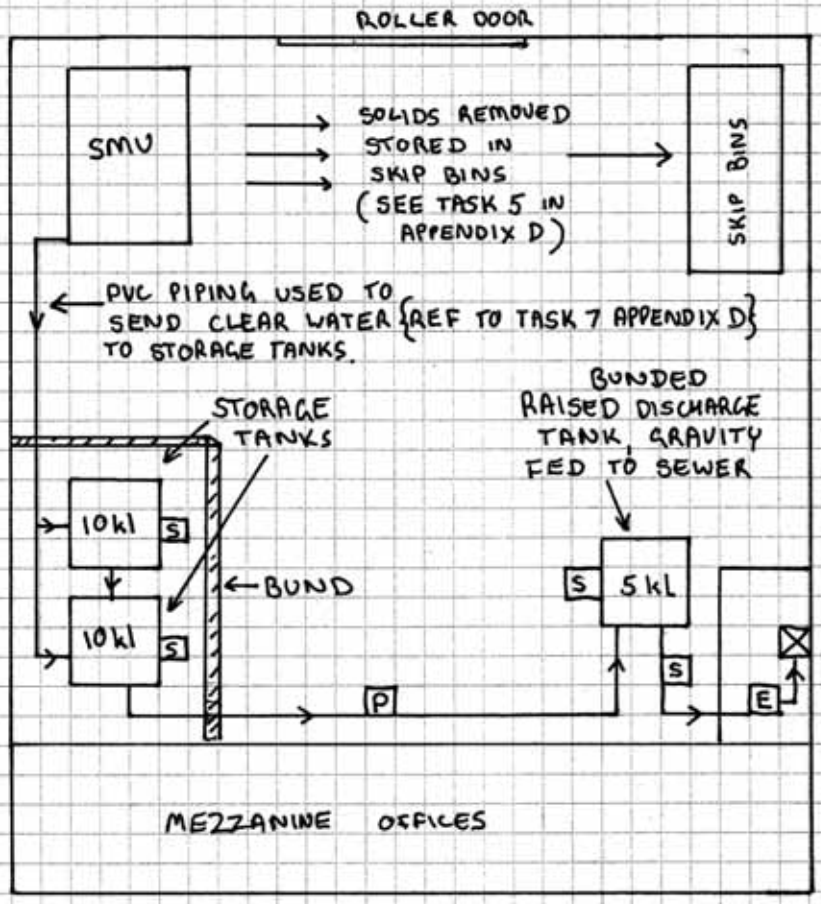
TASK 7: Clear water is tested for such things as turbidity and Ph.

Liquid before and after **TASK 5**

TASK 8:

- Water is recycled on site.
- Water is recycled back to site of origin.
- Water Donated/Sold to appropriate high water use local businesses.
- Discharged using a trade wastewater consent through Sydney Water.

WAREHOUSE INTERNAL LAYOUT



S SAMPLE POINT

DISCHARE TO SEWER

E ELECTROMAGNETIC FLOW METER

P FLOAT SWITCH PUMP

PVC PIPING

TABLE 1: SUBSTANCES

Indicate, in milligrams per litre, the Average Concentration of all substances expected to be present in the trade wastewater discharge. Please also indicate (including the amount) any raw materials, products, chemicals or other goods, stored on site, which may contain the substances listed below.

SUBSTANCE	AVERAGE CONCENTRATION mg/L	TICK IF STORED	AMOUNT STORE Kg
Biochemical Oxygen Demand			
Suspended Solids	<50 parts/ million	yes	
Grease – Total			
Sulphate			
Ammonia			
Nitrogen			
Phosphorus			
Aluminium			
Arsenic			
Barium			
Benzene			
Biocides			
Boron			
Bromine			
Cadmium			
Chlorinated phenolics			
Chlorine			
Chromium			
Cobalt			
Copper			
Cyanide			
Flammable/Explosive Substances			
Fluoride			
Formaldehyde			
Herbicides and defoliants			
Iron			
Lead			
Lithium			
Manganese			
Mercaptans			
Mercury			
Molybdenum			
Nickel			
Pesticides – General, Organophosphates, Organochlorines			
Organoarsenic compounds			
PH	6.5 to 8.5		
Petroleum hydrocarbons (non-flammable)			
Phenolic compounds (non-chlorinated)			
Polynuclear aromatic hydrocarbons			
Radioactive materials			
Selenium			
Silver			
Sulphide			

Sulphite			
Thiosulphate			
Tin			
Total Dissolved Solids			
Uranium			
Volatile halocarbons (formerly chlorinated hydrocarbons)			
Zinc			
Any other substances?			

APPENDIX E: N/A (Pump Specification)

APPENDIX F: N/A (Open Area)

End of Document

ATTACHMENTS

Glossary of Noise Terminology

'A' FREQUENCY WEIGHTING

The 'A' frequency weighting roughly approximates to the Fletcher-Munson 40 phon equal loudness contour. The human loudness perception at various frequencies and sound pressure levels is equated to the level of 40 dB at 1 kHz. The human ear is less sensitive to low frequency sound and very high frequency sound than midrange frequency sound (i.e. 500 Hz to 6 kHz). Humans are most sensitive to midrange frequency sounds, such as a child's scream. Sound level meters have inbuilt frequency weighting networks that very roughly approximates the human loudness response at low sound levels. It should be noted that the human loudness response is not the same as the human annoyance response to sound. Here low frequency sounds can be more annoying than midrange frequency sounds even at very low loudness levels. The 'A' weighting is the most commonly used frequency weighting for occupational and environmental noise assessments. However, for environmental noise assessments, adjustments for the character of the sound will often be required.

AMBIENT NOISE

The ambient noise level at a particular location is the overall environmental noise level caused by all noise sources in the area, both near and far, including all forms of traffic, industry, lawnmowers, wind in foliage, insects, animals, etc. Usually assessed as an energy average over a set time period 'T' (L_{Aeq},T).

AUDIBLE

Audible refers to a sound that can be heard. There are a range of audibility grades, varying from "barely audible", "just audible" to "clearly audible" and "prominent".

BACKGROUND NOISE LEVEL

Total silence does not exist in the natural or built-environments, only varying degrees of noise. The Background Noise Level is the minimum repeatable level of noise measured in the absence of the noise under investigation and any other short-term noises such as those caused by all forms of traffic, industry, lawnmowers, wind in foliage, insects, animals, etc.. It is quantified by the noise level that is exceeded for 90 % of the measurement period 'T' (L_{A90}, T). Background Noise Levels are often determined for the day, evening and night time periods where relevant. This is done by statistically analysing the range of time period (typically 15 minute) measurements over multiple days (often 7 days). For a 15 minute measurement period the Background Noise Level is set at the quietest level that occurs at 1.5 minutes.

'C' FREQUENCY WEIGHTING

The 'C' frequency weighting approximates the 100 phon equal loudness contour. The human ear frequency response is more linear at high sound levels and the 100 phon equal loudness contour attempts to represent this at various frequencies at sound levels of approximately 100 dB.

DECIBEL

The decibel (dB) is a logarithmic scale that allows a wide range of values to be compressed into a more comprehensible range, typically 0 dB to 120 dB. The decibel is ten times the logarithm of the ratio of any two quantities that relate to the flow of energy (i.e. power). When used in acoustics it is the ratio of square of the sound pressure level to a reference sound pressure level, the ratio of the sound power level to a reference sound power level, or the ratio of the sound intensity level to a reference sound intensity level. See also Sound Pressure Level and Sound Power Level. Noise levels in decibels cannot be added arithmetically since they are logarithmic numbers. If one machine is generating a noise level of 50 dB, and another similar machine is placed beside it, the level will increase to 53 dB (from $10 \log_{10} (10^{(50/10)} + 10^{(50/10)})$ and not 100 dB. In theory, ten similar machines placed side by side will increase the sound level by 10 dB, and one hundred machines increase the sound level by 20 dB. The human ear has a vast sound-sensitivity range of over a thousand billion to one so the logarithmic decibel scale is useful for acoustical assessments.

dBA – See 'A' frequency weighting

dBC – See 'C' frequency weighting

EQUIVALENT CONTINUOUS SOUND LEVEL, LAeq

Many sounds, such as road traffic noise or construction noise, vary repeatedly in level over a period of time. More sophisticated sound level meters have an integrating/averaging electronic device inbuilt, which will display the energy time-average (equivalent continuous sound level - L_{Aeq}) of the 'A' frequency weighted sound pressure level. Because the decibel scale is a logarithmic ratio, the higher noise levels have far more sound energy, and therefore the LAeq level tends to indicate an average which is strongly influenced by short term, high level noise events. Many studies show that human reaction to level-varying sounds tends to relate closer to the L_{Aeq} noise level than any other descriptor.

'F' (FAST) TIME WEIGHTING

Sound level meter design-goal time constant which is 0.125 seconds.

FLETCHER–MUNSON EQUAL LOUDNESS CONTOUR CURVES

The Fletcher–Munson curves are one of many sets of equal loudness contours for the human ear, determined experimentally by Harvey Fletcher and Wilden A. Munson, and reported in a 1933 paper entitled "Loudness, its definition, measurement and calculation" in the Journal of the Acoustic Society of America.

FREE FIELD

In acoustics a free field is a measurement area not subject to significant reflection of acoustical energy. A free field measurement is typically not closer than 3.5 metres to any large flat object (other than the ground) such as a fence or wall or inside an anechoic chamber.

FREQUENCY

The number of oscillations or cycles of a wave motion per unit time, the SI unit is the hertz (Hz). 1 Hz is equivalent to one cycle per second. 1000 Hz is 1 kHz.

IMPACT ISOLATION CLASS (IIC)

The American Society for Testing and Materials (ASTM) has specified that the IIC of a floor/ceiling system shall be determined by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The IIC is a number found by fitting a reference curve to the measured octave band levels and then deducting the sound pressure level at 500 Hz from 110 decibels. Thus the higher the IIC, the better the impact sound isolation. Not commonly used in Australia.

'I' (IMPULSE) TIME WEIGHTING

Sound level meter time constant now not in general use. The 'I' (impulse) time weighting is not suitable for rating impulsive sounds with respect to their loudness. It is also not suitable for assessing the risk of hearing impairment or for determining the 'impulsiveness' of a sound.

IMPACT SOUND INSULATION ($L_{nT,w}$)

Australian Standard AS ISO 717.2—2004 has specified that the Impact Sound Insulation of a floor/ceiling system be quantified by operating an ISO 140 Standard Tapping Machine on the floor and measuring the noise generated in the room below. The Weighted Standardised Impact Sound Pressure Level ($L_{nT,w}$) is the sound pressure level at 500 Hz for a reference curve fitted to the measured 1/3 octave band levels. Thus the lower $L_{nT,w}$ the better the impact sound insulation.

IMPULSE NOISE

An impulse noise is typified by a sudden rise time and a rapid sound decay, such as a hammer blow, rifle shot or balloon burst.

LOUDNESS

The volume to which a sound is audible to a listener is a subjective term referred to as loudness. Humans generally perceive an approximate doubling of loudness when the sound level increases by about 10 dB and an approximate halving of loudness when the sound level decreases by about 10 dB.

