

Warehouse / Distribution and Industrial Facility
Lot 2 Horsley Drive Business Park (SSD 7564)
Waste and Recycling Management Plan

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Frasers Property Industrial Constructions
Ground Floor
1C Homebush Bay Drive
Rhodes NSW 2138

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Waste and Recycling Management Plan

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DOCUMENT CONTROL

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1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Frasers Property Industrial Constructions to prepare a Waste and Recycling Management Plan (WMP) for the proposed construction and operation of a warehouse/distribution and industrial facility located at Lot 2 on the corner of Horsley Drive and Cowpasture Road, Wetherill Park (the Project site). This assessment forms a part of the Environmental Impact Statement (EIS) for the Project.

The Environmental Planning and Assessment Act 1979 (EP&A Act) forms the statutory framework for planning approval and environmental assessment in NSW. The project is considered 'State Significant Development' (SSD 7564) in accordance with the EP&A Act.

1.1 Secretary's Environmental Assessment Requirements

The NSW Department of Planning and Environment (DP&E) issued Secretary's Environmental Assessment Requirements (SEARs) for the Project on 18 April 2016. The SEARs are outlined below in **Table 1**.

Table 1 SEARs - Application Number SSD 7564

Key Issue	Assessment Requirement	Addressed in Section
Waste	Details of the quantities and classification of all waste streams to be generated on site.	Section 6.1
	Details of waste storage, handling and disposal.	Section 6.3
	Details of the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.	Section 6.2 and 6.4

The SEARs require that the assessment be performed in accordance with relevant policies, guidelines and plans including:

- The Environment Protection Authority (EPA)'s NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21.

This assessment addresses the key issues raised within the SEARs and is performed in accordance with the relevant policies and guidelines.

1.2 Scope

This WMP applies to the demolition, construction and on-going operation of the proposed development.

The provisions contained in the WMP must be implemented at all stages of the development, and may be subject to review upon expansion or changes in operational procedures.

- See page 10 for the Construction WMP.
- See page 20 for the Operational WMP.

1.3 Objectives

The principal objective of this WMP is to identify all potential wastes likely to be generated at the site during development and operational phases of the Project, including a description of how waste would be handled, processed and disposed of (or re-used/recycled), in accordance with the relevant regulatory requirements.

The specific objectives of this WMP are as follows:

- to encourage the minimisation of waste production and maximisation of resource recovery;
- to ensure the appropriate management of contaminated/hazardous waste;
- to identify procedures and chain of custody records for waste management; and
- to assist in ensuring that any environmental impacts during the operational life of development comply with the development consent conditions and other relevant regulatory authorities.

2 BETTER PRACTICE FOR WASTE MANAGEMENT AND RECYCLING

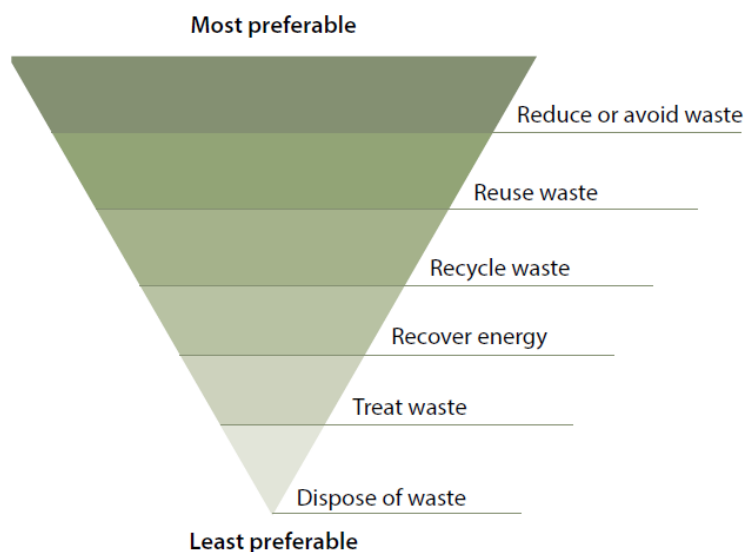
2.1 Waste Management Hierarchy

Where appropriate, this WMP aims to meet the principles of the waste management hierarchy, by promoting waste as a resource through the following in order of preference:

- waste avoidance through prevention or reduction of waste generation (waste avoidance is best achieved through better design and purchasing choices);
- waste reuse, without substantially changing the form of waste;
- waste recycling through the treatment of waste that is no longer usable in its current form to produce new products;
- energy recovery through thermal treatment of residual waste materials and from green waste processing; and
- waste disposal, in a manner that causes the least harm to the natural environment.

The waste hierarchy pictured below demonstrates a classification of waste management options in order of their environmental impacts, as established under the Waste Avoidance and Resource Recovery Act 2001.

Figure 1 Waste Hierarchy



Source: NSW WARR Strategy 2014-21 (EPA)

2.2 Benefits of Implementing Better Practice

The benefits of implementation better practices for waste management and recycling include:

- enhanced social and environmental reputation of an organisation;
- reduced costs associated with waste disposal;
- benefits to all stakeholders and the wider community; and
- improved environmental outcomes.

