VOLUME 1

ENVIRONMENTAL IMPACT STATEMENT

WASTE AND RESOURCE MANAGEMENT FACILITY

SSD 15-7256

RESOURCECO PTY LTD

35-37 FRANK STREET

WETHERILL PARK

NEXUS
Environmental Planning Pty Ltd

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SSD 15-7256

RESOURCECO PTY LTD

35-37 FRANK STREET

WETHERILL PARK

8 March 2016

Prepared by:
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STATEMENT OF VALIDITY

Submission of Environmental Impact Statement

Prepared under the Environmental Planning and Assessment Act 1979 Section 78A(8A)

Environmental Impact Statement prepared by

Name:	Neil Richard Kennan
Qualifications:	B.A., Dip. Urb. & Reg. Plan., Dip. Cart., Ord 4. Certified Practising Planner
Address:	PO Box 212 **CONCORD NSW 2137**
In respect of:	Waste and Resource Management Facility State Significant Development Application No.15-7256

Applicant and Land Details

Applicant name:	ResourceCo RRF Pty Ltd
Applicant address:	PO Box 542 **ENFIELD PLAZA SA 5085**
Land to be developed:	Lot 31, DP 589097 35-37 Frank Street **WETHERILL PARK**

Environmental Impact Statement: An Environmental Impact Statement is attached

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Statement of Validity: I certify that I have prepared the contents of this Environmental Impact Statement in accordance with the 1 October 2015 Secretary's Requirements and that, to the best of my knowledge, the information contained in the Environmental Impact Statement is neither false nor misleading.

Signature: 

Name: Neil Kennan

Date: 8 March 2016

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Impact Statement has been prepared on behalf of ResourceCo RRF Pty Ltd (**ResourceCo**) in support of a State Significant Development (**SSD**) application.

ResourceCo seeks the approval of the Minister for Planning to establish a Waste and Resource Management Facility at Nos.35-37 Frank Street, Wetherill Park (**the Site**).

The objectives of the proposal are:

(a) To establish a commercially viable Waste and Resource Management Facility which is capable of recovering waste from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

THE SITE

The Site is Lot 31, DP 589097, Nos.35-37 Frank Street, Wetherill Park.

The Site is located on the northern side of Frank Street to the west of the intersection of Redfern Street with Frank Street. The Site has an area of approximately 2.077 hectares.

An easement for transmission line 30.38 m wide is located in the southern section of the Site.

The Site is in the ownership of Simsmetal Holdings Pty Limited and is currently vacant.

THE PROPOSED DEVELOPMENT

It is proposed to establish a Waste and Resource Management Facility on the Site which would process waste material to produce *Processed Engineering Fuel* (**PEF**) and other reusable commodities including aggregates, metal, timber and soil.

PEF is primarily a plastic-based material with high calorific value, derived from waste streams such as Commercial and Demolition (**C&D**) waste, Commercial and Industrial (**C&I**) waste and pre-processed Municipal Solid Waste (**MSW**). The proposed development would process dry, non-putrescible C&I and mixed C&D waste.

PEF is an alternative fuel used in energy intensive industries to replace fossil fuels, such as coal and pet coke, and is most commonly used in the cement manufacturing industry.

The recycling of combustible waste into PEF brings the following benefits:

- Diversion of waste from landfill.
- Conservation of natural fossil fuel by replacing it with sustainable green fuel.

- Achieving carbon emission reduction in the cement manufacturing process.
- Cost saving for industry through replacement of fossil fuel with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material per annum into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities such as metal, wood, concrete, bricks, rubble and soil. All raw materials are separated during processing and over 90% of the material is recycled. The remaining 10% is waste and would be disposed of to landfill.

The source material is comprised of dry mixed light loads which usually contain a mix of timber, metals, plastics, cardboard and paper. The material stream may also include small amounts of concrete, bricks and rubble.

The source material is stockpiled within a purpose built industrial shed. Material is sorted such that ferrous and non-ferrous metals, inert fractions such as aggregates, soil, bricks and concrete, and non-recyclables are removed from the combustible portion of the material stream. The combustible material is then processed for manufacturing of PEF.

All salvaged metals are transported to approved recycling facilities. ResourceCo will transport the inert fractions such as aggregates and soil to approved recycling facilities to process for resupply to the civil construction market.

The manufacture of PEF is carried out using a fully automated process, although some manual picking is undertaken in the process.

Material would arrive at the Site and would be taken over a weighbridge. Visual inspection of the load would take place at this time to determine the category of material. The driver would be issued with a docket and directed to the relevant section of the Site for placement of the material for processing.

No wet or putrescible waste would be processed at the facility. Only approved waste materials would be processed at the facility.

The proposed facility would operate in accordance with an Environment Protection Licence.

IMPACT OF THE PROPOSED DEVELOPMENT

Air Quality

The land use immediately surrounding the Site is industrial. The nearest sensitive receptors are the residences in Wetherill Park, located more than 700 metres away.

A number of residential receptor 'catchments' have been defined to identify receivers to the east, south-east, south and south-west.

Potential pollutants identified for this development with the potential to result in air quality impacts include odour and dust.

No significant odour sources have been identified for the normal operations of the facility, however, it is foreseeable that a customer may deliver a load which contains some putrescible waste, and that it would spend a small amount of time on Site before it is rejected and removed. A partial load of putrescible waste would spend no more than 1 - 2 hours on the Site.

C&D and C&I waste contain a significant percentage of dusty materials, such as bricks, concrete and sand. The handling of these materials, and the shredding of combustible materials, will produce dust and particulate matter.

Dust emissions during operation of the facility have been estimated based on information provided by ResourceCo, using emission factors sourced from both locally developed and US EPA developed documentation.

Dust would be generated during site operations due to the handling and processing of materials, and from truck movements on paved roads.

The majority of the PEF production process involves separating the incoming waste, by size and weight, to extract materials with sufficient calorific value. Aggregate materials, such as bricks and concrete, are quickly removed and are, therefore, not handled as many times as the combustible materials which are included in PEF.

Over the duration of the production process, aggregate materials are handled approximately 5 times, whereas combustible materials are handled approximately 10 times.

Since the PEF production takes place inside a building with dust suppression sprinklers, it is assumed that dust emissions are reduced by 50%. Although roadways would be kept clean, no reduction has been applied to the dust emissions from truck movements.

The air quality impact assessment has demonstrated that the facility is expected to comply with relevant air quality criteria.

Noise

The noise and vibration impact assessment has been prepared to address the relevant Secretary's Environmental Assessment Requirements. The assessment was conducted in general accordance with the following NSW Government guidelines:

- NSW Industrial Noise Policy (EPA, 2000);
- Noise Guide for Local Government (EPA, 2013);
- NSW Road Noise Policy (DECCW, 2011); and,
- Interim Construction Noise Guideline (DECC, 2009).

Given the substantial setback distances to nearby receivers, it is considered that a vibration assessment is not warranted and, therefore, not considered further.

Ambient noise levels were monitored at 15 Maugham Crescent, Wetherill Park between Friday, 21 and Saturday, 29 August 2015 which is considered representative of the most affected residential receivers in the vicinity of the Site.

The dominant noise will be generated internally within the main manufacturing facility by the fixed plant as well as mobile plant including front end loaders, excavators and tipping of materials from trucks, or activities in the workshop building which will include intermittent grinding, welding and use of rattle guns. The manufacturing facility building will have thermal insulation on the underside of the roof which will control reverberation times.

Externally, noise will be dominated by trucks arriving and departing as well as intermittent fork lift movements to manage the bale stockpile. There will also be noise associated with air-conditioning plant for the office building.

To Residences

Whilst rapid roller doors are proposed and over a whole day a door would be open one third of the time, it is assumed as a worst-case scenario during a busy 15-minute period that one door on the western facade will remain open the whole time.

Given the distances to the nearest noise-sensitive receivers are in excess of 800 metres, and there is shielding by surrounding buildings in all directions, noise levels have been predicted based on geometric spreading and a conservative allowance of 10dB in relation to shielding from buildings. When considering adverse meteorological conditions, the effects of shielding is reduced to 5dB.

To Industrial Boundary and Active Recreation Area

For these assessment locations, assessed over the whole day, evening or night period, a roller door on the western facade is assumed to be open 1/3 of the time and all truck movements are assumed to occur in the daytime.

Whilst a 1.8 metre fence is proposed along part of the western boundary, it is not allowed for shielding provided calculations to the industrial boundary as it is not required in order to satisfy noise criteria.

For existing residences affected by additional traffic on existing freeways / arterial roads generated by land use developments, the appropriate noise assessment criteria are set in the Road Noise Policy (**RNP**).

Trucks will access via Frank Street from either the east or west and then typically via Redfern Street / Hassall Street or Elizabeth Street and then The Horsley Drive or Gipps Road, dependent on size and RMS requirements.

The nearest residences / noise sensitive receivers to the facility, likely to be affected by additional traffic are located on Hassall Street south of Gipps Road or along The Horsley Drive. In accordance with the definitions outlined in the RNP all these roads would be classified as arterial.

Given the existing high traffic volumes on all the roads where residences are located, existing noise levels are likely to exceed the RNP base criterion. The increased noise level due to traffic from the proposed recycling facility is calculated to be 0.2dB at daytime and less than 0.1dB at night time. This is significantly below the 2dB increase which is described as noticeable and negligible impact is therefore expected.

Earthworks will generate the highest noise levels. There will need to be construction of retaining walls (the highest in the north west corner), import of select material, plus spreading and compaction. This will be followed by drainage works and then paving. The final stage will be the construction of buildings followed by fit out.

Predicted noise levels at residences and the active recreation area are expected to comply with the Management Levels. Negligible impact is expected.

Visual Impacts

The assessment of visual impacts is a field which requires a degree of subjective judgment and cannot be made fully objective.

It is necessary to limit the subjectivity of the work by adopting a systematic, explicit and comprehensive approach with the aim of separating aspects which can be more objective, for example the physical setting, visual character, visibility and visual qualities of a proposal, from more subjective elements, such as matters of personal taste and emotion.

A viewpoint analysis was conducted to assess the visual impacts which may be experienced which consisted of visiting the Site and the locality and assessing the likely impact on views from selected locations. The locations were selected to represent all of the types of view of the development which would exist in the immediate area. At each viewing place, a series of observations and assessments were made. A variety of locations were also visited to ascertain the extent of the visual catchment and the characteristics of the views.

The Site has been previously used by Sims Metal as a metal recycling facility. Apart from the disused buildings on the Site, the Site is vacant.

The land along the western boundary of the Site contains vegetation and a solid boundary fence.

At the northern end of the Site, the vegetation covers a large area between the Site and the adjoining land. The vegetation is located within an easement which runs along the northern boundary of the Site. Factory development and associated landscaping are contained on the land to the north of the easement.

To the south of the Site, there is a vacant parcel of land and also established factory and warehousing facilities.

Views from the surrounding area to the Site are restricted to a significant extent by retaining walls and fencing which has been established to make the adjoining sites more amenable to industrial development, however, there are some limited viewing opportunities into the interior of the Site.