MAXIMUM NOISE LEVEL, LAFmax

The root-mean-square (rms) maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'F' (Fast) time weighting. Often used for noise assessments other than aircraft.

MAXIMUM NOISE LEVEL, LASmax

The root-mean-square (rms) maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'S' (Slow) time weighting. Often used for aircraft noise assessments.

NOISE RATING NUMBERS

A set of empirically developed equal loudness curves has been adopted as Australian Standard AS 1469—1983. These curves allow the loudness of a noise to be described with a single NR number. The Noise Rating number is that curve which touches the highest level on the measured spectrum of the subject noise. For broadband noise such as fans and engines, the NR number often equals the 'A' frequency weighted dB level minus five.

NOISE

Noise is unwanted, harmful or inharmonious (discordant) sound. Sound is wave motion within matter, be it gaseous, liquid or solid. Noise usually includes vibration as well as sound.

NOISE REDUCTION COEFFICIENT – See: "Sound Absorption Coefficient"

OFFENSIVE NOISE

Reference: Dictionary of the NSW Protection of the Environment Operations Act 1997).

"Offensive Noise means noise:
(a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
(i) is harmful to (or likely to be harmful to) a person who is outside the premise from which it is emitted, or
(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
(b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances prescribed by the regulations."

PINK NOISE

Pink noise is a broadband noise with an equal amount of energy in each octave or third octave band width. Because of this, Pink Noise has more energy at the lower frequencies than White Noise and is used widely for Sound Transmission Loss testing.

REVERBERATION TIME, T60

The time in seconds, after a sound signal has ceased, for the sound level inside a room to decay by 60 dB. The first 5 dB decay is often ignored, because of fluctuations that occur while reverberant sound conditions are being established in the room. The decay time for the next 30 dB is measured and the result doubled to determine the T_{60}. The Early Decay Time (EDT) is the slope of the decay curve in the first 10 dB normalised to 60 dB.

SOUND ABSORPTION COEFFICIENT, α

Sound is absorbed in porous materials by the viscous conversion of sound energy to a small amount of heat energy as the sound waves pass through it. Sound is similarly absorbed by the flexural bending of internally damped panels. The fraction of incident energy that is absorbed is termed the Sound Absorption Coefficient, α. An absorption coefficient of 0.9 indicates that 90 % of the incident sound energy is absorbed. The average α from 250 to 2 kHz is termed the Noise Reduction Coefficient (NRC).

'S' (SLOW) TIME WEIGHTING

Sound level meter design-goal time constant which is 1 second.

SOUND ATTENUATION

A reduction of sound due to distance, enclosure or some other devise. If an enclosure is placed around a machine, or an attenuator (muffler or silencer) is fitted to a duct, the noise emission is reduced or attenuated. An enclosure that attenuates the noise level by 20 dB reduces the sound energy by one hundred times.

SOUND EXPOSURE LEVEL (LAE)

Integration (summation) rather than an average of the sound energy over a set time period. Use to assess single noise events such as truck or train pass by or aircraft flyovers. The sound exposure level is related to the energy average (L_{Aeq}, T) by the formula L_{Aeq}, T = L_{AE} – 10 $\log_{10}$ T. The abbreviation (SEL) is sometimes inconsistently used in place of the symbol (L_{AE}).

SOUND PRESSURE

The rms sound pressure measured in pascals (Pa). A pascal is a unit equivalent to a newton per square metre (N/m^2).

SOUND PRESSURE LEVEL, Lp

The level of sound measured on a sound level meter and expressed in decibels (dB). Where L_P = 10 $\log_{10}$ $(Pa/Po)^2$ dB (or 20 log10 (Pa/ Po) dB) where Pa is the rms sound pressure in Pascal and Po is a reference sound pressure conventionally chosen is 20 µPa (20 x 10^{-6} Pa) for airborne sound. L_p varies with distance from a noise source.

SOUND POWER

The rms sound power measured in watts (W). The watt is a unit defined as one joule per second. A measures the rate of energy flow, conversion or transfer.

SOUND POWER LEVEL, Lw

The sound power level of a noise source is the inherent noise of the device. Therefore sound power level does not vary with distance from the noise source or with a different acoustic environment. Lw = Lp + 10 $\log_{10}$ 'a' dB, re: 1pW, (10^{-12} watts) where 'a' is the measurement noise-emission area (m^2) in a free field.

SOUND TRANSMISSION CLASS (STC)

An internationally standardised method of rating the sound transmission loss of partition walls to indicate the sound reduction from one side of a partition to the other in the frequency range of 125 Hz to 4000 kHz. (Refer: Australian Standard AS 1276—1979). Now not in general use in Australia see: weighted sound reduction index.

SOUND TRANSMISSION LOSS

The amount in decibels by which a random sound is reduced as it passes through a sound barrier. A method for the measurement of airborne Sound Transmission Loss of a building partition is given in Australian Standard AS 1191—2002.

STATISTICAL NOISE LEVELS, Ln.

Noise which varies in level over a specific period of time 'T' (standard measurement times are 15 minute periods) may be quantified in terms of various statistical descriptors for example:-

- The noise level, in decibels, exceeded for 1 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as L_{AF1}, T. This may be used for describing short-term noise levels such as could cause sleep arousal during the night.
- The noise level, in decibels, exceeded for 10 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as L_{AF10}, T. In most countries the LAF10, T is measured over periods of 15 minutes, and is used to describe the average maximum noise level.
- The noise level, in decibels, exceeded for 90 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as L_{AF90}, T. In most countries the LAF90, T is measured over periods of 15 minutes, and is used to describe the average minim um or background noise level.

STEADY NOISE

Noise, which varies in level by 6 dB or less, over the period of interest with the time-weighting set to "Fast", is considered to be "steady". (Refer AS 1055.1—1997).

WEIGHTED SOUND REDUCTION INDEX, Rw

This is a single number rating of the airborne sound insulation of a wall, partition or ceiling. The sound reduction is normally measured over a frequency range of 100 Hz to 3.150 kHz and averaged in accordance with ISO standard weighting curves (Refer AS/NZS 1276.1:1999). Internal partition wall Rw + C ratings are frequency weighted to simulate insulation from human voice noise. The R_w + C is similar in value to the STC rating value. External walls, doors and windows may be $R_w + C_{tr}$ rated to simulate insulation from road traffic noise. The spectrum adaptation term Ctr adjustment factor takes account of low frequency noise. The weighted sound reduction index is normally similar or slightly lower number than the STC rating value.

WHITE NOISE

White noise is broadband random noise whose spectral density is constant across its entire frequency range. The sound power is the same for equal bandwidths from low to high frequencies. Because the higher frequency octave bands cover a wider spectrum, white noise has more energy at the higher frequencies and sounds like a hiss.

'Z' FREQUENCY WEIGHTING

The 'Z' (Zero) frequency weighting is 0 dB within the nominal 1/3 octave band frequency range centred on 10 Hz to 20 kHz. This is within the tolerance limits given in AS IEC 61672.1—2004: '*Electroacoustics – Sound level meters – Specifications*'.

Calibration of Sound Level Meters

A sound level meter requires regular calibration to ensure its measurement performance remains within specification. Benbow Environmental sound level meters are calibrated by a National Association of Testing Authority (NATA) registered laboratory or a laboratory approved by the NSW Environment Protection Authority (EPA) every two years and after each major repair, in accordance with AS 1259—1990.

The calibration of the sound level meter was checked immediately before and after each series of measurements using an acoustic calibrator. The acoustic calibrator provides a known sound pressure level, which the meter indicates when the calibrator is activated while positioned on the meter microphone.

The sound level meters also incorporate an internal calibrator for use in setting up. This provides a check of the electrical calibration of the meter, but does not check the performance of the microphone. Acoustical calibration checks the entire instrument including the microphone. Calibration certificates for the instrument sets used have been included as Attachment 3.

Care and Maintenance of Sound Level Meters

Noise measuring equipment contains delicate components and therefore must be handled accordingly. The equipment is manufactured to comply with international and national standards and is checked periodically for compliance. The technical specifications for sound level meters used in Australia are defined in Australian Standard AS 1259—1990 "*Sound Level Meters"*.

The sound level meters and associated accessories are protected during storage, measurement and transportation against dirt, corrosion, rapid changes of temperature, humidity, rain, wind, vibration, electric and magnetic fields. Microphone cables and adaptors are always connected and disconnected with the power turned off. Batteries are removed (with the instrument turned off) if the instrument is not to be used for some time.

Investigation Procedures

All investigative procedures were conducted in accordance with AS 1055.1—1997 *Acoustics – "Description and Measurement of Environmental Noise (Part 1: General Procedures)"*.

The following information was recorded and kept for reference purposes:

- type of instrumentation used and measurement procedure conducted;
- description of the time aspect of the measurements, ie. measurement time intervals; and
- positions of measurements and the time and date were noted.

As per AS 1055.1—1997, all measurements were carried out at least 3.5 m from any reflecting structure other than the ground. The preferred measurement height of 1.2 m above the ground was utilised. A sketch of the area was made identifying positions of measurement and the approximate location of the noise source and distances in meters (approx.).

UNATTENDED NOISE MONITORING

NOISE MONITORING EQUIPMENT

ARL noise logger type NGARA and EL-215 were used to conduct the long-term unattended noise monitoring. This equipment complies with Australian Standard 1259.2—1990 "Acoustics - Sound Level Meters" and are designated as a Type 2 instrument suitable for field use.

The measured data is processed statistically and stored in memory every 15 minutes. The equipment was calibrated prior and subsequent to the measurement period using a Rion NC-73 sound level calibrator. There were no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations. Instrument calibration certificates have also been included in Attachment 3.

METEOROLOGICAL CONSIDERATION DURING MONITORING

For the long-term attended monitoring, meteorological data for the relevant period were provided by the Bureau of Meteorology, which was considered representative of the site for throughout the monitoring period.

Measurements affected by wind or rain over certain limits were excluded from the final analyses of the recorded data in accordance with the EPA's Industrial Noise Policy (INP). The wind data were modified to take into account the difference of height between the AWS (Automatic Weather Station) used by the Bureau of Meteorology (10m above ground level), and the microphone (1.5m above ground level). The correction factor applied to the data was calculated according to the Australian Standard AS 1170.2 1989 Section 4.2.5.1.

DESCRIPTORS & FILTERS USED FOR MONITORING

Noise levels are commonly measured using A-weighted filters and are usually described as dB(A). The "A-weighting" refers to standardised amplitude versus frequency curve used to "weight" sound measurements to represent the response of the human ear. The human ear is less sensitive to low frequency sound than it is to high frequency sound. Overall A-weighted measurements quantify sound with a single number to represent how people subjectively hear different frequencies at different levels.

Noise environments can be described using various descriptors depending on characteristics of noise or purpose of assessments. For this survey the L_{A90}, L_{Aeq} and L_{Amax} levels were used to analyse the monitoring results. The statistical descriptors L_{A90} measures the noise level exceeded for 90% of the sample measurement time, and is used to describe the "Background noise". Background noise is the underlying level of noise present in the ambient noise, excluding extraneous noise or the noise source under investigation. The L_{Aeq} level is the equivalent continuous noise level or the level averaged on an equal energy basis which is used to describe the "Ambient Noise". The L_{Amax} noise levels are maximum sound pressure levels measured over the sampling period and this parameter is commonly used when assessing noise impact.