3 WASTE LEGISLATION AND GUIDANCE

The legislation and guidance outlined in **Table 2** below should be referred to during construction and operational phases of the development.

Table 2 NSW Waste Legislation and Guidance Summary

Legislation	Objectives
Waste Avoidance and Resource Recovery Act 2001	To promote extended producer responsibility in place of industry waste reduction plans. Specific objectives include: - To encourage efficient use of resources. - To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste. - To ensure that industry shares with the community the responsibility for reducing and dealing with waste. - To ensure the efficient funding of waste and resource management planning, programs and service delivery.
Protection of the Environment Operations Act (POEO) 1997 & Amendment Act 2011	Administered by the Environmental Protection Authority (EPA) to enable the Government to establish instruments for setting environmental standards, goals, protocols and guidelines. Important Note: The owner of a premises, the employer or any person carrying on the activity which causes a pollution incident is to <i>immediately</i> notify the relevant authorities when material harm to the environment is caused or threatened. A list of each relevant authority is provided in the POEO Amendment Act and will be noted in the site's incident register.
NSW EPA's Waste Classification Guidelines (Part 1) 2014	To assist waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act and its associated regulations.
Building Code of Australia (BCA) and relevant Australian Standards (AS)	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	The EPA's <i>Better Practice Guidelines</i> (2012) encourage efficient waste minimisation and resource recovery for commercial and industrial facilities and is used as a benchmark document when assessing waste production rates within Australia and details a range of waste management provisions.
NSW EPA's Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21	A key component of the State Government's vision for the environmental and economic future of the state that will be supported financially by the Waste Less, Recycle More funding initiative providing long-term targets for 6 key result areas including increased recycling of construction and demolition waste.
Australian Packaging Covenant	Each building should be encouraged to establish an Action Plan to demonstrate their contribution to the achievement of the Australian Packaging Covenant's (APC) goals. The three main performance goals of the APC are: - Design: Optimise packaging to use resources efficiently and reduce environmental impact without compromising product quality/safety. - Recycling: Efficiently collect and recycle packaging. - Product Stewardship: Demonstrate commitment of all signatories.

4 PROJECT DESCRIPTION

Frasers Property Industrial Constructions proposes to operate a warehousing / distribution and industrial facility at Lot 2 on the corner of Horsley Drive and Cowpasture Road, Wetherill Park. The development will occupy approximately 34.5 hectares of land within easy access to Sydney's primary motorways (the M7, M4 and M5) and is located within Fairfield City Council Local Government Area.

A copy of the current masterplan is appended to this document (**Appendix A**).

4.1.1 Development Schedule

The development schedule for Lot 2 is presented below in **Table 3**.

Table 3 Lot 2 Development Schedule

Site Description	Unit	Number
Site Area	sqm	34,538
Warehouses	sqm	17,670
Offices	sqm	1,000
Foyer	sqm	100
Total Building Area	sqm	18,770
Awning	sqm	2,030
Site Coverage	%	54.3
Car parking	spaces	117

5 CONSTRUCTION WASTE MANAGEMENT

Demolition and construction stages of developments have the greatest potential for waste minimisation.

The building construction will follow bulk earthworks and site preparatory works that are subject to a separate Development Application and therefore all construction waste associated with this stage of the development is not considered further in this report.

Key construction activities will include:

- construction of warehouse structures and distribution / industrial -related facilities across the site;
- construction of the internal access road that will be capable of accommodating both heavy and light vehicles; and
- construction of lead-in services including electricity, sewer and potable water.

5.1 Waste Streams and Classifications

The development is likely to generate the following broad waste streams:

- excavation material;
- construction wastes;
- plant maintenance waste;
- packaging waste;
- work compound (on-site employee) waste; and
- waste water.

Possible waste types along with their waste classification are provided below in **Table 4**.

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Table 4 Potential Waste Generation and EPA Classifications

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
Construction		
Steel reinforcing / other metal (eg wire mesh)	General solid (non-putrescible) waste	Off-site recycling
Conduits and pipes	General solid (non-putrescible) waste	Off-site recycling
Timber formwork	General solid (non-putrescible) waste	Reuse on-site or off-site recycling
Metals and bulk electrical cabling	General solid (non-putrescible) waste	Off-site recycling
Plasterboard / gyprock	General solid (non-putrescible) waste	Off-site recycling or disposal
Bricks	General solid (non-putrescible) waste	Off-site recycling
Glass	General solid (non-putrescible) waste	Off-site recycling
Concrete (solids and washouts) and asphalt	General solid (non-putrescible) waste	Reuse on-site where possible or recycle off-site as filling, levelling materials or as road base
Light bulbs	Hazardous waste	Off-site recycling
Sediment fencing, geotextile materials	General solid (non-putrescible) waste	Reuse at other sites where possible or disposal to landfill
Plant Maintenance		
Tyres	Special waste	Off-site recycling or disposal
Empty oil and other drums / tins (e.g. fuel, chemicals, paints, spill clean ups)	Hazardous waste if the containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if the containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. (Note: Discharge to sewer subject to Trade Waste Agreement with Sydney Water.) ¹
Air and oil filters and rags	General solid (non-putrescible) waste	General solid (non-putrescible) waste
Batteries	Hazardous waste	Off-site recycling
Packaging		
Packaging materials, including wood, plastic (including stretch wrap or LLPE), cardboard and metals	General solid (non-putrescible) waste	Off-site recycling
Wooden crates	General solid (non-putrescible) waste	Reused for similar projects, returned to suppliers, or off-site recycling
Work Compound and Associated Offices		
Recyclable beverage containers (glass and plastic bottles, aluminium cans, tin cans)	General solid (non-putrescible) waste	Co-mingled recycling at off-site licensed facility
Clean paper and cardboard	General solid (non-putrescible) waste	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers (soiled paper and cardboard, food stuffs, polystyrene)	General solid (non-putrescible) waste mixed with putrescible waste	Disposal at landfill
Pump-out waste and septage (sewage)	Liquid (trade) waste	Off-site disposal at licensed facility or disposal direct to sewer where arranged with Sydney Water