To the west of the Site, is an extensive industrial complex operated by Border Express and associated car parking. Limited views to the Site would be obtained from this adjoining land due to the presence of a large factory/warehouse building on that site and the difference in elevation between that site and the Site. A boundary fence along the length of the Site also limits the view corridor from the adjoining land to the Site.

The land surface on which the proposed development would exist is not visible from any existing residential location outside the Site because of the distance and topographic relationships which exist between them and the Site.

Visibility from existing residential areas

There is no visibility of the Site from residential areas.

Visibility from the locality

There are limited and heavily screened views into the southern part of the Site from Frank Street. The landscape plan has been conceived to create a quality landscaped area in the Frank Street streetscape which will also assist in screening the visual impact of the proposed development.

The proposed development will be such that the delivery of waste, processing of that waste, and loading of the end products for delivery off the Site are all undertaken indoors. The visible component of the proposed development would be restricted to the car park and associated office complex and the arrival and departure of trucks servicing the Site. This activity would be entirely consistent with the majority of the industrial and warehousing activity in the locality.

Traffic Impact

The following road inventory exists in the locality of the Site:

1. Frank Street is a 2 lane industrial road. The movements at the Elizabeth Street intersection are controlled by Give Way signs. The movements at Redfern Street are controlled by Stop signs.

2. Elizabeth Street is a 4 lane industrial road with traffic signal control at the Victoria Street and The Horsley Drive intersections.

3. Victoria Street is a 4 lane industrial road with additional right turning lanes at the Elizabeth Street and Walter Street signalised intersections.

4. The Horsley Drive is a 4 lane industrial road with additional right turn bays at the signalised intersections.

5. Redfern Street is a 2 lane industrial road and movements at the Walter Street tee-intersection are controlled by Give Way signs.

Access, Internal Traffic Circulation and Parking

The western vehicular crossing is to be widened to 13.5 metres and constructed in compliance with Fairfield City Council's standard for heavy duty vehicular crossings.

The swept paths of B Doubles for entry and exit have been checked using Autoturn. The ingress and egress crossings are separated by a raised 1 metre wide concrete median and comply with *Figure 3.1 in AS 2890.2 Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities*.

The swept paths of B Doubles for access to and from stockpiles of baled PEF, swept paths of a 19m long articulated vehicle or truck and dog trailer for deliveries of raw waste material, and for NSW Fire Brigade aerial appliances to circulate around the perimeter road have been prepared using Autoturn.

The car parking provision on-site meets the maximum parking demand by staff at the mid afternoon shift change. The parking can be increased by 4 spaces by line marking on the western side of the staff access driveway and a further 5 spaces by constructing additional pavement in front of the office building. A further 8 spaces are available along the Site frontage to Frank Street. Adequate parking can be provided to meet the anticipated future maximum demand.

Effects of Increased Traffic on Intersection Performance

The increase in heavy and light vehicle traffic movements in peak hours due to the operation of the proposed development are relatively minor at all intersections. The Victoria Street / Walter Street intersection is already at capacity, and the Elizabeth Street / Horsley Drive intersection requires improvements in the pm peak hour. All other intersections analysed using SIDRA 6.1 will continue to provide satisfactory performance.

Effects of Increased Traffic on Road Network

To cater for expected traffic increases to 2036, the RMS is planning an upgrade of The Horsley Drive between Cowpasture Road and the M7 motorway to a 4 lane divided carriageway, realignment of the Ferrers Road intersection, and provision of traffic lights at the Cowpasture Road south intersection.

The estimated increase in light and heavy vehicle movements on the major approach roads in the day-time 7:00 am to 10:00 pm and at night from 10:00 pm to 7:00 am, and during peak hours are small increases and will have minimal effect on the performance of the road network.

Water Quality, Flooding and Stormwater Drainage

The Environmental Impact Statement describes the proposed systems for surface water management on the Site including:

- Rainwater collection for re-use and reduction of demand from the mains potable supply.
- Stormwater pollution control using various proprietary treatment devices.

Temporary erosion and sediment controls would be implemented prior to the construction of the facilities which comprise the water management system. A combination of localised controls including silt fencing and temporary sediment basins, etc would be used.

Prior to any earthworks commencing on the Site, erosion and sediment control measures will be put in place generally in accordance with *Managing Urban Stormwater: Soils and Construction 4th Edition, March 2004*. These measures include:

- Installation of a 1.8m high chain wire fence covered with geo-textile filter fabric, to the perimeter of the work site area, where required.
- The use of sediment diverting methods to minimise sediment in Council's stormwater drainage

using sandbags around kerb inlet pits and geo-textile filter fabric around drop inlet pits.

- The provision of a sediment basin towards the lower perimeter of the Site to which stormwater runoff will be channelled and treated during construction. It is possible that an existing pond in the northwest corner may be utilised and converted for this purpose depending on its current capacity.

- Construct temporary site entrance with shaker grid.

The proposed stormwater management system applies the relevant principles of water sensitive urban design applicable to an industrial site, including maximising the capture and re-use of rainwater.

The water demands which could utilise rainwater in lieu of potable supply have been derived as follows:

Process Water Quarterly water use data for an existing waste and resource management facility was provided by ResourceCo and, based on discussion with ResourceCo, was disaggregated on a monthly basis using the overall monthly distribution of pan evaporation as a guide.

Toilet Flushing Estimated water requirements for toilet flushing were based on 40 employees allowing for 2 x full flush (6 L) and 3 x half flush (3 L) per day.

Landscape Watering Water requirements for landscape watering have been estimated based on $300m^2$ of landscaping (from landscape plans) and difference between evapotranspiration and rainfall. Where monthly rainfall exceeds evapotranspiration, it is assumed that no landscape watering is required.

Apart from a minor volume of water for amenities, the facility is expected to require about 15.5 ML of water per year of which an average of 4.82 ML per year (31%) would be provided by rainwater as follows:

- Process water supply of 30% from rainwater (a saving of potable water of 4.49 ML/year);

- Toilet flushing and landscape water supply of 82% from rainwater (a saving of potable water of 0.33 ML/year).

The proposed stormwater drainage system provides a below ground pit and pipe network designed to control nuisance flooding and enable effective stormwater management for the Site. The piped system has been designed to convey runoff from 20 year average recurrence interval (ARI) storm.

For storms larger than 20 year ARI up to 100 year ARI, the drainage system incorporates overland flow routes over proposed hardstand, car parking and landscaped areas designed to ensure that personal safety is not compromised.

The proposed water management system is based on the relevant principles of "water sensitive urban design" and the analysis demonstrates that stormwater pollutant loads discharged from the Site would comply with, or exceed the relevant guidelines.

In accordance with the requirements of Fairfield City Council, no on-site detention of stormwater is proposed. It is expected that the development would have no impact on water quality in Prospect Creek.

The assessment demonstrates that:

- Surface water risks can be adequately managed by application of relevant guidelines.

- The development poses no significant risk to the downstream environment.

Waste Impact

Little waste is generated in the operation of the proposed development. The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 10% of the material delivered to the Site is material which cannot be recycled and that waste will be transported to landfill.

Social and Economic Impact

Potential social and economic impacts resulting from the facility are generally positive.

Adverse social impacts are associated with the potential air, noise, traffic impacts, and visual amenity. The facility would employ best management practices and mitigation measures to minimise the potential for adverse impacts upon the local environment such that any adverse social impacts would be negligible.

Construction of the facility would create new temporary employment, contributing positively to the local economy.

Construction of the facility would create increased levels of traffic, noise and air pollution for the duration of the construction phase, which has the potential to impact on local residents if not appropriately managed, however, the distance to the nearest residential receptors is 700 metres from the Site and impacts at these locations are expected to be minimal.

Potential social and economic impacts resulting from the operation of the facility are generally positive.

The operation of the Waste Resource Management Facility would provide employment for approximately 40 staff at this location, with the potential for increased employment in the future. All staff employed at the facility will be new positions, and would not involve transferring current employees to the Site.

CONCLUSION

Consultation with the Secretary of the Department of Planning and Environment has resulted in a number of Key Issues being identified for assessment as part of the preparation of this Environmental Impact Statement.

This Environmental Impact Statement has, in accordance with the requirements of the Secretary, considered the likely impacts to the environment which might potentially result from the use of the Site as a Waste and Resource Management Facility.

It is concluded that the proposed development is an acceptable land use for the Site.

GLOSSARY OF TERMS AND ABBREVIATIONS

Commercial Waste	The component of the waste stream originating from wholesale, retail or service establishments.
Construction and Demolition Waste (general)	Bricks, concrete, masonry and steel reinforcement materials arising from demolition or construction work but does not include other materials such as plastics, paper, metals (other than steel reinforcement materials), timbers, organic wastes or wastes arising from refurbishment.
Construction and Demolition Waste (inert)	Brick, concrete, masonry, dirt, asphalt and ferrous/non-ferrous metals arising from demolition and construction work and requiring no further processing other than pulverising and separation of steel reinforcement prior to placement in a crushing circuit.
Construction and Demolition Waste (mixed)	Waste arising from refurbishment, demolition and construction work and includes bricks, concrete, masonry, dirt, tiles, gyprock, paper, ferrous/non-ferrous metals, timbers and organic wastes.
Commercial and Industrial Waste (General)	The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste.
Commercial and Industrial Waste (Listed)	The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), that contains or consists of Listed Waste.
Consent Authority	The Minister for Planning and Environment.
Contaminants	In relation to a waste stream, any material that is not included in the definition or, if the stream is not defined, in the accepted meaning, of the waste stream in question.
Designated development	Section 77A of the Environmental Planning and Assessment Act 1979 states that *"Designated development is development that is declared to be designated development by an environmental planning instrument or the regulations."* Schedule 3 of the Environmental Planning and Assessment Regulation 2000 defines the type of development which is classified as designated development.
Green waste	The vegetative portion of the waste stream from domestic and commercial premises and municipal operations.
Industrial waste	The component of the waste stream arising from industrial processes and manufacturing operations.
Integrated development	Development which requires development consent and one or more of the approvals listed in Section 91 of the Environmental Planning and Assessment Act 1979.
Local Environmental Plan	Local Environmental Plans are planning documents prepared by a Council which detail the zoning of land and the type of development which is permitted with consent or prohibited in a particular zone. Controls on development are also provided.
Municipal Solid Waste (MSW)	The component of the waste stream produced within residential

	dwellings and is generally kerbside collected by the relevant council on a weekly basis. Can be either "pre-sorted" (two or three bin collection service) or "non pre-sorted" (single bin collection service).
Processed Engineered Fuels	Combustible material with a high calorific value that meets the product specification requirements of the end user.
State Environmental Planning Policy	A planning instrument made by the State. State Environmental Planning Policies deal with issues of State significance.
The Site	Refers to the land upon which the proposed development is to take place.

C&I	Commercial and Industrial Waste
C&D	Construction and Demolition Waste
DP	Deposited Plan
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPBCA Act	Environment Protection and Biodiversity Conservation Act 1999
INP	Industrial Noise Policy
LEP	Local Environmental Plan
MSW	Municipal Solid Waste
OEH	NSW Office of Environment and Heritage
PEF	Processed Engineered Fuels
POEO Act	Protection of the Environment Operations Act 1997
RMS	NSW Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
vph	Vehicles per hour
vpd	Vehicles per day

Part One

INTRODUCTION

1.1 Statement of the Proposal

This Environmental Impact Statement has been prepared on behalf of ResourceCo RRF Pty Ltd (**ResourceCo**) in support of a State Significant Development (**SSD**) application.