Measurement sample periods were fifteen minutes. The Noise -vs- Time graphs representing measured noise levels at the noise monitoring location are presented in Attachment 4.

ATTENDED NOISE MONITORING

NOISE MONITORING EQUIPMENT

The attended short-term noise monitoring was carried out using a SVANTEK SVAN957 Class 1 Precision Sound Level Meters. The instrument was calibrated by a NATA accredited laboratory within two years of the measurement period. The instrument sets comply with AS 1259 and was set on A-weighted, fast response.

The microphone was positioned at 1.2 to 1.5 metres above ground level and was fitted with windsocks. The instrument was calibrated using a Rion NC-73 sound level calibrator prior and subsequent to the measurement period to ensure the reliability and accuracy of the instrument sets. There were no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations. Instrument calibration certificates have also been included in Attachment 3.

WEATHER CONDITIONS

It was clear, find without significant breeze.

METHODOLOGY

The attended noise measurements were carried out generally in accordance with Australian Standard AS 1055—1997 - "Acoustics – Description and Measurement of Environmental Noise".

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Sound Level Meter

AS 1259.1:1990 - AS 1259.2:1990

Calibration Certificate

Calibration Number C14383

Client Details Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Equipment Tested/ Model Number : ARL EL-215
Instrument Serial Number : 194438
Microphone Serial Number : N/A
Pre-amplifier Serial Number : N/A

Atmospheric Conditions
Ambient Temperature : 25°C
Relative Humidity : 27.1%
Barometric Pressure : 100.78kPa

Calibration Technician : Luke Hudson
Calibration Date : 14/07/2014
Secondary Check: Tim Williams
Report Issue Date : 14/07/2014
Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
10.2.2: Absolute sensitivity	*Pass*	10.3.4: Inherent system noise level	*Pass*
10.2.3: Frequency weighting	*Pass*	10.4.2: Time weighting characteristic F and S	*Pass*
10.3.2: Overload indications	*Pass*	10.4.3: Time weighting characteristic I	*Pass*
10.3.3: Accuracy of level range control	*Pass*	10.4.5: R.M.S performance	*Pass*
8.9: Detector-indicator linearity	*Pass*	9.3.2: Time averaging	*Pass*
8.10: Differential level linearity	*Pass*	9.3.5: Overload indication	*Pass*

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	*±0.120dB*	*Temperature*	*±0.3°C*
12.5kHz	*±0.165dB*	*Relative Humidity*	*±4.1%*
16kHz	*±0.245dB*	*Barometric Pressure*	*±0.1kPa*
Electrical Tests			
31.5 Hz to 20 kHz	*±0.098dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
MUTUAL RECOGNITION ACCREDITATION

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards.

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: 16962

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: Rion
Type No: NC-73 **Serial No:** 10186522
Owner: Benbow Environmental
13 Daking Street
North Parramatta NSW 2151

Tests Performed: Measured output pressure level was found to be:

Parameter	Pre-Adj	Adj Y/N	Output: (db re 20 µPa)	Frequency: (Hz)	THD&N (%)
Level 1:	NA	N	94.03	993.70	0.40
Level 2:	NA	N	NA	NA	NA
Uncertainty:			±0.11 dB	±0.05 Hz	±0.2 %
Uncertainty (at 95% c.l.) k=2					

CONDITION OF TEST:
Ambient Pressure: 1001 hPa ±1.5 hPa **Relative Humidity:** 57% ±5%
Temperature: 23 °C ±2° C
Date of Calibration: 23/02/2015 **Issue Date:** 23/02/2015
Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2004
CHECKED BY: ..... **AUTHORISED SIGNATURE:** .....
Jack Riolt

Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.

NATA
MUTUAL RECOGNITION ARRANGEMENT ACCREDITATION
Accredited Lab. 9262
Acoustic and Vibration Measurements

ACU-VIB
ELECTRONICS
HEAD OFFICE
Unit 14, 22 Hudson Ave. Castle Hill NSW 2154
Tel: (02) 96808133 Fax: (02)96808233
Mobile: 0413 809806
Web site: www.acu-vib.com.au

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 41048 & FILT 0932

Equipment Description:	Sound & Vibration Analyser		
Manufacturer:	Svantek		
Model No:	Svan-957	**Serial No:**	15336
Microphone Type:	7052E	**Serial No:**	47869
Filter Type:	1/3 Octave	**Serial No:**	15336
Comments:	All tests passed for type 1. (See over for details)		
Owner:	Benbow Environmental 13 Daking Street North Parramatta 2151		
Ambient Pressure:	1018 hPa ±1.5 hPa		
Temperature:	24 °C ±2° C	**Relative Humidity:**	42% ±5%
Date of Calibration:	21/07/2015	**Issue Date:**	23/07/2015

Acu-Vib Test Procedure: AVP05 (SLM) & AVP06 (Filters)

CHECKED BY: DWL **AUTHORISED SIGNATURE:** Jack Kielt

Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.

NATA
WORLD RECOGNISED ACCREDITATION

Accredited Lab. No. 9262
Acoustic and Vibration Measurements

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ELECTRONICS

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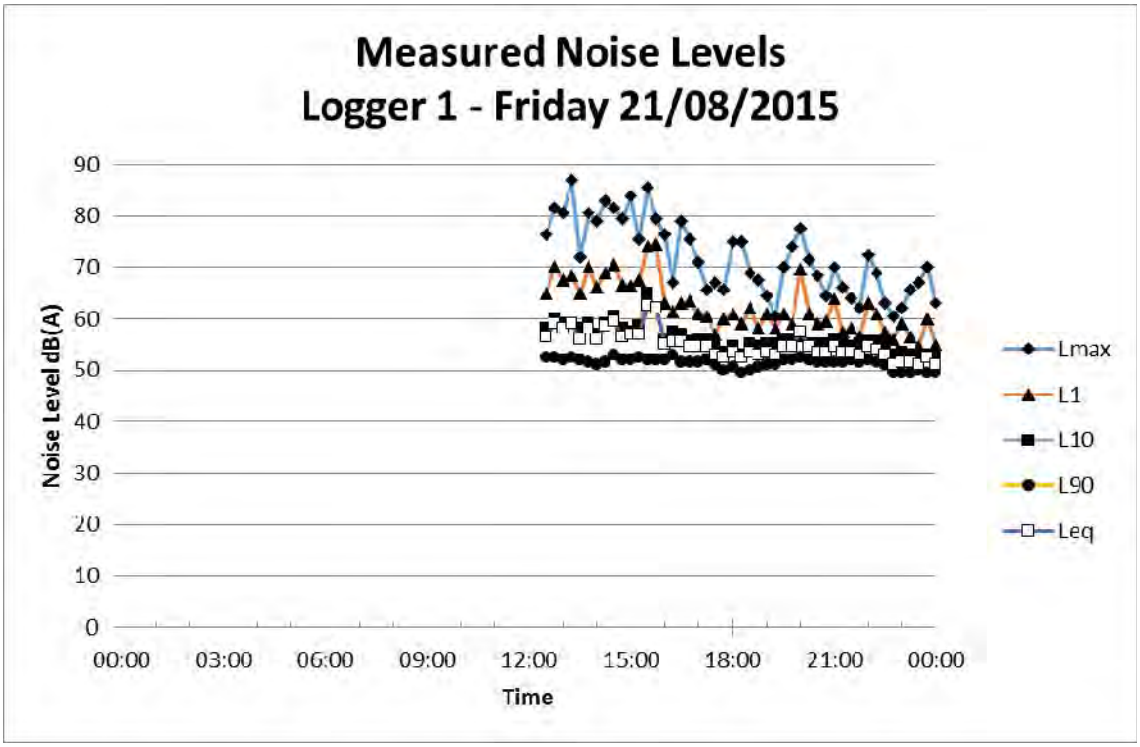
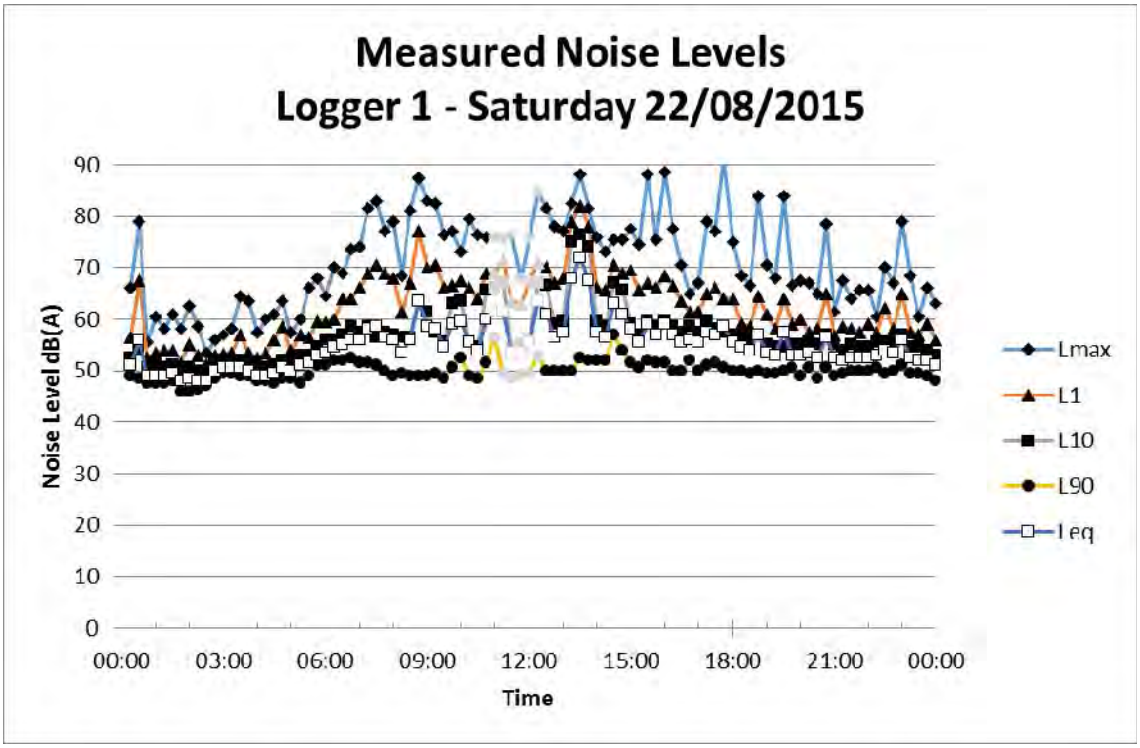
Mobile: 0413 809806
web site: www.acu-vib.com.au