For further information on how to determine a waste's classification, refer to the EPA's Waste Classification Guidelines (2014).

5.2 Construction Waste Generation Rates

The Construction Site Manager will need to specify the types and quantities of wastes produced during construction and on this basis, the numbers and capacity of skip bins can be determined.

A guide/estimate of the potential waste percentages is provided based on published waste generation rates for construction and demolition projects, as indicated in **Table 5**. These figures have been referenced from a number of sources including the Inner Sydney Waste Board's Waste Planning Guide for Development Applications (1998), Victoria's Ecorecycle Waste Wise Events toolkit, the UK's WRAP composition and conversion factors and the UK Department of Environment, Food and Rural Affairs (DEFRA) conversion factors. Conservative estimates have been made where indicative waste compositions were not available.

Table 5 Guideline to Waste Composition and Volumes - Construction

Material	Estimated Waste %	Conversion Factor (tonne per m ³)
Hard Material	32%	1.20
Timber	24%	0.34
Plastics	15%	0.25
Cement sheet	9%	0.50
Gypsum material	6%	0.20
Metals	6%	0.42
Paper/card	4%	0.40
Vegetation	3%	0.15
Soil	1%	1.20
Other (chemicals / paint)	0.3%	0.30

The UK DEFRA and the UK Building Research Establishment (BRE) have developed a number of benchmark indicators to help determine approximate tonnages of waste produced during various construction projects including civil engineering and commercial retail works. The benchmarks include Environmental Performance Indicators (EPI) which measure the volume (cubic metres, m³) of waste produced per 100 square metres (m²).

The EPI indicators provided in **Table 6** have been used for the purposes of this WMP to estimate the amounts of construction wastes that could be generated by the Project.

Table 6 Environmental Performance Indicator for Waste Volumes from New Developments

Project Type	Average Volume (m3) of waste per 100 m ²
Industrial Buildings	14.0
Commercial Offices	20.4
Civil Engineering	28.1

5.2.1 Estimation of Waste Volumes

The estimated waste volumes for the overall development area are presented in **Table 7** and **Table 8**. The waste arisings are based on the EPI estimates presented above in **Table 6**. Actual waste tonnage and composition will vary however this estimate is provided to inform potential on-site or off-site re-use and recycling opportunities.

Table 7 Estimated Waste Generation for the Development

Proposed Land Use	Area (m ²)	Estimated Waste (m ³)
Storage or distribution	17,770	2,488
General business (office)	1,000	204
Car parking	1,699	477
Total	20,469	3,169

Note 1: Soft and hard landscaping excluded.

Table 8 Estimated Waste Volumes and Materials for the Development

Material	Split (%)	Waste (m ³)	Conversion factor	Waste (tonnes)
Hard material	40%	1,268	1.20	1,521
Timber	16%	507	0.34	172
Plastics	7%	222	0.25	55
Cement sheet	10%	317	0.50	158
Gypsum material	14%	444	0.20	89
Metals	8%	254	0.42	106
Paper / card	2%	63	0.40	25
Bio-organic	2%	63	0.15	10
Soil	0%	0	1.20	0
Other (chemicals / paint)	1%	32	0.30	10
Total	100%	3,169	-	2,147

It is estimated that more than 70% of the predicted construction waste arisings from Lot 2 can be re-used (on-site or at another development) or recycled off-site. The NSW target for construction and demolition waste recycling is 75% (increasing to 80% by 2021-22)¹.

¹ NSW Waste and Avoidance Resource Recovery Strategy 2014-21

5.3 Waste Avoidance Measures

The Construction Site Manager will identify opportunities for waste avoidance by:

- applying practical building designs and construction techniques;
- appropriate sorting and segregation of demolition and construction wastes to ensure efficient recycling of wastes;
- selecting construction materials taking into consideration to their long lifespan and potential for reuse;
- ordering materials to size and ordering pre-cut and prefabricated materials;
- reuse of formwork (where possible);
- planned work staging;
- reducing packaging waste on-site by returning packaging to suppliers where possible, purchasing in bulk, requesting cardboard or metal drums rather than plastics, requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels;
- careful on-site storage and source separation;
- subcontractors informed of site waste management procedures; and
- coordination and sequencing of various trades.