ResourceCo seeks the approval of the Minister for Planning to establish a Waste and Resource Management Facility at Nos.35-37 Frank Street, Wetherill Park (**the Site**).

The objectives of the proposal are:

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(c) To establish an environmentally responsible and sustainable industry which would create employment.

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The recycling of combustible waste into PEF brings the following benefits:

- Diversion of waste from landfill
- Conservation of natural fossil fuel by replacing it with sustainable green fuel
- Achieving carbon emission reduction in the cement manufacturing process
- Cost saving for industry through replacement of fossil fuel with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material

per annum into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities. All raw materials are separated during processing and over 90% of the material is recycled.

1.2 Description of the Site

The legal description of the Site is:

Lot 31, DP 589097
Nos.35-37 Frank Street
WETHERILL PARK

Figure 1-1 shows the regional location of the Site. **Figure 1-2** shows a more detailed Site location.

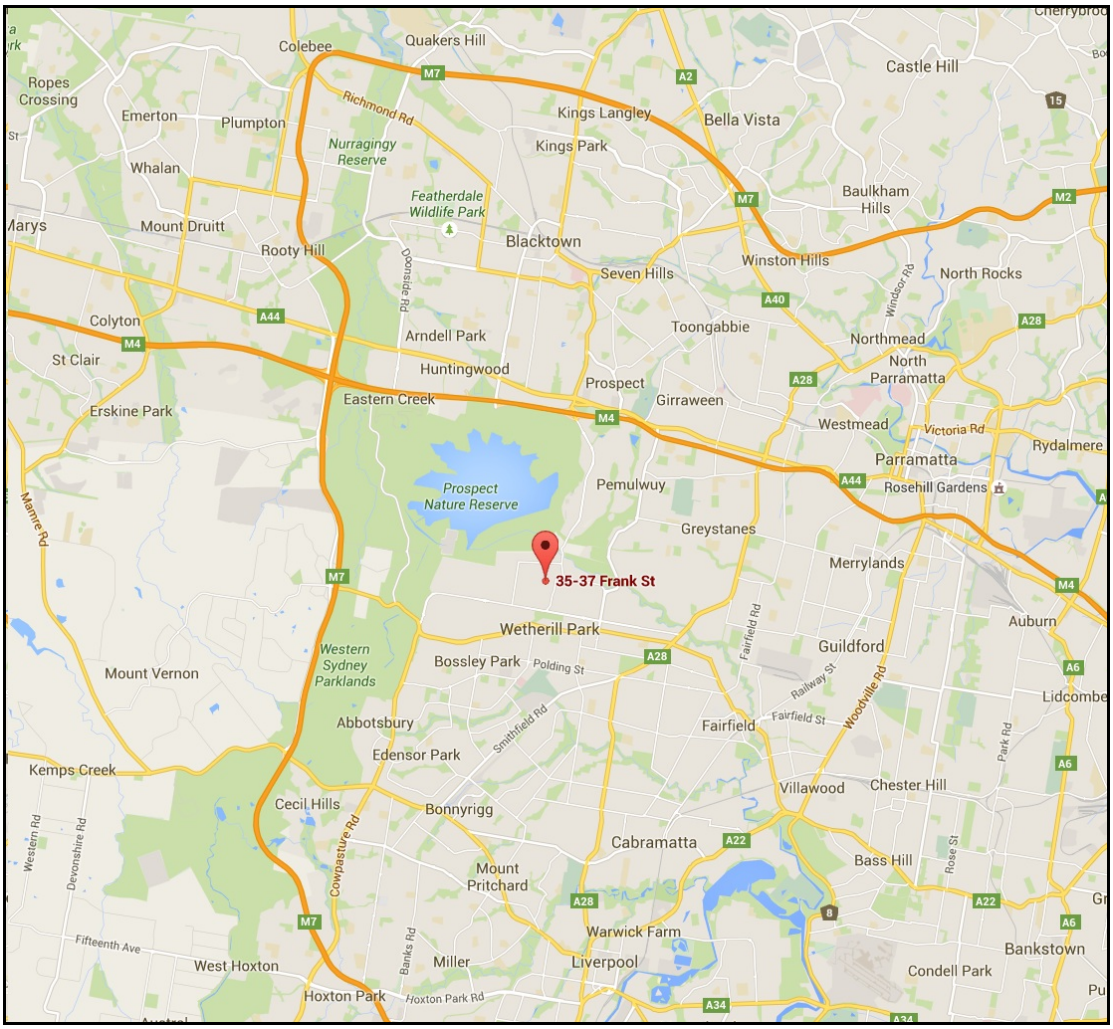


Figure 1-1: Regional location of the Site. (© GOOGLE Maps).

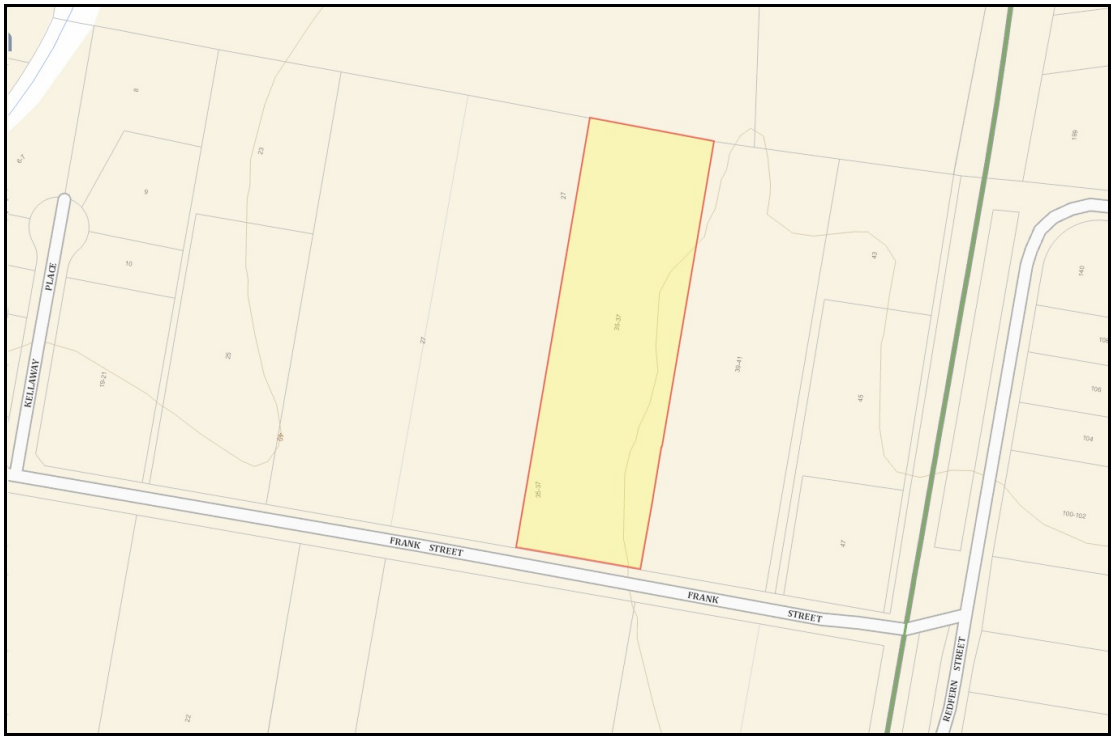


Figure 1-2: Site location map with the Site highlighted in yellow. (© NSW Department of Lands 2015)

The Site is located on the northern side of Frank Street to the west of the intersection of Redfern Street with Frank Street. An extract from an aerial photograph of the Site is at **Figure 1-3**.

Figure 1-3: Aerial photograph of the Site. (© NearMap)

Figure 1-4 shows the cadastral details of the Site and surrounding lands.

Figure 1-4: Cadastral details of the Site and surrounding land. (© NSW Department of Lands 2015)

The Site has:

- a northern boundary of 77.66m
- a western boundary of 268.46 m
- a southern boundary of 77.38 m
- an eastern boundary of 267.49 m.

The Site has an area of approximately 2.077 hectares.

An easement for transmission line 30.38 m wide is located in the southern section of the Site. An extract from DP 589097 which shows the location of the easement is at **Figure 1-5** with a copy of the Certificate of Title at **Appendix 1**.

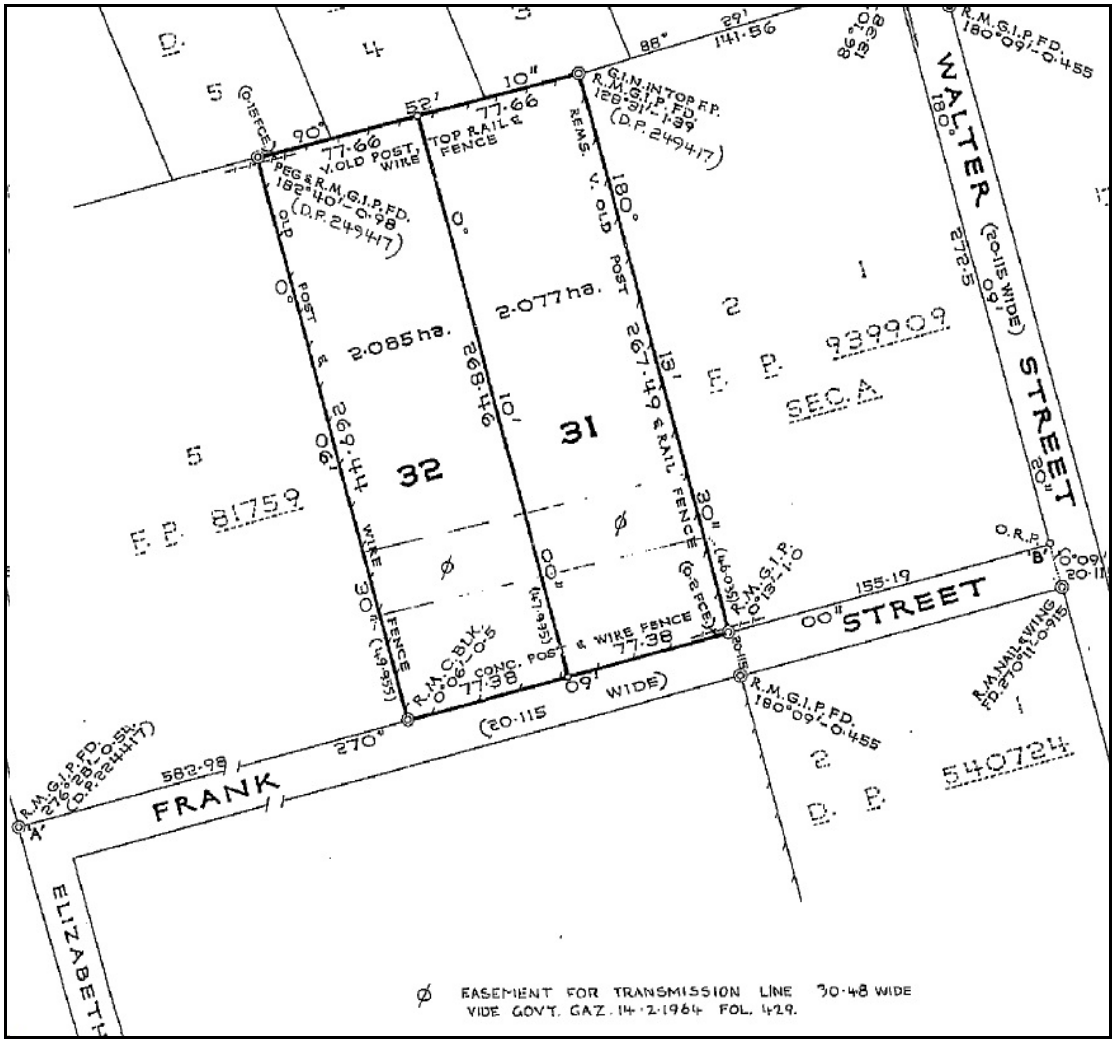


Figure 1-5: Extract from DP 589097.