Attachment 4: Noise Logger Charts


Measured Noise Levels
Logger 1 - Friday 21/08/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Saturday 22/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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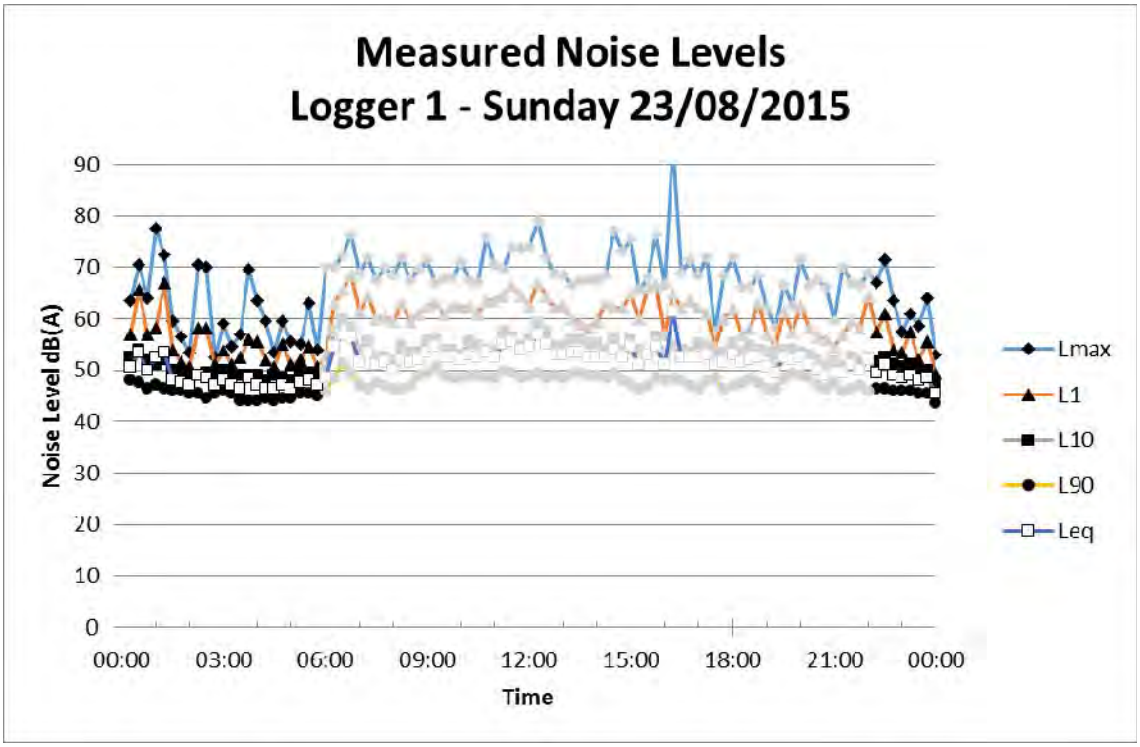
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Sunday 23/08/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
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03:00
06:00
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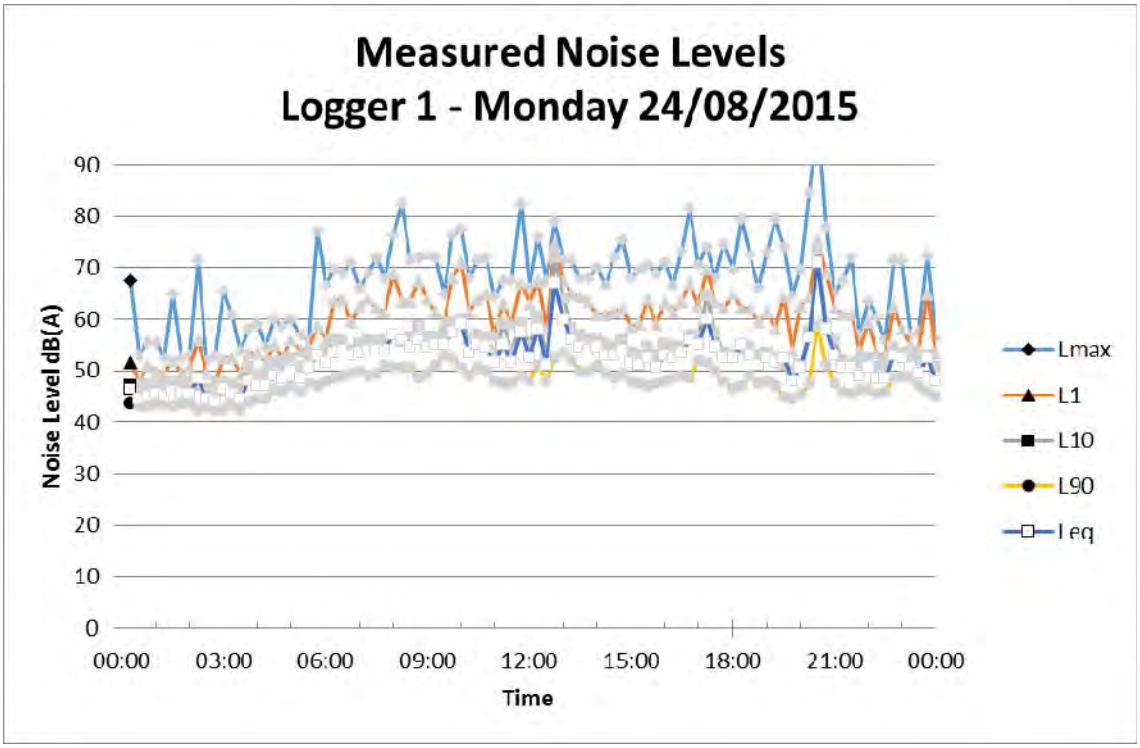
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Monday 24/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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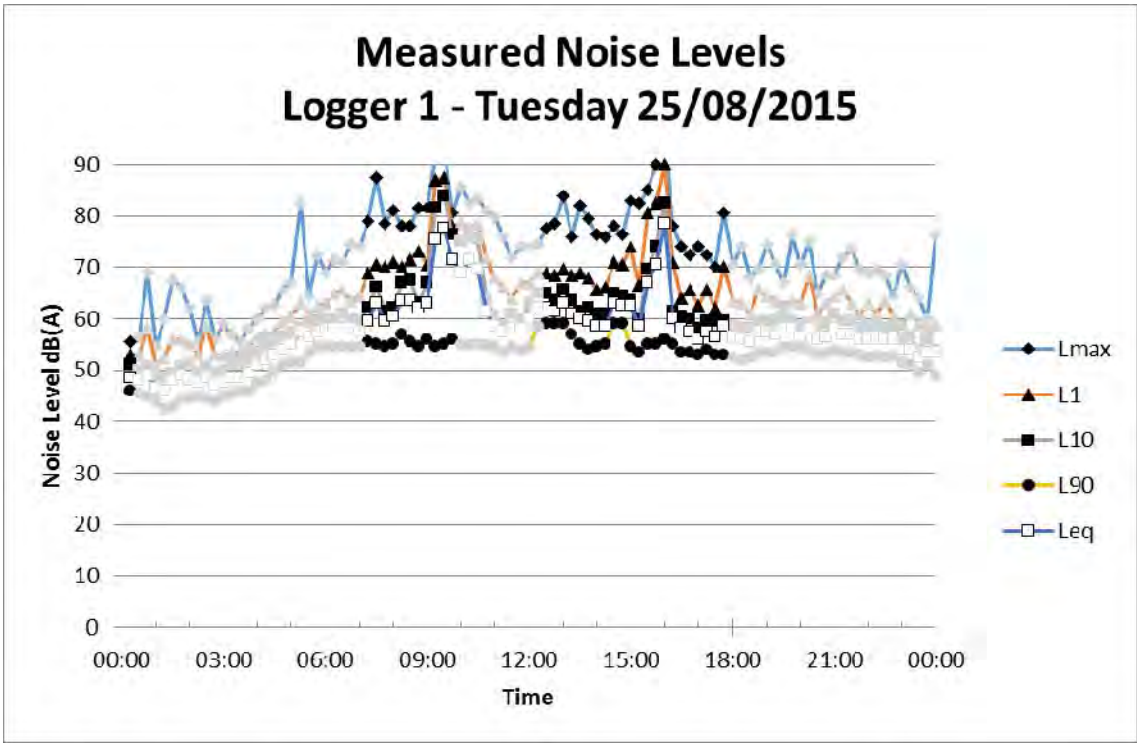
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Tuesday 25/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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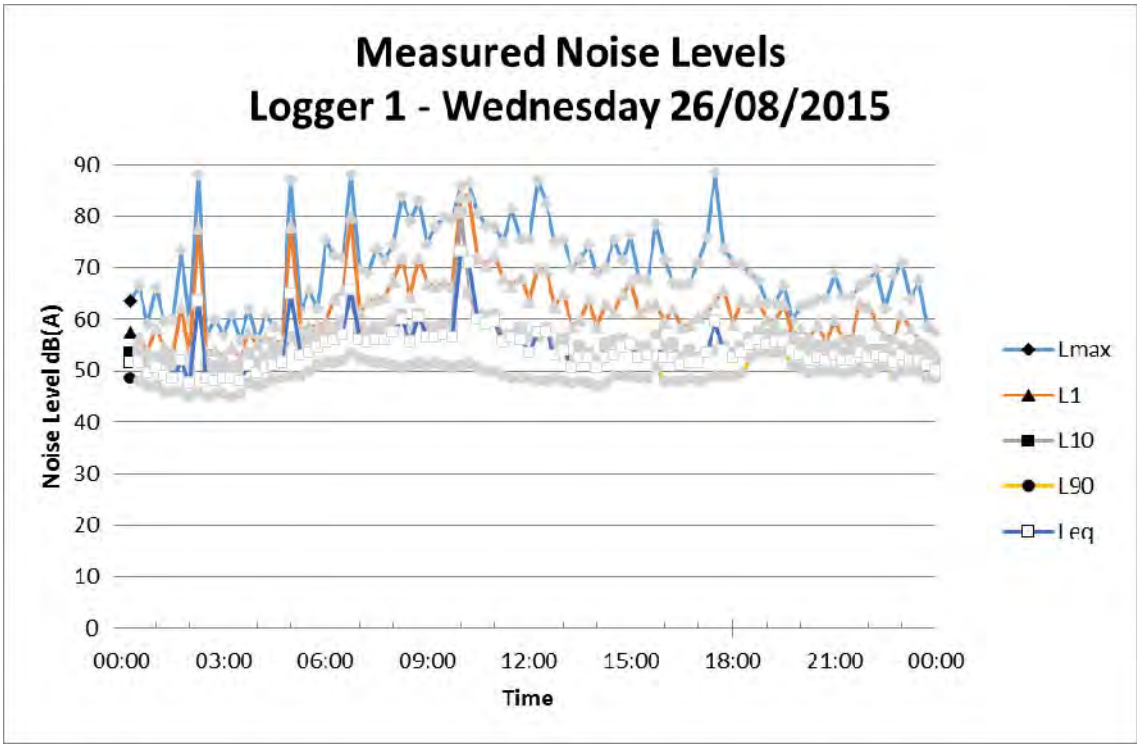
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Wednesday 26/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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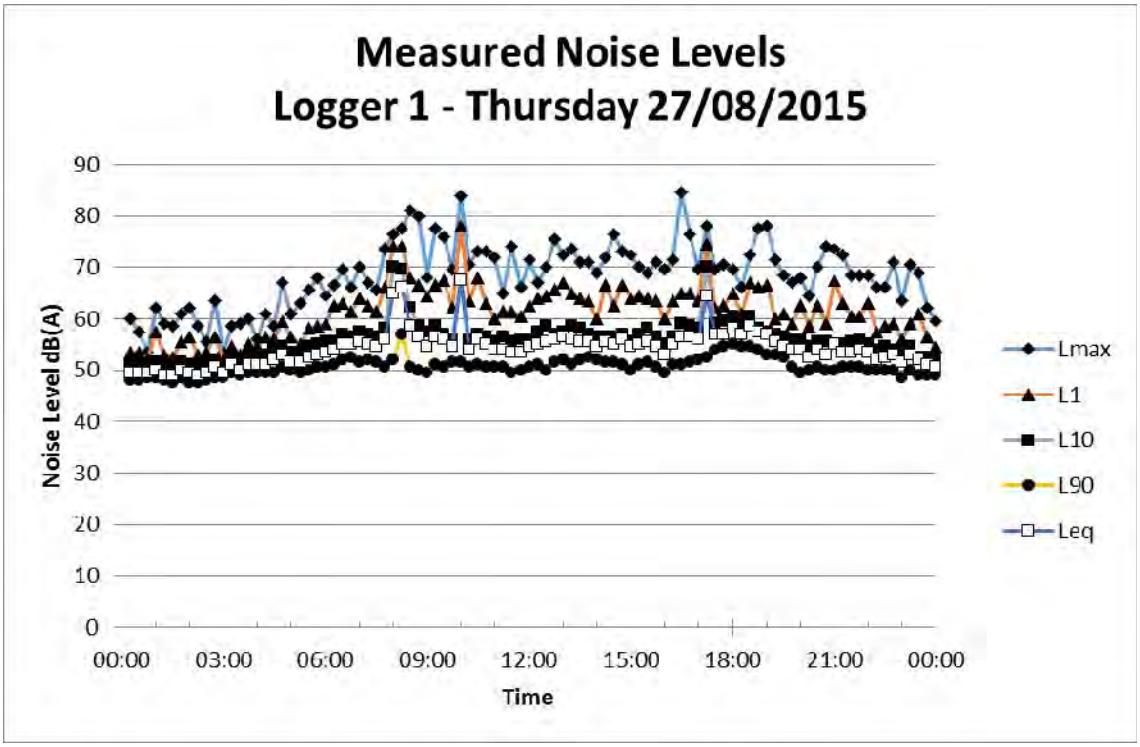
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Thursday 27/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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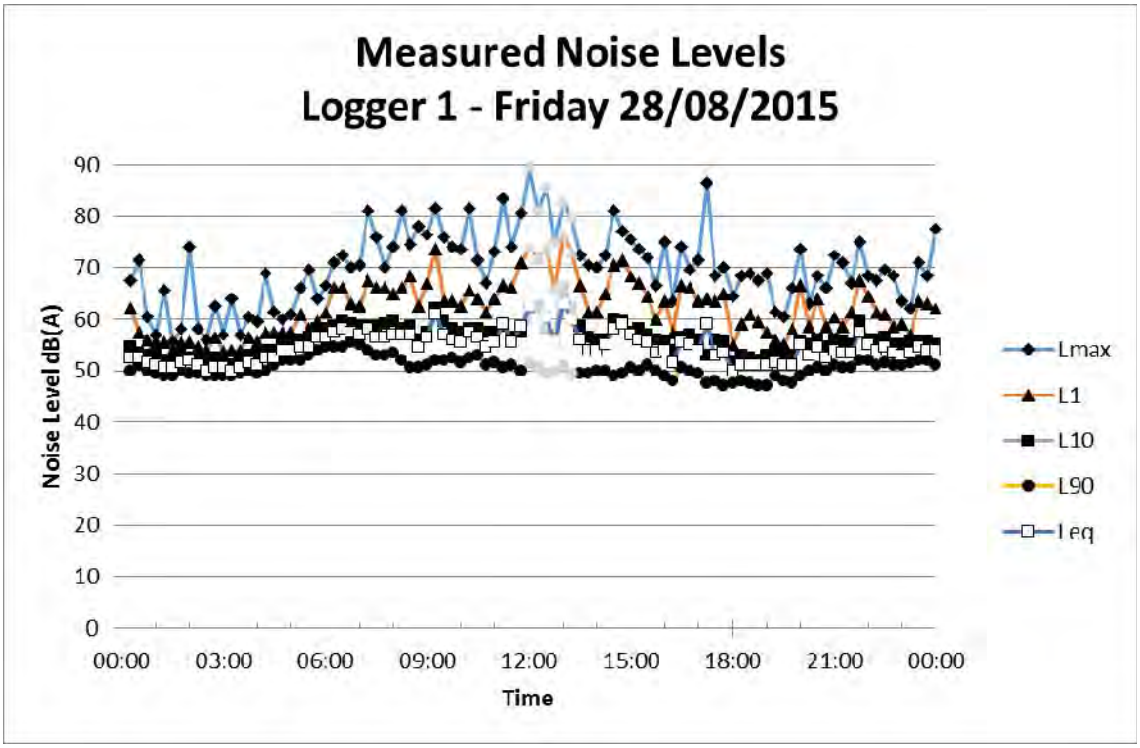
12:00
15:00
18:00
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Friday 28/08/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
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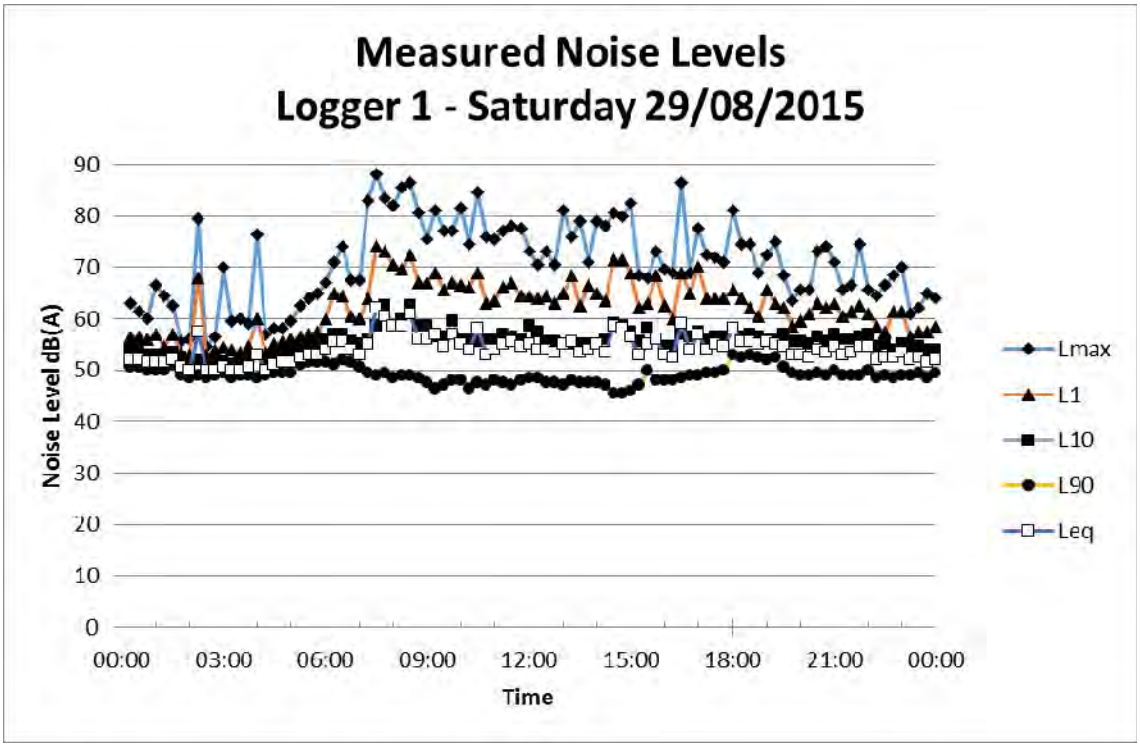
21:00
00:00
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Saturday 29/08/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
10
0
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15:00
18:00
21:00
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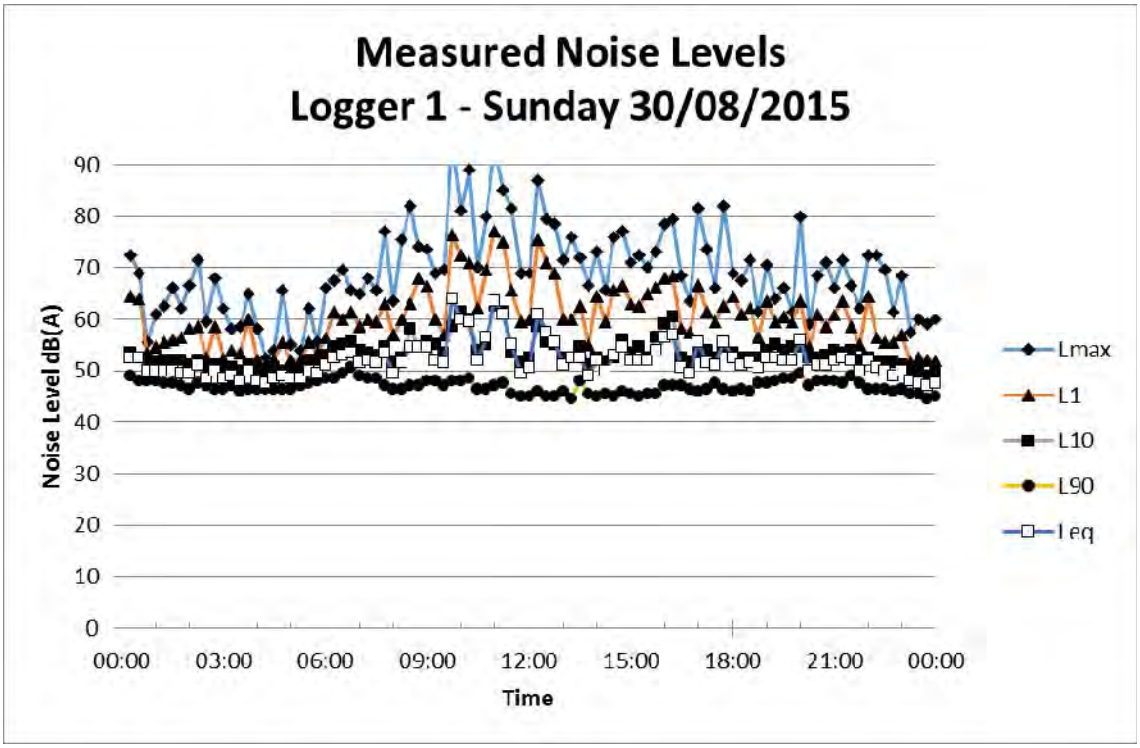
Time
Lmax
L1
L10
L90
Leq