The Construction Site Manager should also advise on material selection for the reduction of embodied energy and resource depletion. This includes the use of recycled concrete and steel, the reduction of PVC use, the use of low volatile organic compounds (VOC) paints and adhesives, and the use of post-consumer reused timber or Forest Stewardship Council (FSC) certified timber. Designs enabling disassembly and reuse of materials are also desirable. Final material selection will be made with consideration for the ecologically sustainable design strategy for the site.

5.4 Re-use, Recycling and Disposal

Effective management of construction materials and demolition/construction waste, including options for reuse and recycling where applicable and practicable, will be conducted.

Only project wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

The following procedures are to be implemented:

- concrete, tiles and bricks will be reused on-site or re-used / recycled off-site;
- waste oil will be recycled or disposed of in an appropriate manner;
- all solid waste timber, brick, concrete, tiles and rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner;
- all asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements;
- portable, self-contained toilet and washroom facilities will be provided at the site and will be regularly emptied and serviced by a suitably licensed contractor;
- provision for the collection of batteries, fluorescent tubes and other recyclable resources will be provided on site to enable off-site recycling;
- drink container recycling should be provided on-site or these items sorted for recycling at an appropriately licensed facility;

- all garbage will be disposed of via a council approved system; and
- opportunities for materials exportation and reuse with other local construction operations will be investigated. This will have two benefits: minimising energy through reduction of material reprocessing, encouraging material reuse.

5.4.1 Site Specific Procedures

The Construction Site Manager will also consider implementation of the following procedures:

- all used crates will be stored for reuse unless damaged;
- all cardboard waste is to be recycled via on-site recycling compactors which shall be collected by an appropriate recycling contractor;
- all glass and metals that can be economically recycled will be;
- all re-enforcing mesh to be utilised within the construction stages of the construction;
- colour bond roof material off cuts to be stockpiled on site for reuse or recycling;
- waste concrete will be disposed of at a crushing/recycling plant where practicable;
- waste bricks will be crushed and utilised on site. All half/damaged bricks and blacks will be stored on site to be removed for offsite crushing and recycling;
- excavation material will be reused on-site where possible with all excess reused on other projects or sold; and
- all other solid waste including bitumen paving, tile, timber, rock and soil will be taken to an appropriately licensed materials recycling facility / landfill site and processed in an approved manner.

5.5 Waste Segregation

For construction stages, consider minimum dedicated skips for:

- timber;
- plasterboard/gyprock;
- concrete;
- bricks;
- steel/scrap metal;
- general waste; and
- other waste (i.e. for the collection of materials that may be re-used on future projects).

Separate receptacles for the safe disposal of hazardous waste types (i.e. batteries) will also be provided where applicable.

Where possible, employee drink container recycling bins will be provided nearby common areas at work compounds/work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to ensure these items do not end up at landfill. Specialised bins for cigarette butts should also be provided outside lunchrooms and nearby common areas at work compounds/work sites.

5.5.1 Space and Amenity

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the Project.

Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting. The positions of the designated waste holding areas on site will change according to building works and the progression of the development, but must consider visual amenity, OH&S and accessibility in their selection.

All waste placed in stockpile areas/skips for disposal or recycling shall be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Appropriate siting of waste stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.

Waste containers are to be kept clean and in a good state of repair.

5.6 Servicing and Transport

The frequency of the waste removal will, in most cases, be dictated by the volume of material being deposited into each of the dedicated skips.

Skips are to be checked on a daily basis by the Construction Site Manager to ensure that they are not overflowing. If skips are reaching capacity, removal and replacement must be organised with the next 24 hours. All skips leaving the project site will be covered with a suitable tarpaulin to ensure that the spillage of wastes from the skips whilst in transit is eliminated.

All waste collection activities for demolition and construction are to be conducted between 7am and 6pm daily.

All site generated building waste collected in the skip bins will leave the site and be deposited in the approved recycling centre, transfer station or landfill site.

5.6.1 Contaminated / Hazardous Waste

During the construction phase of the development, there must be a commitment to engage qualified and certified contractors to remove all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

In the event that any contaminated or hazardous materials are unexpectedly uncovered during demolition or excavation works, the Construction Site Manager is to stop work immediately and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.

Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HD polythene liner, in a bunded location which is protected from inclement weather. Sediment fences should also be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal.

Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials, to prevent windblown emissions and spillage.

Decontamination of all equipment prior to demobilisation from the site is important in order that contaminated materials are not spread off-site. This should be achieved using dry cleaning methods as far as practicable and collection of material for disposal. The following additional measures should be employed on site:

- as far as possible, all tracked surfaces to be kept free of contaminated material; and
- all equipment should be cleaned in an area contained contaminated soils so that they remain within the area, or on a lined surface and collected spoil should be treated as contaminated material.

5.6.2 Liquid Waste / Stormwater / Wastewater Management

Liquid waste is often produced from the washing down of plant and apparatus. Any liquid wastes or dangerous goods wastes generated by the development (e.g. due to damage or leakage of containment) will be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility. Washdown of equipment, plant and machinery and concrete delivery trucks will take place off-site or on-site within a specified and appropriately bunded washdown bay. There may be a local sewer that this waste water can be connected to; alternatively, this could be transferred into a localised waste water treatment facility or plant.