The Site is in the ownership of Simsmetal Holdings Pty Limited. A 25 August 2015 letter from Sims Metal Management granting consent to the lodgement of the subject application is at **Appendix 2**.

The Site is currently vacant. As seen in **Figure 1-3**, there is a building located at the southern section of the Site, that building being associated with the previous use of the Site by Sims Metal.

There is no vegetation located on the main part of the Site, however, there is a stand of trees located at the Frank Street frontage of the Site.

A survey of the Site has been prepared by William L Backhouse Pty Limited, an extract from which showing the Frank Street frontage of the Site and the existing vegetation is at **Figure 1-6**. A number of trees are located on adjoining land to the north and west of the Site as shown on the extract from the survey of the Site at **Figure 1-7**.

A complete copy of the survey of the Site is at **Appendix 3**.

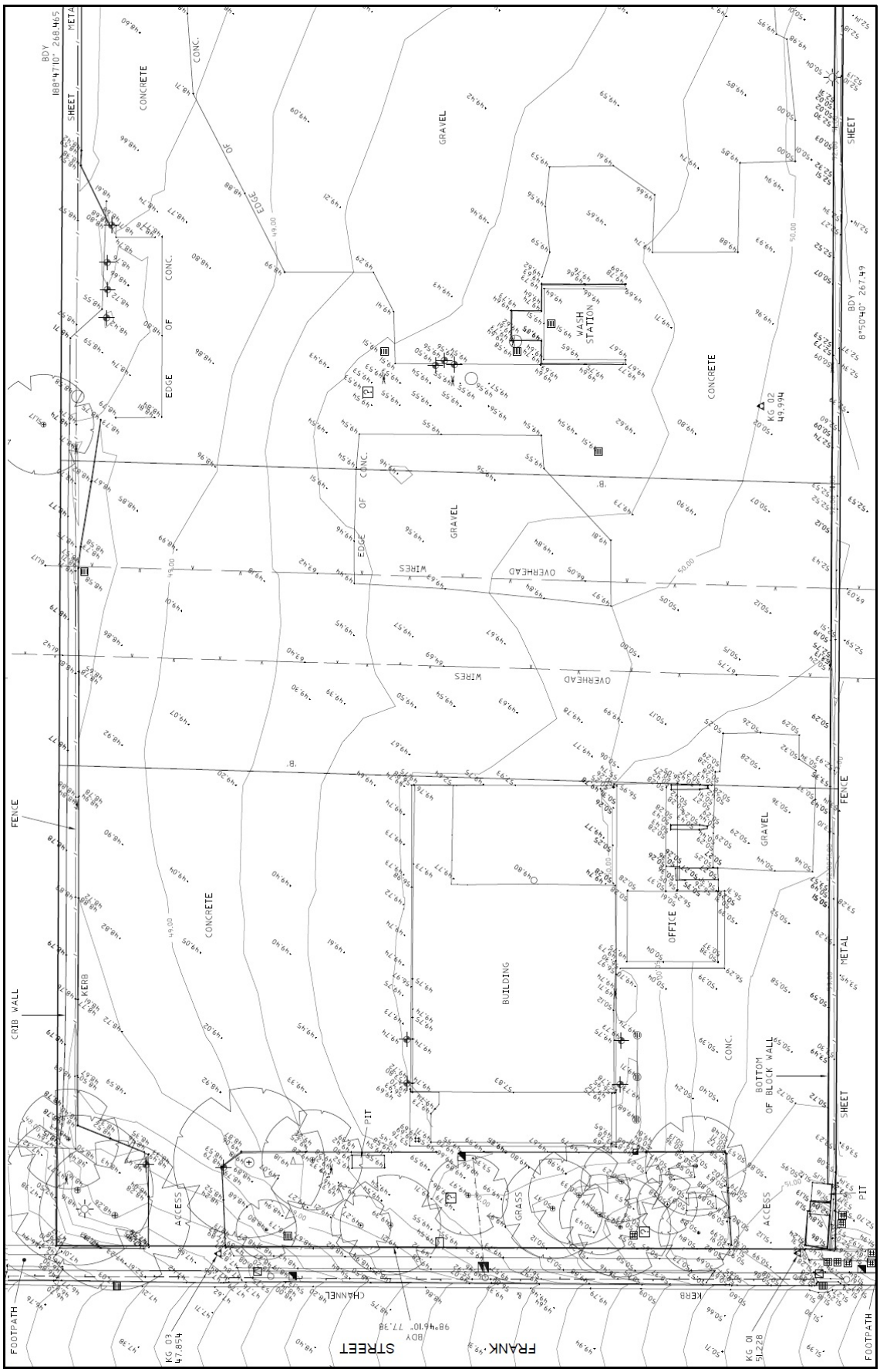


Figure 1-6: Extract from the survey of the Site.

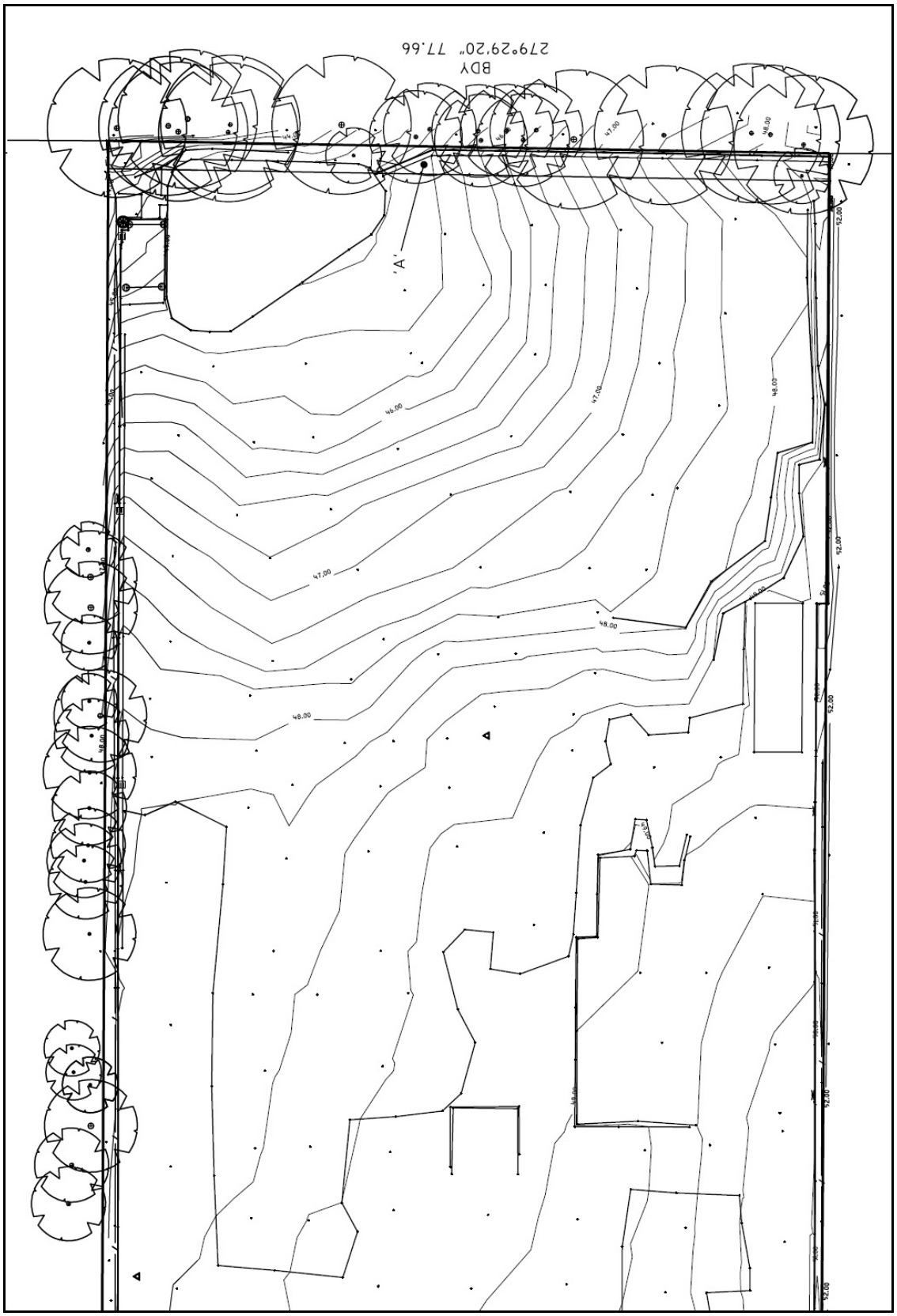


Figure 1-7: Extract from the survey of the Site showing the existing vegetation located on the properties to the north and west of the Site.

1.3 Operational History of the Site

Sims Metal purchased the Site from Wanless Waste Services in the early 1980s. The Site operated as a scrap metal facility with the operational layout generally unchanged until its closure as a scrap yard in December 2013.

At the time of purchase of the Site by Sims Metal, a shredder was located on the central, eastern section of the Site. Sims Metal replaced the shredder with a metal shear upon purchasing the Site. The metal shear remained in place until it was demolished in August 2014 following the closure of the Site.

The front section of the Site, and haul roads along the eastern and western boundaries were sealed between 1978 and 1986.

The front section of the Site had not been used for processing and stockpile of scrap metal with the exception of the large warehouse which was used for the storage of non-ferrous metals.

The centre and northern sections of the Site have been in a predominantly unsealed state and generally occupied by scrap metal stockpiles throughout the operational lifetime of the Site.

1.4 Need for an Environmental Assessment

Pursuant to **Schedule 3** of the *Environmental Planning and Assessment Regulation 2000* (**the Regulation**), the proposed development is Designated Development being *Waste management facilities or works*.

Clause 89C of the Environmental Planning and Assessment Act 1979 deals with State Significant Development and states:

> ***89C Development that is State significant development***
>
> *(1) For the purposes of this Act, State significant development is development that is declared under this section to be State significant development.*
>
> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*
>
> *(3) The Minister may, by order published in the Gazette, declare specified development on specified land that is not declared under subsection (2) to be State significant development, but only if the Minister has obtained and made publicly available advice from*

the Planning Assessment Commission about the State or regional planning significance of the development.

(4) A State environmental planning policy that declares State significant development may extend the provisions of the policy relating to that development to State significant development declared under subsection (3).