Measured Noise Levels
Logger 1 - Sunday 30/08/2015
Noise Level dB(A)
90
80
70
60
50
40
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Time
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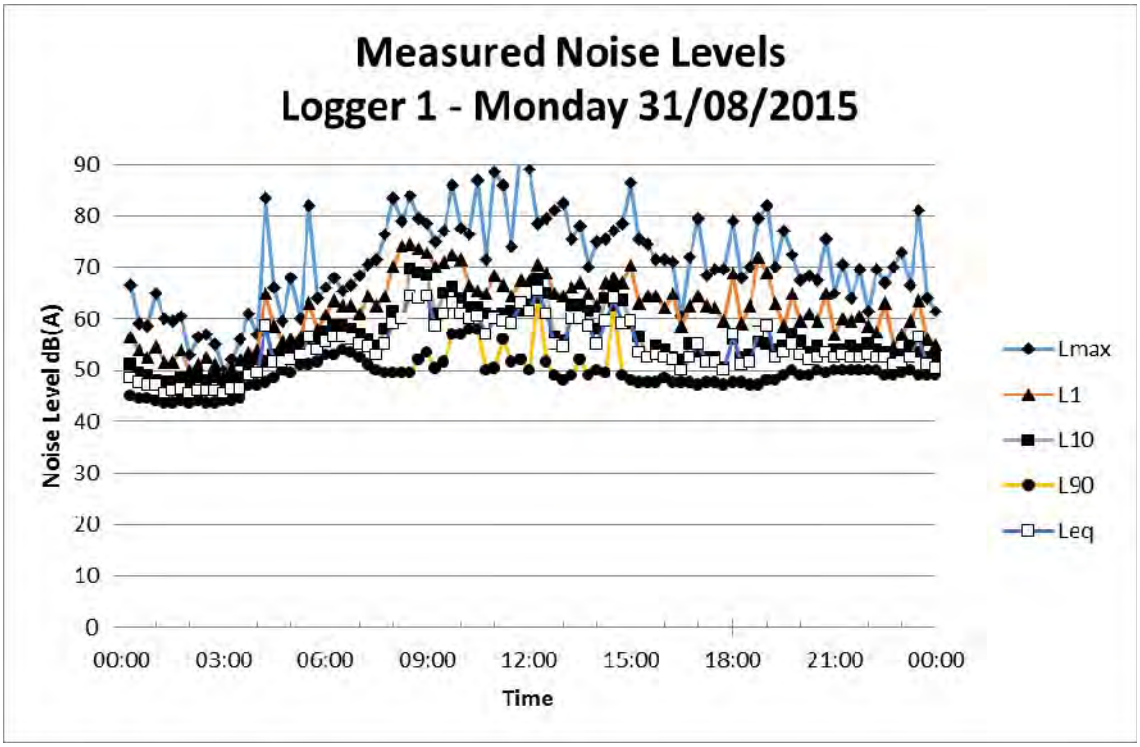
Measured Noise Levels
Logger 1 - Monday 31/08/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
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03:00
06:00
09:00
12:00
15:00
18:00
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Time
Lmax
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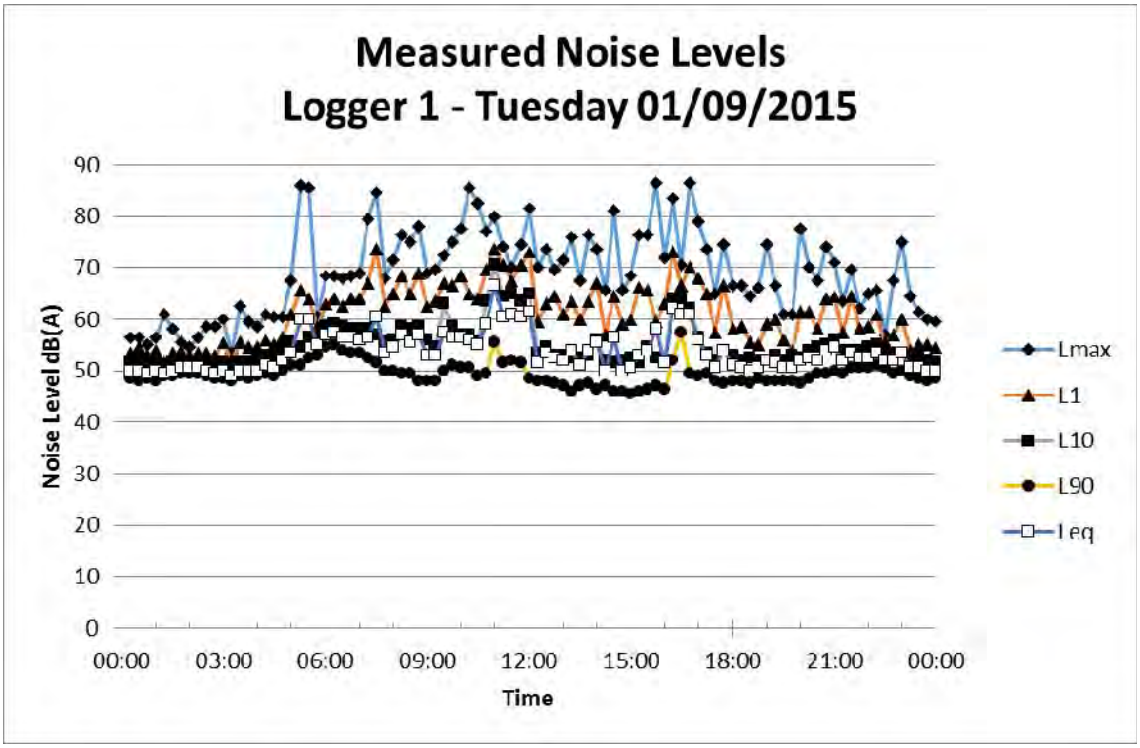
Leq