Waste water storage tanks (where applicable) will be carefully monitored to ensure overflow does not occur and no liquid wastes or wash down waters will be disposed of via the stormwater drainage system. Any refuelling activities will be undertaken off-site or at on-site designated areas with appropriate spill containment measures to avoid overspill to sensitive areas.

5.6.3 Spills Management

Spills on the worksite are most likely to involve fuel, hydraulic oil or engine oil spilled from plant items, and paints and solvents.

If a spillage occurs, site staff will immediately identify the spilled materials and notify the Construction Site Manager. Then contain the spill as soon as possible so it doesn't spread.

Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas (e.g. a spill kit containing non-combustible absorbent material).

Material Safety Data Sheets (MSDS) will also be located nearby spill kit areas for advice on spillage clean-up and disposal.

5.7 Signage

Standard signage will be posted in all storage/waste collection areas and all skips/drums/bins are required to be labelled correctly and clearly to identify materials stored within.

Where applicable, general and co-mingled recycling bins placed nearby staff tearoom/break areas will be colour coded with clear labels.

Refer to the EPA's website under 'waste tools' for construction and demolition waste and recycling signs (see also **Figure 2**).

Figure 2 Australian Standard Signs



Source: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>

5.8 Training and Awareness

All staff (including sub-contractors and site staff) employed during the construction phases of the development must undergo induction training regarding waste management for the development site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- legal obligations;
- emergency response procedures on site;
- waste storage locations and separation of waste;
- the implications of poor waste management practices;
- correct use of General Purpose Spill Kit; and
- details of responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

It is the responsibility of the Construction Site Manager or Environmental Management Representative (EMR) to notify Council of the appointment of waste removal, transport or disposal contractors.

5.9 Monitoring and Reporting

The following measures will be undertaken to improve demolition and construction waste management and to provide more reliable waste generation figures:

1. Compare projected waste quantities with actual waste quantities produced.
2. Conduct waste audits of current projects (where feasible).
3. Note waste generated and disposal methods.
4. Look at past waste disposal receipts.
5. Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained and reported to the Principal Contractor on a quarterly basis. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Construction Site Manager or EMR on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the EMR to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage re-examined.

5.10 Incident Response

Incidents occurring during the construction phase of the Project may involve fuel or chemical spills, seepage or mishandling of hazardous waste, or unlicensed discharge of pollutants to the environment.

All environmental incidents are to be dealt with promptly to minimise potential impacts. An incident register must be maintained on-site at all times and include the contact details of the 24 hour EPA Pollution line.

5.11 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the Contractor to implement the WMP, and an employee responsibility to ensure that they comply with the guideline at all times.

Where possible, an Environmental Management Representative (EMR) should be appointed for the Project. Suggested roles and responsibilities are provided below.

Table 9 Recommended Roles and Responsibilities

Role	Responsibility
Construction Site Manager	• Ensuring plant and equipment are well maintained. • Ordering only the required amount of materials. • Keeping materials segregated to maximise reuse and recycling. • Ultimately responsible for routinely check waste sorting and storage areas for cleanliness, hygiene and OH&S issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Environmental Management Representative (EMR) or equivalent role	• Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical. • Establishing separate skips and recycling bins for effective waste segregation and recycling purposes. • Ensuring staff and contractors are aware of site requirements. • Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Project. • Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements. • Approval of off-site waste disposal locations and checking licensing requirements. • Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes. • Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the site induction and contract engagement process.

6 OPERATIONAL WASTE MANAGEMENT PLAN

Ineffective waste management for commercial premises can lead to environmental pollution, offensive odours, litter, attraction of vermin and occupational safety and hygiene problems.

Effective waste management reduces costs through the reuse of resources and minimisation of fees associated with removal, transportation and disposal of waste, and improves environmental outcomes locally, regionally and globally.

Effective waste management is achieved through the implementation of a WMP for the operational life of the development.

6.1 Waste Streams and Classifications

The operation of the Project will generate the following broad waste streams:

- general waste;
- packaging wastes (cardboard, paper, plastic, pallets);
- office wastes;
- amenity wastes; and
- maintenance wastes.

Potential waste types along with their waste classification are provided below in **Table 10**.

Table 10 Potential Waste Generation and EPA Classifications - Operational

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
General Operations		
General garbage (including non-recyclable plastics)	General solid (putrescible) waste	Disposal at landfill
Recyclable beverage containers (glass and plastic bottles, aluminium cans, tin cans)	General solid (non-putrescible) waste	Co-mingled recycling at off-site licensed facility
Paper	General solid (non-putrescible) waste	Off-site secure shredding and recycling
Plastic packaging materials (including stretch wrap or LLPE)	General solid (non-putrescible) waste	Baled and sent for off-site recycling
Bulk cardboard	General solid (non-putrescible) waste	Baled and sent for recycling at off-site licensed facility
Wooden crates / pallets	General solid (non-putrescible) waste	Reused for similar projects, returned to suppliers, or off-site recycling
Maintenance		
Spent Smoke Detectors ¹	General solid (putrescible) waste OR Hazardous waste (some Commercial varieties)	Disposal at landfill OR offsite disposal at licensed facility
Light bulbs	Hazardous waste	Off-site recycling
E-waste (e.g. chillers and freezers)	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling
Maintenance waste (i.e. empty oil / paint drums etc)	Hazardous waste if the containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if the	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. (Note: Discharge to sewer subject to Trade Waste Agreement with Sydney Water.) ¹