State Environmental Planning Policy (State and Regional Development) 2011 (**SEPP SRD)** has as its aims:

(a) to identify development that is State significant development,

(b) to identify development that is State significant infrastructure and critical State significant infrastructure,

(c) to confer functions on joint regional planning panels to determine development applications.

Clause 8 of SEPP SRD states:

8 Declaration of State significant development: section 89C

(1) Development is declared to be State significant development for the purposes of the Act if:

(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and

(b) the development is specified in Schedule 1 or 2.

(2) If a single proposed development the subject of one development application comprises development that is only partly State significant development declared under subclause (1), the remainder of the development is also declared to be State significant development (except so much of the remainder of the development as the Director-General determines is not sufficiently related to the State significant development).

(3) This clause does not apply to development that was the subject of a certificate in force under clause 6C of State Environmental Planning Policy (Major Development) 2005 immediately before the commencement of this Policy.

Schedule 1 of SEPP SRD contains the following definition:

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 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 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.

The proposed development would recycle more than 100,000 tonnes per annum of commercial and industrial waste (approximately 250,000 tonnes per annum) and, as such, is a *State significant development* for the purposes of SEPP SRD. As such, an Environmental Impact Statement is required to accompany the application for the proposed development.

1.5 Secretary's Requirements

Pursuant to **Schedule 2** of the Environmental Planning and Assessment Regulation 2000, by letter dated 1 October 2015, the Secretary provided the requirements for the Environmental Impact Statement. A copy of the Secretary's Requirements is at

Appendix 4. A summary of the Secretary's Requirements is outlined in **Table 1-1** together with the relevant section of the Environmental Impact Statement which addresses those matters.

Table 1-1: Summary of Secretary's Requirements

Issue	Summary of matters to be addressed in EA	Reference in EA
Description of the Development	A detailed description of the project including: - need for the development - alternatives considered - likely staging of the development - likely interactions between the development and existing, approved and proposed operations in the vicinity of the site. - plans of the proposed building works	Parts 1 & 2
Justification of the Project	Include a detailed justification of the project.	Part 14
Environmental Planning Instruments	Consider any relevant statutory provisions.	Part 3
Capital Investment Value	- A detailed calculation of the capital investment value of the development. - Estimate of jobs to be created.	Part 11
Waste management	Including waste receival, classification and stockpiling.	Part 13
Risk assessment	A risk assessment of the potential environmental impacts of the development, identifying key issues for further assessment.	Part 14
Air quality	Assessment of air quality impacts, including odour, dust and green house gas emissions.	Part 6, Appendix 14
Traffic and transport	Details of the traffic volumes that are likely to be generated during construction and operation, and an assessment of the impact of this traffic on the safety and efficiency of the surrounding road network.	Part 10, Appendix 13
Noise	Assessment of noise during construction, operation and traffic.	Part 5, Appendix 15
Soil and water	- Identification of water and soil resources, drainage lines, watercourses and riparian lands. - Proposed erosion and sediment controls during construction. - A detailed site water balance. - Potential impacts on watercourses and groundwater. - The proposed stormwater, wastewater, leachate management systems including capacity of onsite detention and measure to treat, reuse and dispose of water. - Consideration of any potential salinity, soil contamination, flooding and acid sulfate soil impacts of the project.	Part 9, Appendix 19

Issue	Summary of matters to be addressed in EA	Reference in EA
Hazards and risks	Including handling of potential hazardous materials and fire management.	Part 14
Visual	Details of the visual impact of the project including an assessment of the potential visual impacts of the project on the amenity of the surrounding area.	Part 8
Socio-economic	Including and assessment of the economic and social impacts of the development, particularly any benefits to the community.	Part 11
A draft Statement of Commitments	Describe in detail how the environmental performance of the proposal would be monitored and managed over time.	Part 15
Plans and documents	Relevant plans, architectural drawings, diagrams and relevant documents required by Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*. These documents should be included in the EIS rather than separate documents.	Appendices 7, 12 & 17
Consultation	Consultation with relevant local, State and Commonwealth authorities, service providers, community groups and affected landowners.	Part 4, Appendix5, Appendix11.

1.6 Local Government, Government and Statutory Authority Consultation

In the preparation of this EIS, consultation was undertaken with:

- Fairfield City Council.
- the Environment Protection Authority.
- the NSW Department of Primary Industries.
- the NSW Roads and Maritime Services.
- surrounding land owners and occupiers.

Copies of the responses received are at **Appendix 5**.

1.7 Structure of the Environmental Impact Statement

The Environmental Impact Statement continues as follows:

Part 2 A description of the proposed development.

Part 3 The statutory planning controls which apply.

Part 4 Consultation undertaken.

Part 5 Acoustic impact assessment.

Part 6 Air quality impact assessment.

Part 7 Greenhouse Gas Assessment.

Part 8 Visual impact assessment.

Part 9 Water Quality.

Part 10 Traffic impact assessment.

Part 11 Socio economic impact assessment.

Part 12 Hazard and risk assessment.

Part 13 Waste management plan.

Part 14 Justification of the proposed development and alternatives to that which is proposed.

Part 15 A draft statement of commitments.

Part 16 Conclusion to the Environmental Impact Statement.

1.8 Project Team

Nexus Environmental Planning	Town Planning and Project Management
Mike Haywood	Project Management
Lyle Marshall & Associates	Traffic and Access
Advisian	Water Management and Risk Assessment
Wilkinson Murray	Acoustics, Air Quality and Greenhouse
Hazchem	Site Contamination
Bell Architects	Architectural
Mott MacDonald	Engineering

Olsen Fire & Risk	Fire Engineering
Plateau Tree Services	Arboriculture
Tract Landscape Architects	Landscape
MBC Certifiers	BCA
WT Partnership	Quantity Surveyor

Part Two

THE PROPOSED DEVELOPMENT

2.1 Introduction

The NSW government and the NSW Environment Protection Authority has released the *NSW Waste Avoidance and Resource Recovery Strategy 2004-21* which states, among other things:

> *Effective waste management is a fundamental responsibility for the NSW community as well as the global community. Without it, we risk compromising our environment, our health and our economy.*
>
> *The NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014–21 is a key component of the Government's vision for the environmental, social and economic future of the state that will be supported financially by the Waste Less, Recycle More initiative.*
>
> *The primary goal of this strategy 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.*
>
> *Using resources efficiently and keeping materials circulating in the productive economy can also help to create jobs and grow the NSW economy.*
>
> *WARR Strategy 2014–21 objectives and targets*
>
> ***Avoid and reduce waste generation***
>
> - *By 2021-22, reduce the rate of waste generation per capita.*
>
> ***Increase recycling***
>
> - *By 2021-22, increase recycling rates for:*
>   - *municipal solid waste from 52% (in 2010-11) to 70%*
>   - *commercial and industrial waste from 57% (in 2010-11) to 70%*
>   - *construction and demolition waste from 75% (in 2010-11) to 80%.*
>
> ***Divert more waste from landfill***
>
> - *By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%.*

Manage problem wastes better

- *By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide.*

Reduce litter

- *By 2016-17, reduce the number of litter items by 40% compared with 2011-12 levels and then continue to reduce litter items to 2021-22.*

Reduce illegal dumping

- *From 2013-14, implement the NSW Illegal Dumping Strategy 2014-16 to reduce the incidence of illegal dumping statewide.*

The proposed development would assist in achieving the above targets of the State government through the removal of Commercial and Industrial waste and pre-processed Municipal Solid Waste from the waste stream which might otherwise have been diverted to landfill.

2.2 Overview of Proposed Development

It is proposed to establish a Waste and Resource Management Facility on the Site which would process waste material to produce *Processed Engineering Fuel* (**PEF**) and other reusable commodities including aggregates, metal, timber and soil.

The objectives of the proposal are:

(a) To establish a commercially viable Waste and Resource Management Facility which is capable of recovering waste from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

PEF is primarily a plastic-based material with high calorific value, derived from waste streams such as Commercial and Demolition (**C&D**) waste, Commercial and Industrial (**C&I**) waste and pre-processed Municipal Solid Waste (**MSW**). The proposed development would process dry, non-putrescible C&I and mixed C&D waste.

PEF is an alternative fuel used in energy intensive industries to replace fossil fuels, such as coal and pet coke, and is most commonly used in the cement manufacturing industry.

The recycling of combustible waste into PEF brings the following benefits:

- Diversion of waste from landfill.
- Conservation of natural fossil fuel by replacing it with sustainable green fuel.
- Achieving carbon emission reduction in the cement manufacturing process.
- Cost saving for industry through replacement of fossil fuel with PEF.

The proposed facility has the capability to convert up to 250,000 tonnes of raw material per annum into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities such as metal, wood, concrete, bricks, rubble and soil. All raw materials are separated during processing and over 90% of the material is recycled. The remaining 10% is waste and would be disposed of to landfill.

The source material is comprised of dry mixed light loads which usually contain a mix of timber, metals, plastics, cardboard and paper. The material stream may also include small amounts of concrete, bricks and rubble.

The source material is stockpiled within a purpose built industrial shed. Material is sorted such that ferrous and non-ferrous metals, inert fractions such as aggregates, soil, bricks and concrete, and non-recyclables are removed from the combustible portion of the material stream. The combustible material is then processed for manufacturing of PEF.

All salvaged metals are transported to approved recycling facilities. ResourceCo will transport the inert fractions such as aggregates and soil to approved recycling facilities to process for resupply to the civil construction market.

The manufacture of PEF is carried out using a fully automated process, although some manual picking is undertaken in the process. A similar facility to that which is proposed for the Site currently operates in Adelaide. A schematic diagram of that facility is provided as **Appendix 6**.

Material would arrive at the Site and would be taken over a weighbridge. Visual inspection of the load would take place at this time to determine the category of material. The driver would be issued with a docket and directed to the relevant section of the Site for placement of the material for processing.

No wet or putrescible waste would be processed at the facility. Only approved waste materials would be processed at the facility.

The proposed facility would operate in accordance with an Environment Protection Licence.

2.3 Project Design

The Waste and Resource Management Facility has been designed to accommodate the requirements of ResourceCo while at the same time minimising the potential impacts to the surrounding environment. This has been achieved through the following design objectives:

- Provide a site layout which is efficient in its operation and located wholly with purpose built industrial sheds.
- Provide safe and efficient vehicular access to and from the Site and also within the Site.
- Provide a system whereby stormwater is collected on the Site for reuse in the processing system, dust suppression and firefighting.
- Provide an appropriate stormwater management system which would collect and treat any water which might be discharged from the Site.
- Provide a site layout which would, where required, protect existing vegetation at the Frank Street frontage of the Site and on adjoining land.
- Provide multiple forms of dust mitigation to ensure the Site meets air quality requirements.
- Provide effective infrastructure, equipment and site practices to appropriately manage and mitigate potential issues related to air quality and noise generation.

2.4 Site Preparation and Construction

2.4.1 Earthworks

The earthworks to be undertaken would take approximately 3 months to complete and comprise:

- Cut and Fill as detailed in the Engineering Plans at **Appendix 17**.
- Filling of the Site where cut and fill does not provide sufficient material to establish the required finished levels.
- Clearing and grubbing of vegetation.