Measured Noise Levels
Logger 1 - Tuesday 01/09/2015
Noise Level dB(A)
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80
70
60
50
40
30
20
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03:00
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09:00
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Time
Lmax
L1
L10
L90
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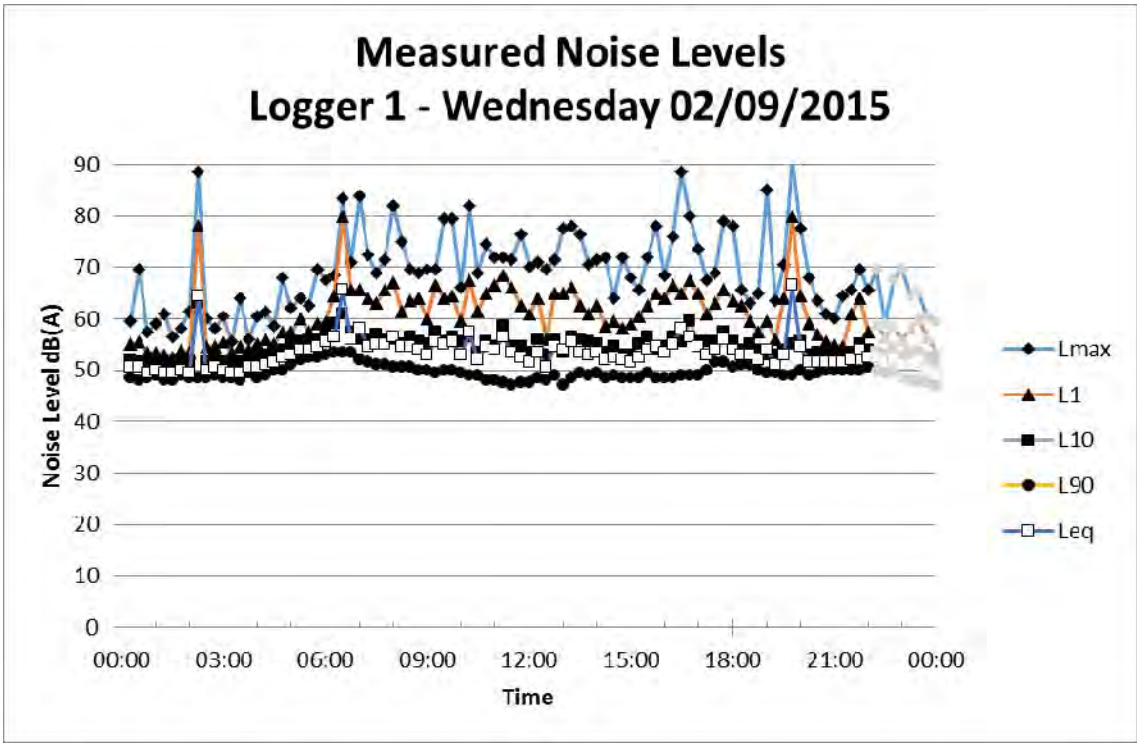
Measured Noise Levels
Logger 1 - Wednesday 02/09/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
00:00
03:00
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15:00
18:00
21:00
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Time
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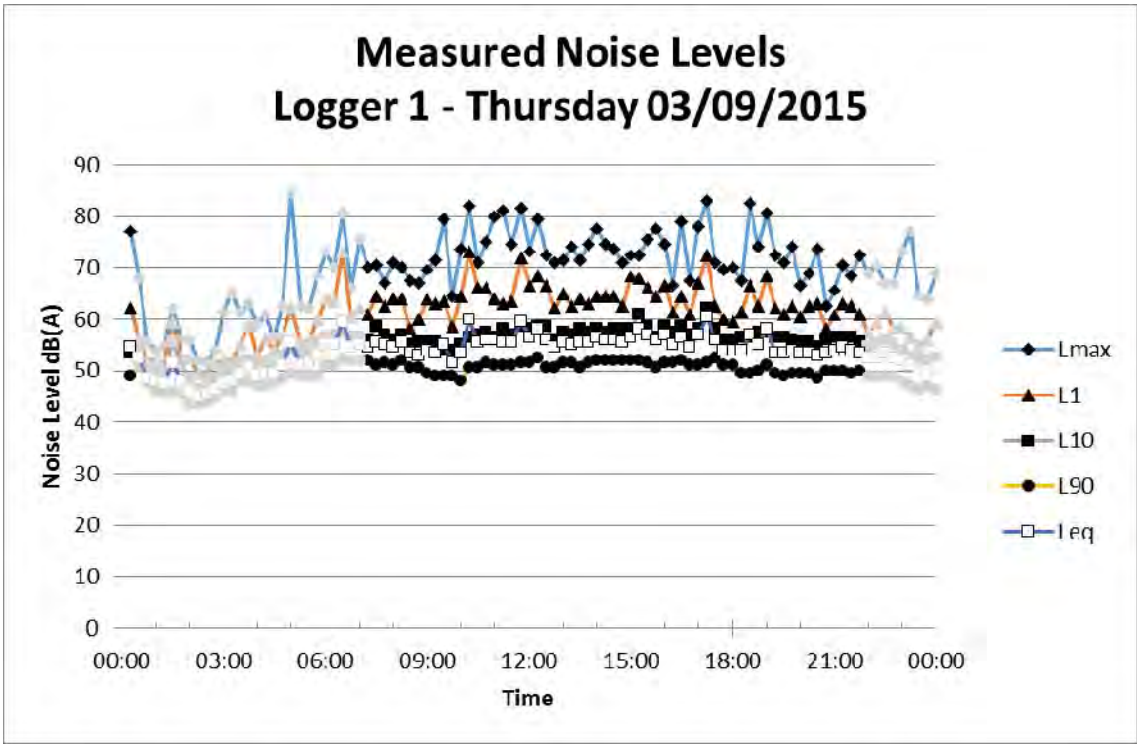
L90
Leq