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
	containers have been cleaned by washing or vacuuming.	
Air -conditioning parts and filters	General solid (non-putrescible) waste	Disposal to landfill
Maintenance waste (i.e. cleaning chemicals, solvents, area wash downs)	Hazardous waste if the containers store Dangerous Goods (Class 1, 3, 4, 5 or 8).	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. (Note: Discharge to sewer subject to Trade Waste Agreement with Sydney Water.) ¹
Amenities		
Grey water (from bathrooms)	Liquid waste	A new sewer connection to the existing sewer submain in Newton Road will be constructed as part of the infrastructure works.
Sewage	Liquid (trade) waste	A new sewer connection to the existing sewer submain in Newton Road will be constructed as part of the infrastructure works.
Sanitary Waste	General solid waste (putrescible)	Contractor disposal at licensed facility

Source: <http://www.environment.nsw.gov.au/waste/envguidlms/index.htm>

Note 1: The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's *Code of practice for the near-surface disposal of radioactive waste in Australia (1992)* must be met. Contact ARPANSA for more information. http://www.arpansa.gov.au/radiationprotection/factsheets/is_smokedetector.cfm

For further information on how to determine a waste's classification, refer to the EPA's *Waste Classification Guidelines* (2014).

6.1.1 Anticipated Waste Generation Rates for Operational Development

Table 11 provides a summary of the anticipated weekly waste generation for the operational development. These estimates are based on other similar sized facilities.

Table 11 Anticipated Weekly Waste Generation

Waste type	Waste (tonnes)	Conversion factor	Waste (m ³)
General waste	2	0.15	15
Cardboard	1	0.13	8
Paper	1	0.1	5
Plastic	2	0.156	13
Pallets	15	0.156	96
Total	21	-	137

It is recommended that scheduled waste audits be undertaken approximately one month into the operational phase of the development to quantify actual waste generation rates generated by the development.

The assessment of generated waste volumes will also be influenced by management and employee attitude to recycling and disposal.

6.2 Waste Avoidance, Re-use and Recycling Measures

6.2.1 Waste Avoidance

Waste avoidance measures may include:

- provision of take back services to clients to reduce waste further along the supply chain;
- re-work/re-packaging of products prior to local distribution to reduce waste arisings;
- review of packaging design to reduce waste but maintain 'fit for purpose'; and
- investigating leased office equipment and machinery rather than purchase and disposal.

6.2.2 Re-use

Establish systems with in-house and with supply chain stakeholders to transport products in re-useable packaging where possible.

6.2.3 Recycling

Recycling opportunities include:

- development of 'buy recycled' purchasing policy;
- flatten or bale cardboard to reduce number of bin lifts required; and
- providing recycling collections within each of the offices and tearooms (e.g. plastics, cans and glass).

6.3 Waste Storage and Servicing Requirements

6.3.1 Waste Collection Area Location

A dedicated waste and recycling storage area has been provided at the centre of the site nearby the loading dock areas where the recycling bins, garbage skips, and cardboard and plastic bales will be stored prior to collection. Sufficient clearance is necessary to enable collection vehicles to access the bin storage area. Where possible collection times should not coincide with peak operational delivery schedules however all areas identified will not interfere with operational truck movements.

6.3.2 Waste Collection Area Requirements

The construction of garbage areas, rooms and equipment are to comply with BCA (Building Code of Australia) requirements and Australian Standards.

Waste/recycling storage areas will be constructed of an adequate size to accommodate all waste bins and receptacles (up to 15 x 1,000 litre bins or equivalent receptacles) and recycling bales associated with the development. Recycling bins must be accessible to all employees and must be clearly sign posted and colour coded to ensure segregation of waste and recycling is effective.

Sufficient space will be provided for the segregation and storage of varying waste types including provision for the collection of fluorescent tubes, smoke detectors, e-wastes and other recyclable resources.

Sufficient space will also be provided for reuse items such as crates and pallets for occupational safety purposes.

Doors/gates to the storage area will be able to be opened from both the inside and outside and wide enough to allow for easy passage of waste/recycling containers.

6.3.3 Contaminated / Hazardous Wastes

- All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes and smoke detectors) should be recycled at an appropriately licensed facility.
- E-waste (electronic waste such as computers, mobile phones, printer toners and ink cartridges) and batteries contain heavy metal contaminants and should be recycled at an appropriately licensed recycling facility.
- Commercial-use smoke detectors should be returned to the supplier for disposal (it is a condition of the supplier's licence to sell smoke detectors) and not disposed of with general landfill waste as they contain small amounts of radioactive material. Contact the supplier and/or the EPA for information on how to return used smoke detectors.

6.3.4 Liquid Waste

- Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking.
- Any liquid wastes or dangerous goods wastes generated by the development (e.g. due to damage or leakage of containment) should be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.
- No liquid wastes or wash down waters should be disposed of via the stormwater drainage system. Wastewater storage tanks (including stormwater collection tanks) should be carefully monitored to ensure overflow does not occur.