All stumps and roots will be grubbed out to a depth of 750mm below sub-grade or foundation level or to a depth as directed by the Works Superintendent. All grub-holes

will then be backfilled with suitable approved material and compacted to 100% standard maximum dry density in controlled layers.

All trees, shrubs and similar material cleared from the Site will typically be mulched and stockpiled on Site and later re-used within the Site for landscaping.

Trees to be retained will be protected by means of fencing the drip line with fluorescent high-visibility webbing on star pickets.

Approximately 9,000m^3 of fill will be required to build the Site up to the proposed levels. This material will need to be imported to Site. All fill imported to the Site will be classified as ENM or VENM. The source of the fill material will be approved by the Works Superintendent and will comply with the following:

- free from organic and perishable matter,
- maximum particle size 75mm,
- plasticity index - between 2% and 12% with a minimum CBR value when compacted of 15%.

As part of the importation process, all relevant test certificates of the fill will be provided for all material imported to Site.

Soils or other materials with greater than 5% content by volume of unsuitable materials (such as peat, ash, charcoal, wood, metal, or ceramic) will not be used as fill.

All fill material will be placed in maximum 200mm thick layers and compacted at optimum moisture content (+ or - 2%) to achieve a dry density determined in accordance with AS1289.5.1.1 - 2003 - methods of testing soils for engineering purposes of not less than the following standard minimum dry density:

Location	Standard Dry Density
Under building slabs	98%
Vehicle paved services	100%
Non-vehicle paved surfaces	98%
Landscaped areas	95%

The contractor will program the earthworks operation so that the working areas are adequately drained during the period of construction. The surface shall be graded and sealed off to remove depressions, roller marks and similar which would allow water to pond and penetrate the underlying material. Any damage resulting from the contractor not observing these requirements will be rectified by the contractor at their own expense.

With regard to backfilling at structures, including retaining walls, no filling will be placed against any concrete structure within fourteen days of placement of concrete.

Struts are to be provided to all walls as necessary to prevent movement during placing and compaction. Unless otherwise detailed, the backfilling at structures will be as follows:

- Laterally within 900mm of any concrete structure - fill and compact with 2% cement stabilised DGB 20 granular material.

- Vertically within 300mm of any concrete structure - fill and compact with DGB20 granular material.

All earthworks carried out will comply with the requirements of all current Australian and industry accepted Standards to the extent that they are relevant.

A Testing Authority will be employed to carry out all testing. Compaction control testing will be carried out to conform to Level 1 testing as defined in the current Australian Standard AS3798. The Authority will hold a current NATA (National Association of Testing Authorities) Registration for the relevant tests.

2.4.2 Soil and Water Management

Prior to any earthworks commencing on the Site, erosion and sediment control measures will be put in place generally in accordance with *Managing Urban Stormwater: Soils and Construction 4th Edition, March 2004*. These measures include:

- Installation of a 1.8m high chain wire fence covered with geo-textile filter fabric, to the perimeter of the work site area, where required.

- The use of sediment diverting methods to minimise sediment in Council's stormwater drainage using sandbags around kerb inlet pits and geo-textile filter fabric around drop inlet pits.

- The provision of a sediment basin towards the lower perimeter of the Site to which stormwater runoff will be channelled and treated during construction. It is possible that an existing pond in the northwest corner may be utilised and converted for this purpose depending on its current capacity.

- Construct temporary site entrance with shaker grid.

The proposed capacity of the sediment control basin is based on a 5 day 85th percentile rainfall event of 32.2 mm (Table 6.3a of Managing Urban Stormwater: Soils and Construction). In accordance with the management requirements, the basin will be emptied within 5 days of the end of a storm as long as sufficient settlement has occurred. If necessary, a flocculant may be used to accelerate the settlement process.

Erosion and sediment controls measures to be employed are detailed further in the Engineering plans of the proposed development at **Appendix 17**.

2.4.3 Access and Circulation

The existing access to the Site is from Frank Street.

Forty one (41) car parking spaces are to be provided in two (2) dedicated car parking areas.

Trucks delivering raw materials to the Site and delivering processed materials from the Site would be garaged off site.

An internal road would be constructed to facilitate the delivery of raw materials to the Site and the transport of processed materials from the Site. A perimeter road for access for firefighting purposes would also be provided.

2.5 Project Operation

The siting of the components of the proposed development have been designed to meet the operational requirements of ResourceCo. Site layout plans and engineering plans have been prepared by Bell Architecture and Mott MacDonald, reduced copies of which are at **Appendix 7** (Architectural Plans) and **Appendix 17** (Engineering Plans).

Extracts from the Architectural plans showing the general layout of the proposed facility are at **Figures 2-1 to 2-3** below.

It is estimated that approximately 8 months would be required to complete all construction work and landscaping on the Site.

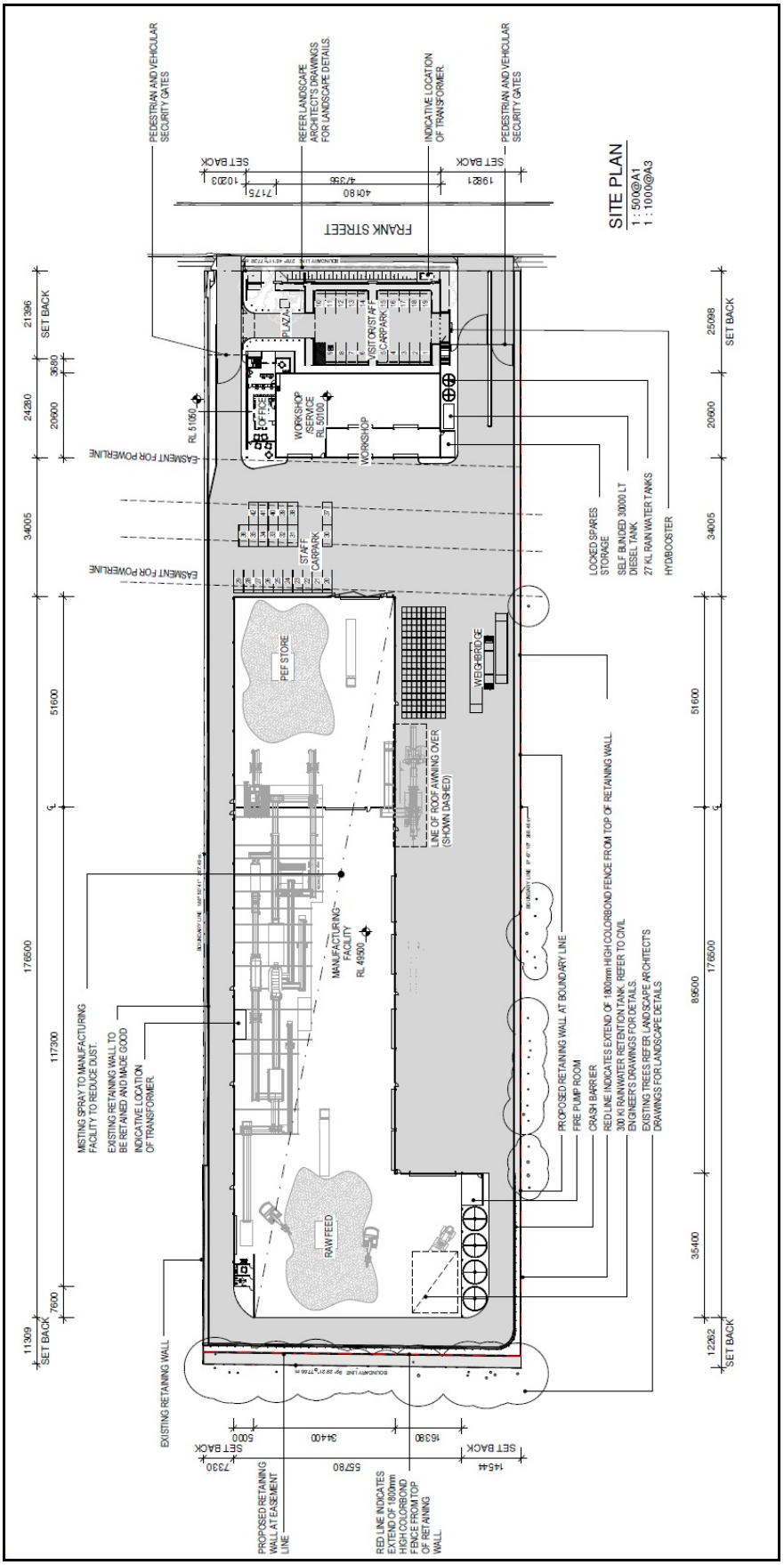


Figure 2-1: Overall site layout plan.

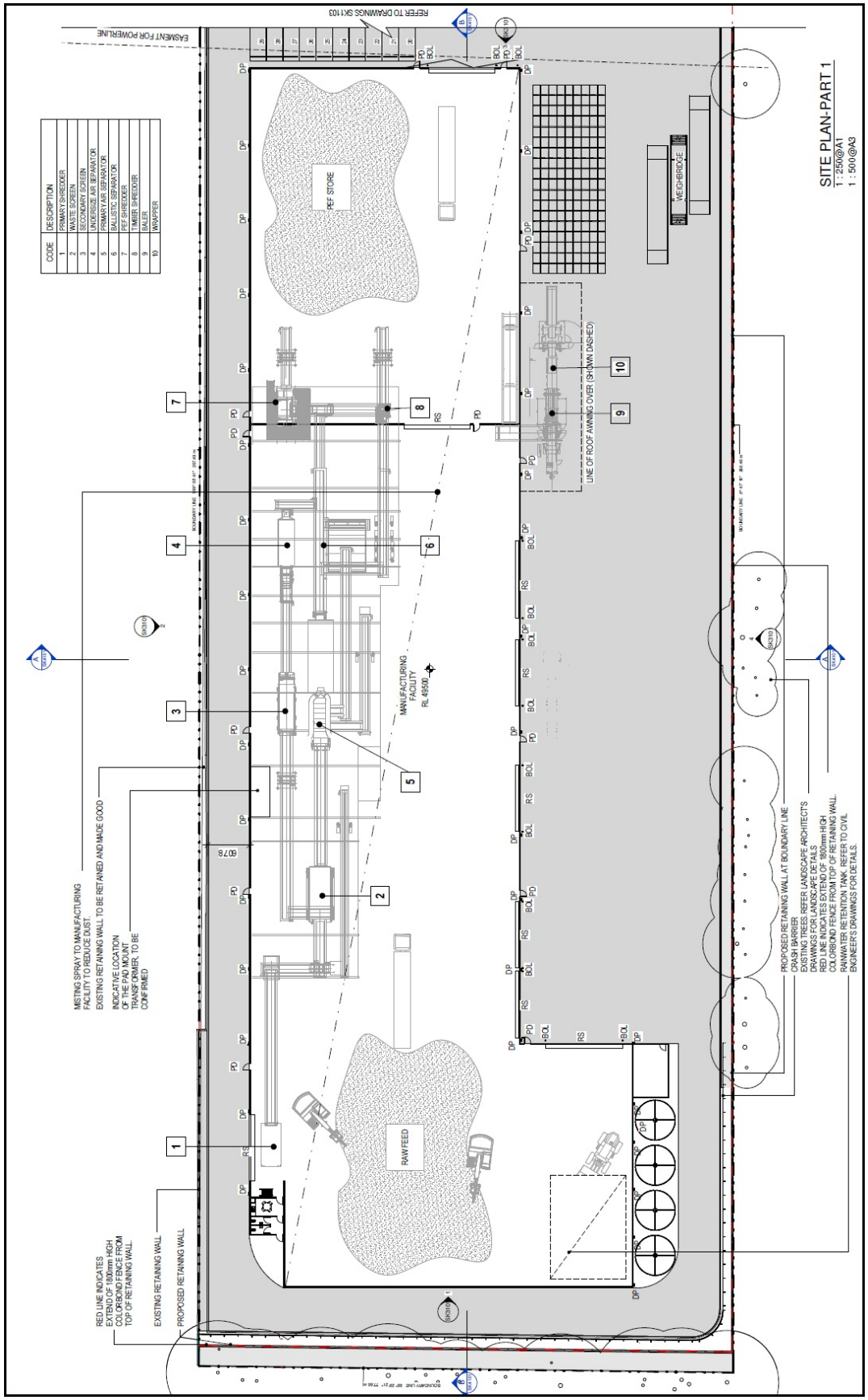


Figure 2-2: Plan showing the rear section of the proposed facility.