Measured Noise Levels
Logger 1 - Thursday 03/09/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
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12:00
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18:00
21:00
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Time
Lmax
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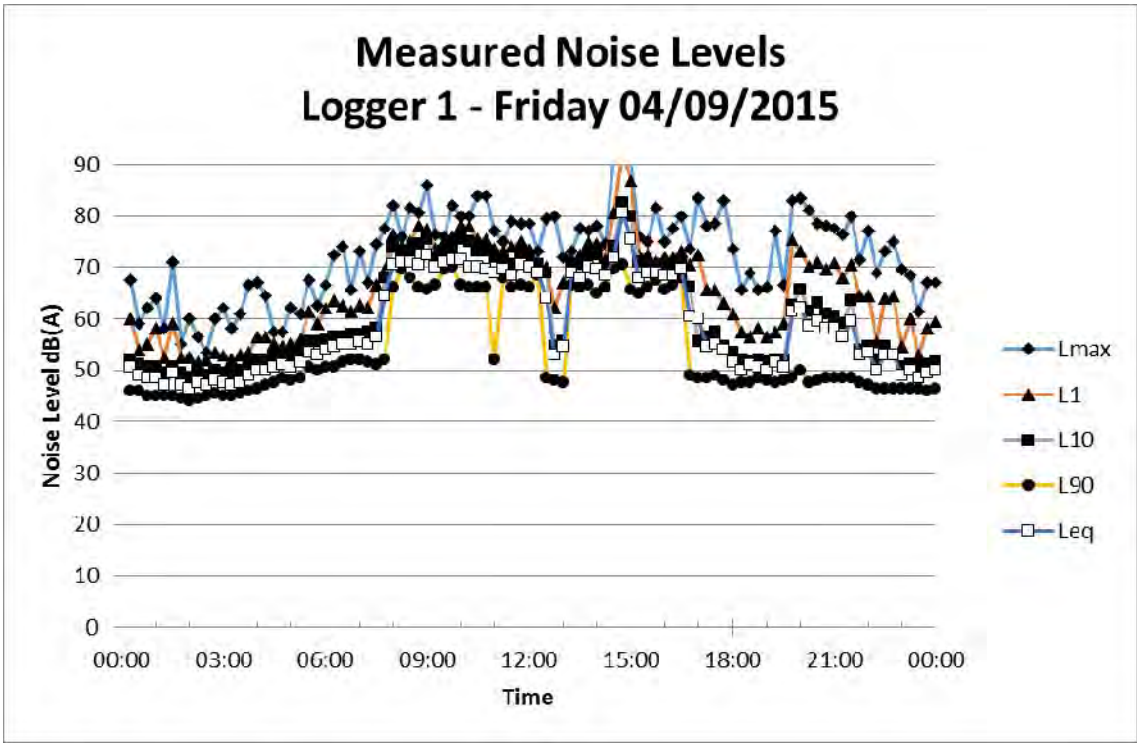
L10
L90
Leq


Measured Noise Levels
Logger 1 - Friday 04/09/2015
Noise Level dB(A)
90
80
70
60
50
40
30
20
10
0
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03:00
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09:00
12:00
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18:00
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Time
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L1
L10
L90
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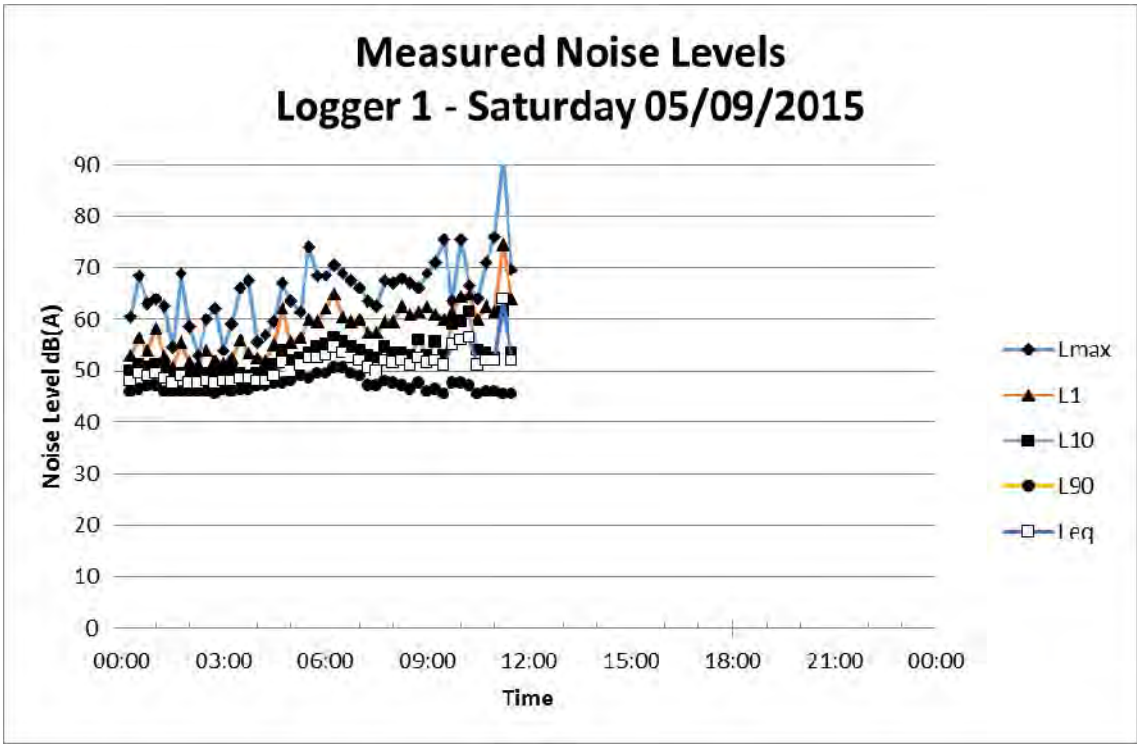
Measured Noise Levels
Logger 1 - Saturday 05/09/2015
Noise Level dB(A)
90
80
70
60
50
40
30
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0
00:00
03:00
06:00
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Leq

Attachment 5: Waste Management Plan

HOLROYD CITY COUNCIL
WASTE MANAGEMENT PLAN

MINOR DEVELOPMENTS

The relevant sections of this form must be completed and submitted to Council with your Development Application for demolition and / or construction.

Completing this form requires you to identify and quantify the types of waste that will be generated during the proposed change of use as well as nominating how you intend to reuse, recycle or dispose of the excess, unwanted materials.

The information provided on the form (and on your plans) will be assessed against the objectives of Holroyd Development Control Plan 2013. Council will request the re-submission of Waste Management Plans if there is no obvious attempt made to reuse/recycle building materials generated as by-products of development.

If you would like any assistance completing your Waste Management Plan, please contact Council's Waste Management Section on 9840 9840.

APPLICANT DETAILS	
Application No.	
Name	DEMAST Pty Ltd
Address	80a Long Street, Smithfield
Phone number(s)	02 8916 8264
Email	brad@austeire.com.au
PROJECT DETAILS	
Address of development	7 Long Street, Smithfield
Existing buildings and other structures currently on the site	One industrial building with office area
Description of proposed development	DEMAST Pty Ltd propose to establish a permanent site to process slurry material from road and construction sites across Sydney. The development would involve installation and operation of a sludge dewatering plant within the existing building on site. The process is an innovative environmental solution to the processing and cleaning of slurry waste by way of separation of sediments and liquids through containerised vibrating dewatering screens and high pressure filtering technologies. There are no contaminants or hazardous by-products created and the process does not generate significant noise emissions. The resulting by-products would be filter cake (inert soil) and treated water.
This development achieves the objectives set out in the Waste DCP. The details on this form are the provisions and intentions for minimising waste relating to this project.	
Name	Brad King
Signature	
Date	27/10/15

It should be noted that with regard to ongoing waste management, Council offers a competitive commercial waste and recycling service. For more information about this service contact Council 02 9840 9840.

CONSTRUCTION DESIGN

Outline how measures for waste avoidance have been incorporated into the design, material purchasing and construction techniques of the development:

- Materials

- Lifecycle

DEMOLITION

Most favourable			Least favourable	
	Reuse	**Recycling**	**Disposal**	
Type of waste generated	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	Specify method of on-site reuse, contractor and recycling outlet and /or waste depot to be used
Timber (specify)	Nil	Nil	Nil	No demolition is required.
Concrete	Nil	Nil	Nil	
Bricks/pavers	Nil	Nil	Nil	
Tiles	Nil	Nil	Nil	
Metal (specify)	Nil	Nil	Nil	
Glass	Nil	Nil	Nil	
Furniture	Nil	Nil	Nil	
Fixtures and fittings	Nil	Nil	Nil	
Floor coverings	Nil	Nil	Nil	
Packaging (used pallets, pallet wrap)	Nil	Nil	Nil	

Garden organics	Nil	Nil	Nil	
Containers (cans, plastic, glass)	Nil	Nil	Nil	
Paper/cardboard	Nil	Nil	Nil	
Residual waste	Nil	Nil	Nil	
Hazardous/special waste e.g. Asbestos (specify)	Nil	Nil	Nil	
Other (specify)	Nil	Nil	Nil	

CONSTRUCTION

Most Favourable			Least Favourable	
	Reuse	Recycling	Disposal	
Type of waste generated	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	Specify method of onsite reuse, contractor and recycling outlet and /or waste depot to be used
Excavation material	Nil	0 - 5m^3	Nil	Sydney Transwaste Industries, Benedict Recycling or similar facility if required.
Timber (specify)	Nil	Nil	Nil	No construction would be required. The building exists and the necessary equipment would be installed within the building.
Concrete	Nil	Nil	Nil	
Bricks	Nil	Nil	Nil	
Tiles	Nil	Nil	Nil	
Metal (specify)	Nil	Nil	Nil	
Glass	Nil	Nil	Nil	
Plasterboard (offcuts)	Nil	Nil	Nil	
Fixtures and fittings	Nil	Nil	Nil	
Floor coverings	Nil	Nil	Nil	
Packaging (used pallets, pallet wrap)	Nil	Nil	Nil	
Garden organics	Nil	Nil	Nil	
Containers (cans, plastic, glass)	Nil	Nil	Nil	

Paper/cardboard	Nil	Nil	Nil	
Residual waste	Nil	Nil	Nil	
Hazardous/special waste (specify)	Nil	Nil	Nil	

PLANS AND DRAWINGS

The following checklists are designed to help ensure SWMMPs are accompanied by sufficient information to allow assessment of the application.

Drawings are to be submitted to scale, clearly indicating the location of and provisions for the storage and collection of waste and recyclables during:

- Demolition
- Construction

DEMOLITION

Refer to Section 11 in Part A of DCP 2013 for specific objectives and measures.
Do the site plans detail/indicate:

	Tick Yes
Size and location(s) of waste storage area(s)	N/A
Access for waste collection vehicles	N/A
Areas to be excavated	N/A
Types and numbers of storage bins likely to be required	N/A
Signage required to facilitate correct use of storage facilities	N/A

CONSTRUCTION

Refer to Section 11 of the DCP for specific objectives and measures.
Do the site plans detail/indicate:

	Tick Yes
Size and location(s) of waste storage area(s)	N/A
Access for waste collection vehicles	N/A
Areas to be excavated	N/A
Types and numbers of storage bins likely to be required	N/A
Signage required to facilitate correct use of storage facilities	N/A

POTENTIAL REUSE/RECYCLING OPTIONS

These potential reuse/recycling options are provided as examples only. There are many other reuse and recycling opportunities available and applicants are not limited to those listed below.