6.3.5 Stormwater Treatment

Car parking areas must drain to a stormwater treatment device capable of removing litter, oil, grease and sediment prior to discharge to the stormwater system.

All wastewater and stormwater treatment devices are required to be regularly maintained and cleaned to ensure these devices remain effective, with all solid and liquid wastes collected from these devices disposed of in accordance with this WMP and the POEO Act.

6.3.6 Spills Management

Containment measures for spillages should be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main warehouse operation areas (e.g. a spill kit containing non-combustible absorbent material). Material Safety Data Sheets (MSDS) should also be located nearby spill kit areas for advice on spillage clean up and disposal.

6.4 Signage

Education and communication must be regular and ongoing to overcome the transient nature of contractors and visiting staff members. The main signage aspects to consider are:

- general waste (garbage) and recycling bins and storage areas must be clearly and correctly labelled / indicated at all times;
- waste storage areas must have clear signage instructing cleaners and tenants how to correctly separate (if required);
- the location of, and directions to, waste storage areas must be well signposted;
- all hazards or potential dangers associated with the waste facilities should be clearly identified, especially those linked to compaction or other waste handling equipment; and
- emergency contact information should be displayed in case there are any issues with the waste and recycling systems/services in the building.

All signage should conform to the relevant Australian Standard and the NSW EPA's standard recycling signs.

The design and use of safety signs for waste rooms and enclosures should comply with AS 1319 Safety signs for the occupational environment. Australian Standards are available from the SAI Global Limited website (www.saiglobal.com).

6.5 Contract Clauses

Waste collection contracts and cleaning contracts should include clauses relating to waste servicing requirements. Lease agreements should also outline and enforce proper use of waste facilities.

Refer to Appendix H of the EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities (2012) for example clauses.

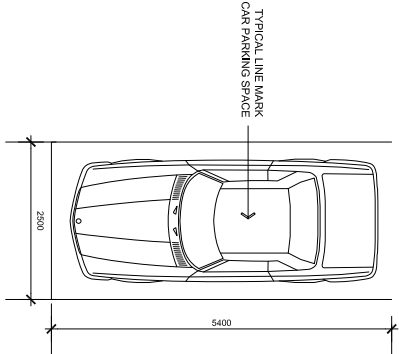
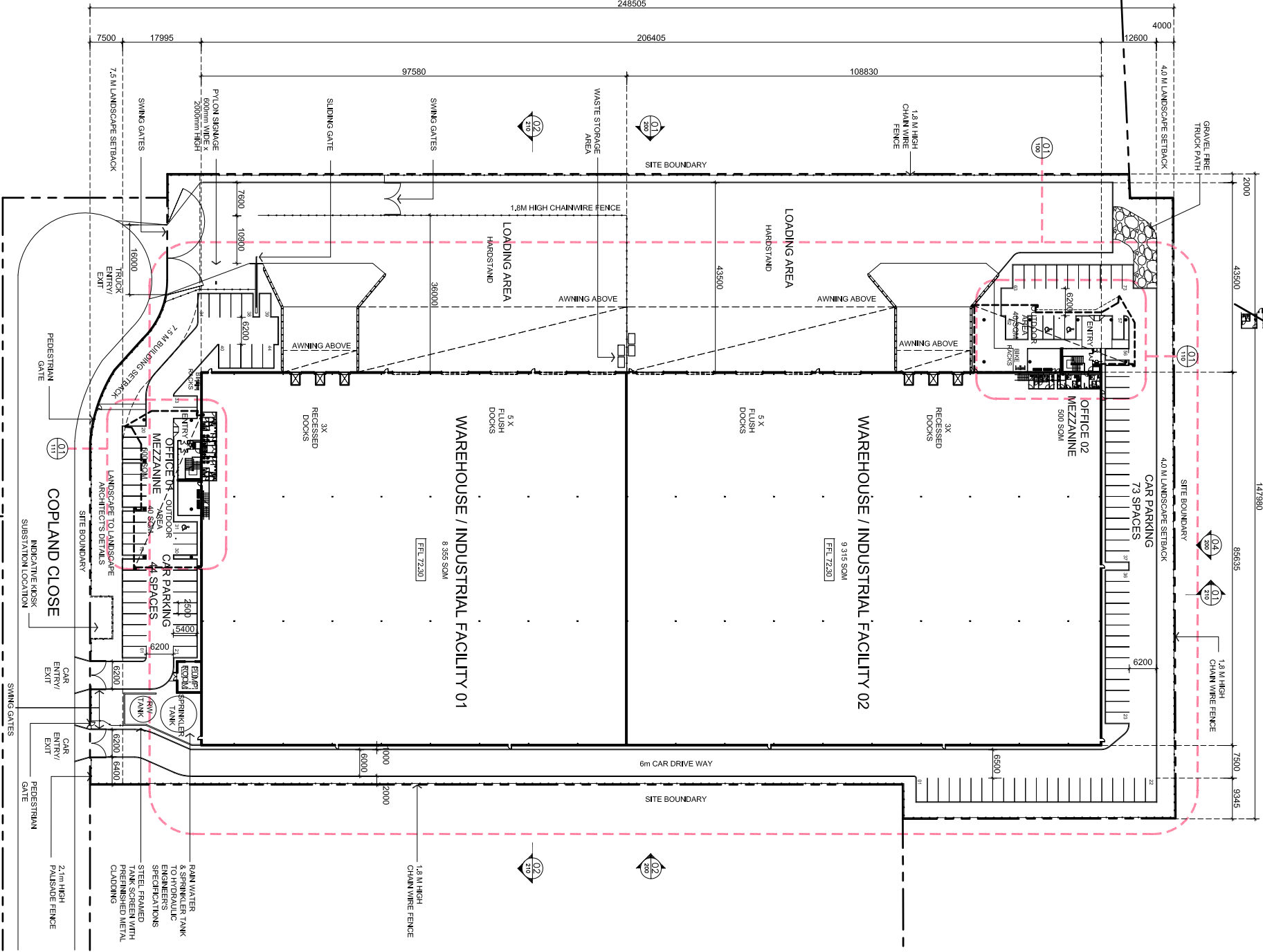
Appendix A