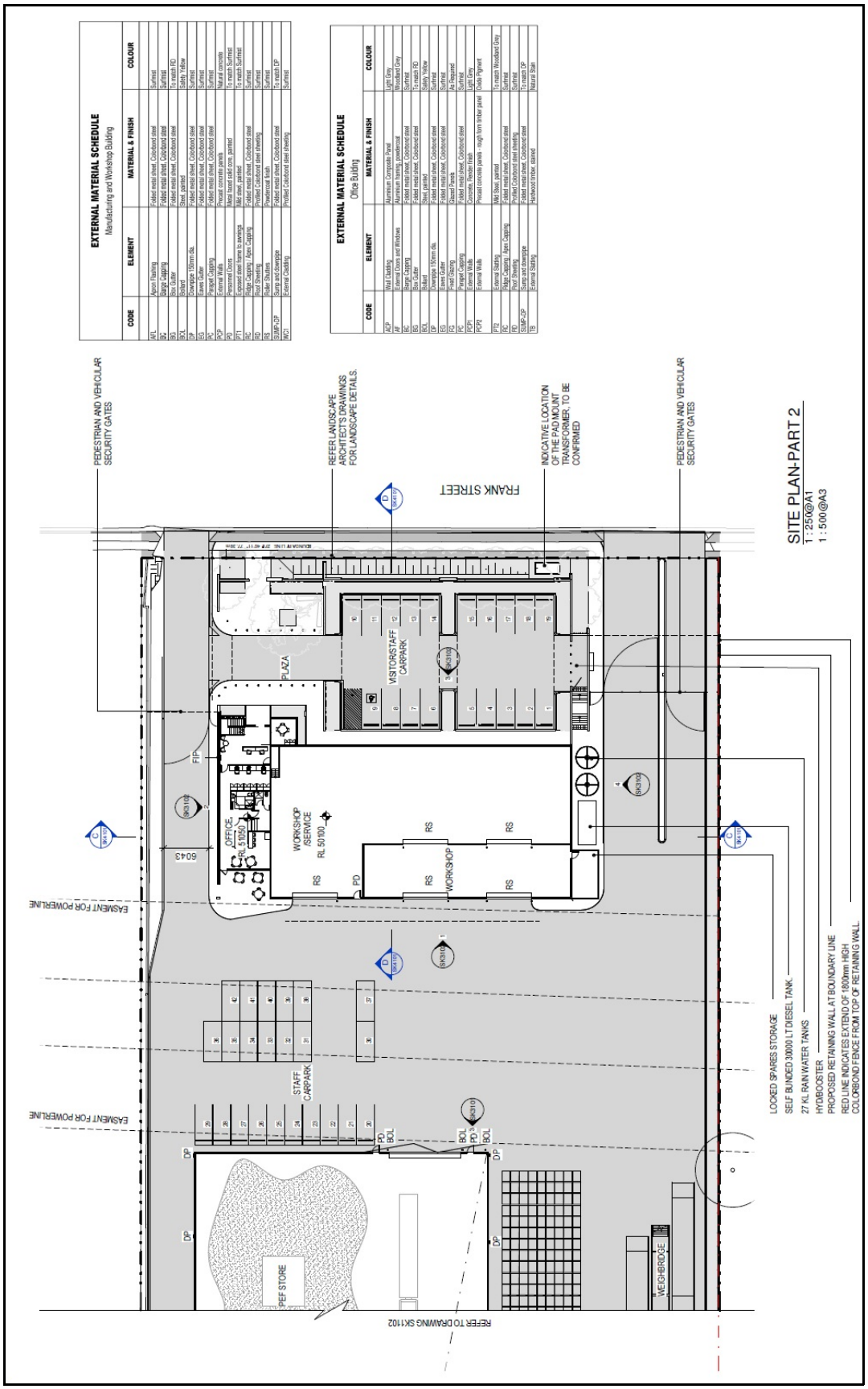


Figure 2-3: Plan showing the front section of the proposed facility.

Plant, equipment and structures which are required to operate the proposed Waste and Resource Management Facility are described below and should be referenced to the plans of the proposed development (**Appendix 7**), and in particular, **Figure 2-1** above which shows the location of all of the equipment described below. A schematic diagram of a similar facility in Adelaide is provided as **Appendix 6**.

2.5.1 Primary Shredder

The primary shredder cuts and sizes the raw material into an approximate 300mm size and drops the shredded material onto a collection conveyor situated below the machine. **Photograph 3-1** shows the cutting table of the primary shredder.

The primary shredder has an automatic reverse function if material which cannot be shredded enters the shredder.

A large hopper is fitted to the top of the shredder to receive the material taken from the raw material stockpile by either the front end loader or excavator.

Bi-directional shredding results in a consistent flow of shredded material onto downstream conveyors and ensures a homogenous and consistent product flow through to the rest of the plant.

The primary shredder is designed to allow fines to run through the cutting table with the minimal wear on the rotating parts and is extremely versatile on a wide range of materials.

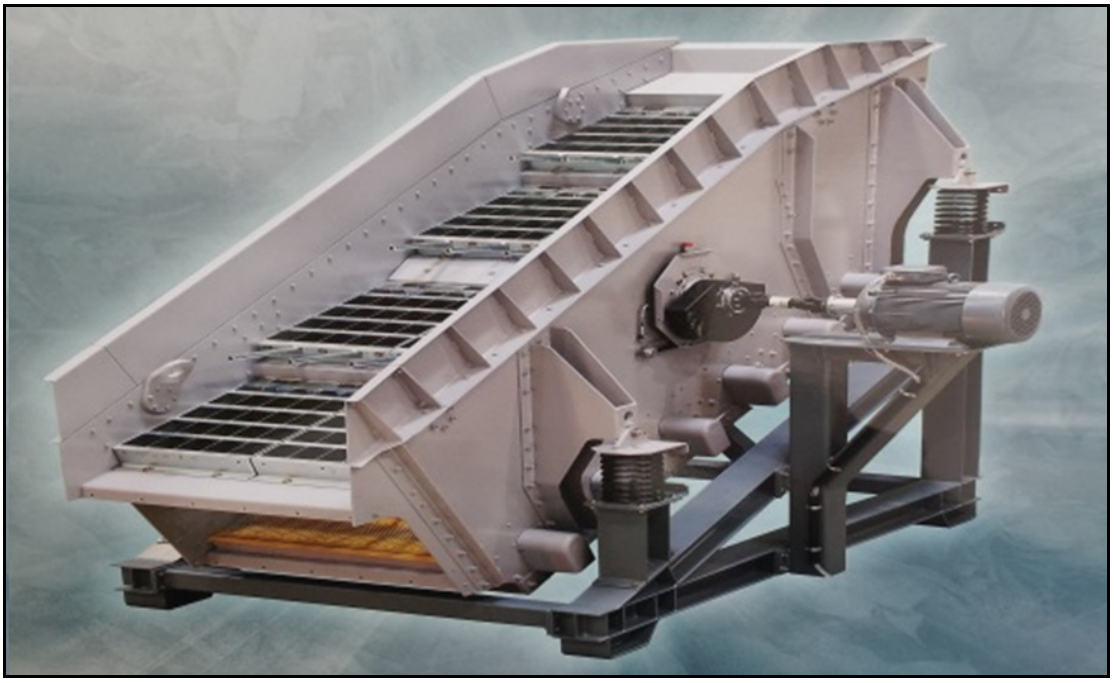
Photograph 2-1: Primary shredder cutting table.

2.5.2 Waste Screen

The waste screen (**Photograph 2-1**) is a vibrating screen with a circular motion which is driven by a three-phase AC motor.

The heavy sub-frame compensates the dynamic vibrations of the screen. Removable covers will be placed over the screen to reduce any dust emissions from the screen.

The primary shredded material vibrates over the waste screen which separates the smaller fraction (or "fines") from the material stream. The fines fraction is then processed on a different line in the plant to the larger size fraction.



Photograph 2-2: Waste Screen.

2.5.3 Flip Flop Screen

The flip flop screen (refer **Photograph 2-3**) is used to screen the fines into large and small sized fractions.

Widely used in the recycling industry, flip-flop screens are manufactured with polyurethane dynamic screening mats, which are contracted and expanded throughout the vibration screening process.

The small fraction is discharged into a designated holding bay for dispatching from the plant, while the larger fraction is conveyed into a single drum separator for further cleaning.

The removable covers are placed over the screen to prevent dust egress from the screen but allow for easy access during maintenance.

Photograph 2-3: Flip flop screen.

2.5.4 Single Drum Separator

The single drum separator (refer **Photograph 2-4**) separates the waste input into heavy and light fractions. The single drum separator is a very versatile separator which processes a large variety of waste streams.

The single drum separator has one splitter drum, at which the heavy material is separated from the light material.

The heavy fraction falls down in front of the splitter drum and is discharged by means of a conveyor, while the light fraction is transported over the splitter drum and will be separated from the air in the expansion room.

The air that is extracted from the expansion room is re-circulated through the fan and reused. 10% of this air is bled of and passed through a dust filter. The capacity to adjust the volume of air going to the dust filter allows the easy adjustment of the separation parameters.