MATERIAL	REUSE/RECYCLING POTENTIAL
Concrete	Reused for filling, levelling or road base
Bricks and Pavers	Can be cleaned for reuse or rendered over or crushed for use in landscaping and driveways
Roof Tiles	Can be cleaned and reused or crushed for use in landscaping and driveways
Untreated Timber	Reused as floorboards, fencing, furniture, mulched or sent to second hand timber suppliers
Treated Timber	Reused as formwork, bridging, blocking and propping, or sent to second hand timber suppliers
Doors, Windows, Fittings	Sent to second hand suppliers
Glass	Reused as glazing or aggregate for concrete production
Metals (fittings, appliances and wiring)	Removal for recycling
Synthetic Rubber (carpet underlay)	Reprocessed for use in safety devices and speed humps
Significant Trees	Relocated either onsite or offsite
Overburden	Power screened and used as topsoil
Garden Waste	Mulched, composted
Carpet	Can be sent to recyclers or reused in landscaping
Plasterboard	Removal for recycling, return to supplier or used in landscaping

Protection of the Environment Operations Act 1997

General Terms of Approval - Issued

Notice No: 1538834

Holroyd City Council

16 Memorial Avenue

MERRYLANDS NSW 2160

Attention: Mark Stephenson - Senior Development Planner

Notice Number	1538834
File Number	DA 2015/529; EF15/12222
Date	18-Mar-2016

Re: Installation and use of an existing industrial site as a sludge dewatering plant - DEMAST Pty Ltd

Issued pursuant to Section 91A(2) Environmental Planning and Assessment Act 1979

I refer to the development application and accompanying information provided for the installation and use of an existing industrial site as a sludge de-watering plant, dated 17 November 2015.

EPA has reviewed the information provided and has determined that it is able to issue a licence for the proposal, subject to a number of conditions. The applicant will need to make a separate application to EPA to obtain this licence.

The general terms of approval for this proposal are provided at Attachment A. If Holroyd City Council grants development consent for this proposal these conditions should be incorporated into the consent.

These general terms relate to the development as proposed in the documents and information currently provided to EPA. In the event that the development is modified either by the applicant prior to the granting of consent or as a result of the conditions proposed to be attached to the consent, it will be necessary to consult with EPA about the changes before the consent is issued. This will enable EPA to determine whether its general terms need to be modified in light of the changes.

In assessing the proposal EPA has also identified a number of environmental issues that Holroyd City Council may wish to consider in its overall assessment of the application.

1) EPA considers that the untreated slurry material to be received by the premises is likely to meet the classification of 'liquid waste', and would be further defined as 'drilling mud' if intended for resource recovery. When the material is separated into its liquid and solid fractions, the solid fraction can be further classified in accordance with the EPA's W*aste Classification Guidelines*. Once tested and further classified, the solid fraction can either be disposed to a lawful waste facility (such as a landfill), or subject to resource

recovery. If the solid fraction is intended for resource recovery, then it must be compliant with a Resource Recovery Order (RRO) and Resource Recovery Exemption (RRE) issued by the EPA. The EPA has issued a general RRO and RRE for ***treated drilling mud***, and compliant material can be applied to land as engineering fill or for use in earthworks. A copy of the general RRO and RRE can be found on the EPA's website at www.epa.nsw.gov.au/wasteregulation/orders-exemptions.htm. Alternatively an application can be made for a specific RRE if the material is outside the scope of the general RRO and RRE. The liquid fraction must **not** be discharged to waters, and should be disposed to the sewer in accordance with a Trade Waste Agreement (TWA) with Sydney Water.

2) The applicant claims that the waste is not 'drilling mud' as it won't contain drilling fluid. They have misinterpreted the definition of 'drilling mud' in the EPA's RRO and RRE for treated drilling mud, which expressly says:

> ***drilling mud*** *means a mixture of naturally occurring rock and soil,* ***including but not limited to*** *materials such as sandstone, shale and clay, and drilling fluid generated during drilling operations such as horizontal directional drilling or potholing. This does not include drilling mud that has been generated by:*
>
> *(a) deep drilling for mineral, gas or coal exploration, or*
>
> *(b) drilling through contaminated soils, acid sulphate soils (ASS) or potential acid sulphate soils (PASS).*

The key phrase 'including but not limited to' means that it can include materials other than drilling fluid. The EPA maintains that slurries generated from non-destructive excavations meet the definition of drilling mud.

3) The EPA understands that the applicant intends to obtain a TWA prior to operations commencing, to ensure that all liquid produced as a result of the separation process will be discharged to the sewer. The EPA clarifies that this agreement must be obtained from Sydney Water, not the EPA. The TWA provided with the Environmental Impact Statement (EIS) is a conditional, and has not been finalised. The finalised TWA must allow for the disposal of all waste water produced, which has been estimated in the EIS as being at least 76.8kL per day.

4) The occupier of the premises will need to obtain a licence for the proposed development from the EPA for activities listed in schedule 1 of the *Protection of the Environment Operations Act 1997* including 'waste storage' and 'waste processing (non-thermal treatment)'.

5) Due to the intention of the applicant to operate 24 hours per day, the EPA encourages investigation into measures to reduce the impact of reverse tones on on-site plant, in order to reduce the effects of sleep disturbance on the neighbouring community.

If you have any questions, or wish to discuss this matter further please contact Ciaran Roe on 02 9995 5408.

Yours sincerely

General Terms of Approval - Issued

Notice No: 1538834

.....

Lesley Corkill

Unit Head

Waste & Resources - Waste Management

(by Delegation)

General Terms of Approval - Issued

Notice No: 1538834

Administrative conditions

A1. Information supplied to the EPA

A1.1 Except as expressly provided by these general terms of approval, works and activities must be carried out in accordance with the proposal contained in:

- the development application 2015/529/1 referred to the EPA on 17 November 2016;
  - *Environmental Impact Statement for Proposed Sludge Dewatering Plant 7 Long Street, Smithfield Lot 16, DP238072*, *151121_EIS_Rev3, dated 6 November 2015, prepared by Benbow Environmental et al.*
  - *Site Plan, Applicant: Demast Pty Ltd 7 Long Street, Smithfield, Proposed Change of Use*, prepared by d'Riva Designs, dated Sept 2015.
- all additional documents supplied to the EPA in relation to the development, including *151121_EPA letter_Rev3 (dated 19 February 2016), 7 Long Street Smithfield Environmental Impact Statement - Attachments 1-3* and *7 Long Street Smithfield Environmental Impact Statement Attachments 4-5*. The details provided in these documents over-ride that supplied to the EPA on 17 November 2015, in the event of any inconsistencies.

A2. Fit and Proper Person

A2.1 The applicant must, in the opinion of the EPA, be a fit and proper person to hold a licence under the Protection of the Environment Operations Act 1997, having regard to the matters in s.83 of that Act.

Limit conditions

L1. Pollution of waters

L.1.1 Except as may be expressly provided by a licence under the Protection of the Environment Operations Act 1997 in relation of the development, section 120 of the Protection of the Environment Operations Act 1997 must be complied with in and in connection with the carrying out of the development.

L2. Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Liquid Waste	Drilling mud	Waste Processing (non thermal treatment)	No more than 46,720 tonnes of drilling mud received per year

General Terms of Approval - Issued

Notice No: 1538834

NA	Liquid Waste	Drilling Mud	Waste Storage	No more than 640 tonnes of treated drilling mud (solid fraction) stored at any one time

Operating conditions

O1. Odour

O1.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

O2. Dust

O2.1 Activities must be carried out in a manner that minimises the generation of dust.

O2.2 The premises must be maintained in a condition which prevents the emission of dust from the premises.

O2.3 The licensee must ensure that no material, including sediment or oil, is tracked from the premises.

O2.4 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

O3. Processes and management

O3.1 Any waste for processing or storage at the premises must be assessed and classified in accordance with the *EPA Waste Classification Guidelines* as in force from time to time.

O3.2 Each type of waste stored on site for recovery/recycling must be stockpiled separately.

O3.3 All waste processing and storage must be undertaken inside the building.

O3.4 There must be no burning or incineration of waste at the premises.

O3.5 Clean stormwater must be diverted around 'dirty' areas of the site.

O3.6 After the drilling mud is separated into its liquid and solid fractions at the premises, the liquid fraction must be discharged to sewer in accordance with a Trade Waste Agreement (TWA) with Sydney Water.

Reporting conditions

R1.1 The applicant must provide an annual return to the EPA in relation to the development as required by any licence under the Protection of the Environment Operations Act 1997 in relation to the development. In the return the applicant

must report on the annual monitoring undertaken (where the activity results in pollutant discharges), provide a summary of complaints relating to the development, report on compliance with licence conditions and provide a calculation of licence fees (administrative fees and, where relevant, load based fees) that are payable. If load based fees apply to the activity the applicant will be required to submit load-based fee calculation worksheets with the return.

General Terms of Approval - Issued

Notice No: 1538834

Attachment – Mandatory Conditions for all EPA licences

Operating conditions

Activities must be carried out in a competent manner

Licensed activities must be carried out in a competent manner.

This includes:

a. the processing, handling, movement and storage of materials and substances used to carry out the activity; and

b. the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

Maintenance of plant and equipment

All plant and equipment installed at the premises or used in connection with the licensed activity:

a. must be maintained in a proper and efficient condition; and

b. must be operated in a proper and efficient manner.

Emergency Response

The licensee must prepare, maintain and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises.

NOTE: The licensee must develop their PIRMP in accordance with the requirements in Part 5.7A of the Protection of the Environment Operations Act 1997 (the POEO Act) and the POEO Regulations.

Monitoring and recording conditions

Recording of pollution complaints

The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

The record must include details of the following:

- the date and time of the complaint;

the method by which the complaint was made;

any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;

- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made.

The record must be produced to any authorised officer of the EPA who asks to see them.

Telephone complaints line

The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

This condition does not apply until 3 months after this condition takes effect.

Reporting conditions

Annual Return documents

The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data,
7. a Statement of Compliance - Environmental Management Systems and Practices; and
8. a Statement of Compliance - Environmental Improvement Works.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

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The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Written report

Where an authorised officer of the EPA suspects on reasonable grounds that:

a. where this licence applies to premises, an event has occurred at the premises; or
b. where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,

and the 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.

The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

The request may require a report which includes any or all of the following information:

a. the cause, time and duration of the event;
b. the type, volume and concentration of every pollutant discharged as a result of the event;
c. the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; and
d. the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e. action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f. details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event;
g. any other relevant matters.

The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

Notification of environmental harm

Notifications must be made by telephoning the EPA's Environment Line service on 131 555.

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act

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The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

General conditions

Copy of licence kept at the premises or plant

A copy of this licence must be kept at the premises to which the licence applies.

The licence must be produced to any authorised officer of the EPA who asks to see it.

The licence must be available for inspection by any employee or agent of the licensee working at the premises.