Report Number 610.16281-R1

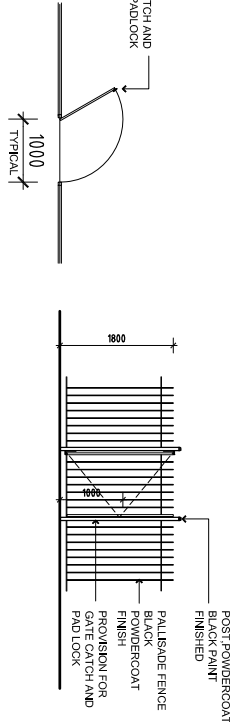
Page 1 of 2

SITE PLAN

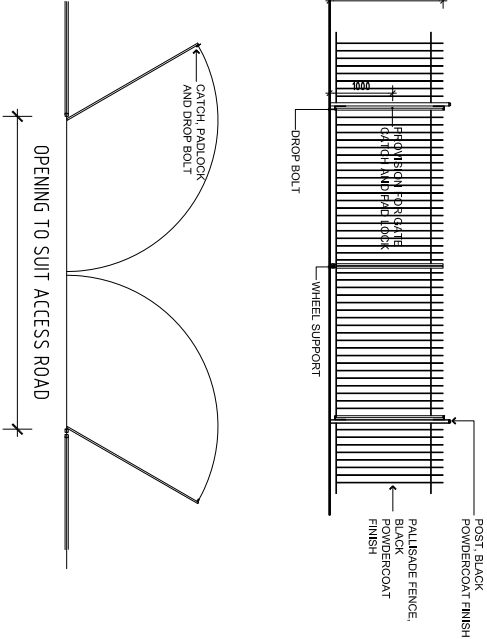
DEVELOPMENT AREAS	
SITE AREA	34 538 SQM
WAREHOUSE / INDUSTRIAL FACILITY 01	
MEZZANINE OFFICE 01	8 355 SQM
ENTRY FOYER	500 SQM
ENTRY FOYER	50 SQM
TOTAL BUILDING AREA	8 905 SQM
AWNING	1 015 SQM
WAREHOUSE / INDUSTRIAL FACILITY 02	
MEZZANINE OFFICE 02	9 315 SQM
ENTRY FOYER	500 SQM
ENTRY FOYER	50 SQM
TOTAL BUILDING AREA	9 865 SQM
AWNING	1 015 SQM
TOTAL BUILDING AREA	18 770 SQM
CAR PARKING	
CAR PARKING PROVIDED	117 SPACES
MASTER PLAN APPROVED CAR PARKING REQUIRED (1 space per 200 SQM GFA)	93 SPACES
SITE COVERAGE	54.3 %



04 TYPICAL PERPENDICULAR PARKING SPACES DETAILS
SCALE - 1:50 @ B1



03 PLAN & ELEVATION SWING GATE (PEDESTRIAN)
PALLISADE FENCE - 1:50 @ B1



02 PLAN & ELEVATION SWING GATE (VEHICLE)
PALLISADE FENCE - 1:50 @ B1

01 SITE PLAN
1:500 @ B1

ALL LEVELS ARE INDICATIVE AND SHOULD BE READ IN CONJUNCTION WITH CIVIL ENGINEERS DRAWINGS.
FOR FINAL LEVELS OF ALL EARTHWORKS.
ALL LEVELS ARE TO BE +/- 1000mm.



COMMERCIAL & INDUSTRIAL DIVISION
BUNDELSHIRE BUILDING
RHOES NSW 2138
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PROJECT
SPECULATIVE WAREHOUSE/INDUSTRIAL FACILITY
ADDRESS
PROPOSED LOT 2, CORNER OF HORSLEY DRIVE
& COMPASTURE ROAD, HORSLEY PARK
DRAWING TITLE
SITE PLAN

SCALE
1:500 @ B1
DRAWN
MR
CHECKED
JD
DATE
24.03.16
JOB NUMBER
0000-00-000

DRAWING NUMBER
SP2-WSP1-DA-003
ISSUE
A