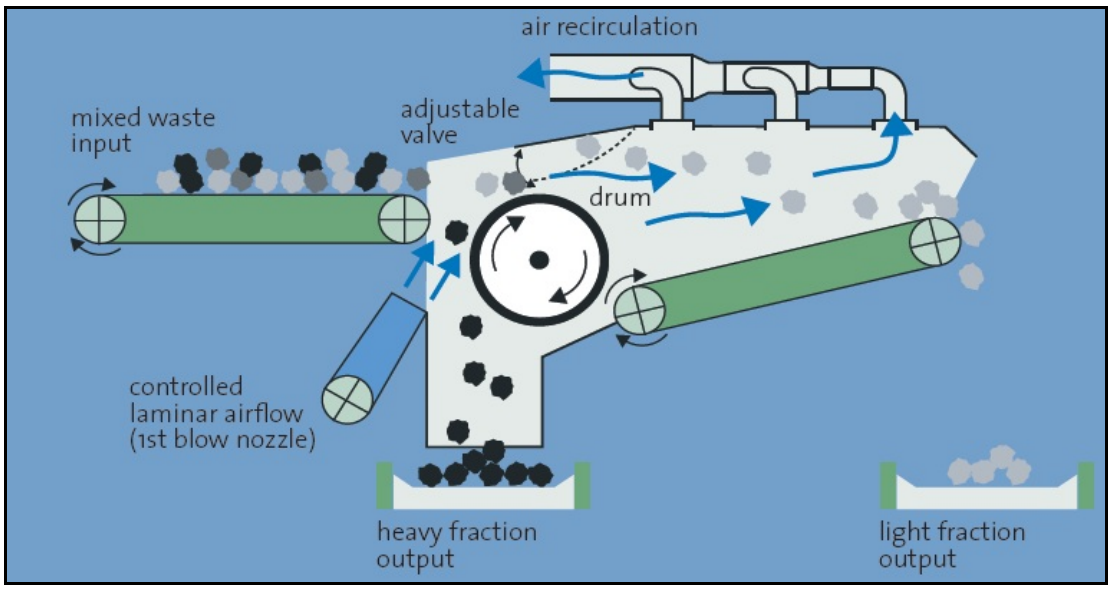
2.5.5 Double Drum Separator

The operating principles of the double drum separator (refer **Photograph 2-5**) are almost the same as the single drum separator but the machine goes one step further and separates

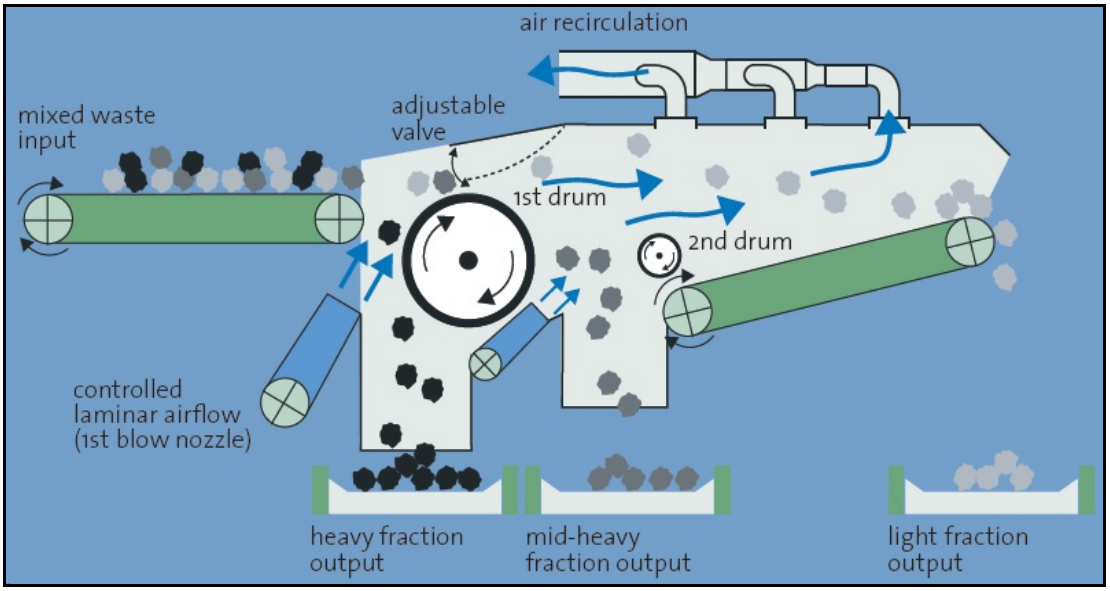
the material into heavy, mid heavy and light products. This is very useful in the case where the heavy fraction would consist mainly of aggregates, the mid heavy fraction consists of mainly timber, while the light fraction is the core feedstock for the high speed PEF secondary shredder.

Due to the sensitivity of the secondary shredders to damage from foreign parts such as tramp iron, the double drum separator also offers protection as any heavy parts which would damage the secondary shredder drops out in the heavy fraction.

The quality of separation can be adjusted by controlling the airflow to the dust filter on both blow nozzles. Dust is contained within the system through its inherent filtration design.



Photograph 2-4: Single drum separator.



Photograph 2-5: Double drum separator.

2.5.6 Ballistic Separator

The ballistic separator is used to improve the quality of the mid heavy fraction from the double drum separator. This fraction consists mainly of timber but it can be contaminated with textiles, footwear etc. The ballistic separator separates the 2 dimensional and fines fractions from the 3 dimensional fraction. It is important to target the fines in order to eliminate any additional wear on the timber shredder.

The 3D timber is refined in this process to reduce the workload on the labour employed to do the final quality control on the timber. The fines fall through the perforated paddles and are conveyed to the designated storage bay.

The screen is covered by a removable dust cover to prevent dust egress.

2.5.7 Secondary PEF Shredder

The secondary shredder cuts the PEF materials into the final size ready for baling. It is a high speed and precise cutting machine which, by its nature, contains the dust created through the cutting process.

2.5.8 Timber Shredder

The timber shredder is designed to cut to the final size tough to grind materials like cedar, Black Spruce and log ends. It is an enclosed hammer mill machine which, as per the PEF shredder, ensures that dust generated through this process is contained within the machine. It is more tolerant of rocks and metal and is, therefore, appropriate to do the final sizing of the more robust PEF fraction at the end of the process. This final sized material is then ready for baling.

2.5.9 Baler

The baler (refer **Photograph 2-6**) is a horizontal shear baler with a standard bale size of 1100 mm (H) x 1100 mm (W) x variable length, and is designed for bales to be loaded into containers.

The typical bale weight is approximately 1 tonne each depending on the bulk and density of the material.

The tying medium used to bind the bale is plastic twine which can also be recovered as fuel when the bales are unwrapped at their destination.

Photograph 2-6: Baler.

2.5.10 Wrapper

The wrapper (refer **Photograph 2-7**) encapsulates the baled PEF in a plastic film to ensure the bales are fully sealed and weather proof. The turntable manoeuvres the bale into position while the wrapper arms apply the film wrap to the bale.

Each bale takes approximately 30 seconds to 1 minute to wrap depending on the bale length.

When wrapped, the bales are ready for loading into containers for shipping to the customer.

Photograph 2-7: Wrapper.

2.5.11 Workshop

A workshop is to be erected at the front of the Site. A smaller workshop will also be incorporated in the workshop facility. The workshop will be utilised to service and maintain the mobile and fixed equipment used in the processing facility.

2.5.12 Office

The main office complex is located at the Frank Street frontage of the Site. The main office would be used by the administration staff of the facility. The office complex is larger than required to accommodate the staff required for initial operation of the facility, however, a larger office has been designed to accommodate any future relocation of staff to the Site from the ResourceCo head office.

A secondary office/amenities complex is located within the main processing building which would house the operating staff and provide for their amenities.

2.5.13 Staff Amenities

A kitchen, lunchroom and staff amenities would form part of the ground floor section of the main office complex.

Additional staff amenities would be located in the second office complex in the main processing building.

2.5.14 Weighbridge

Weighbridge facilities would be established at the truck entrance and exit of the Site as shown on the site layout plan. One (1) weighbridge would be used for incoming vehicles and the other would be used for outgoing vehicles.

2.5.15 Additional Facilities and Equipment

In addition to the components discussed above, the use of the Site as a Waste and Resource Management Facility would require the use of a number of related components. The key additional elements of the proposal are as follows:

- Bobcat x 1

- Excavators x 3
- Front end loaders x 2
- Sweeper x 1
- Forklift x 2
- 1 x 30,000 litre capacity diesel fuel tank. The fuel tank cluster would be self bunded and fully baffled in accordance with relevant Australian Standards. An example of the self bunded facility is provided as **Figure 2-4** below.
- Car park for 41 vehicles.
- A 300 k/L underground stormwater storage tank and 2 above ground tanks with combined capacity of 27 k/L for use in the process and staff amenities.

Figure 2-4: Example of a self bunded fuel tank similar to that which would be used on the Site.

2.6 Hours of Operation

The proposed development would operate 250 week days per annum and 52 Saturdays per annum as follows:

Component	Hours of Operation
Hours of operation (Plant production)	Plant will operate in 2 shifts from 5:00 am to 10:30 pm Monday to Friday 6:00 am to 5:00 pm Saturday 8:00 am to 6:00 pm Sunday as required
Hours of operation (waste received)	5:00 am to 5:00 pm Monday to Saturday 7:00 am to 4:00 pm Sunday
Plant maintenance	10:30 pm to 5:00 am Monday to Friday As required Saturday and Sunday
Public access for waste delivery	Saturday and Sunday only. Generally car and trailer.

2.7 Employees

There would be forty (40) employees comprising:

General Manager	1
Sales	1
Supervisor	2
Lead fitter	1
Mechanic	2
Plant operator day/night	2
Picker day/night	14
Loader operator day/night	4
Excavator operator day/night	4
Forklift operator day/night	4
Bobcat operator day/night	2
Cleaner day shift	1
Weighbridge operator	1
Administration	1
Total	**40**

Not all employees would be on the Site and any one time.

The plant has been designed to cater for the number of employees (40) needed to operate both the facility and the administration associated with that activity. ResourceCo has advised that, at some time in the future, additional administration staff may be required at the Site, however, that would only occur if ResourceCo chooses to relocate some or all of its headquarters staff to the Site. The assessment in this Environmental Impact Statement has been undertaken on the assumption that additional staff will be located to the Site in the future.

2.8 Traffic Generation

At full capacity, the estimated number of truck movements per day is 404 with 118 light vehicle movement per weekday between 4:30 am and 10:30 pm. Variations would occur depending on the day to day movements of trucks based upon an average load of 21.2 tonnes and 292 working days per annum.

Estimated daily weekday truck movements are as shown in **Table 2-1**.

Table 2-1: Daily estimated truck movements

Product	In	Out
Raw waste materials	146 loaded	146 empty
Processed PEF from site	25 empty	25 loaded
Other processed materials	25 empty	25 loaded
Residual waste to landfill	6 empty	6 loaded
Total	**202**	**202**

The estimated daily weekday car movements are show in **Table 2-2**.

Table 2-2: Daily estimated car movements

Staff	In	Out
Workshop	37	37
Office	5	5
Sub total	**42**	**42**
Future office staff	17	17
Total	**59**	**59**

Raw materials would be delivered to the Site by car and box trailer on Saturday and Sunday from 8:00 am to 4:00 pm and by tipper truck between 8:00 am and 4:00 pm on Saturdays.

The estimated weekend movement are show in **Table 2-3**.

Table 2-3: Daily estimated weekend movements

Product	In	Out
Raw materials (truck)	102 loaded	102 empty
Raw materials (car/trailer)	50 loaded	50 empty
Staff vehicles	11	11

2.8.1 Plant Output

Traffic generation from the proposed development has been established in consultation with ResourceCo Management.

Section 3.4 of the Marshall Report (**Appendix 13**) outlines the traffic movements expected from the proposed development. A copy of the data from the Marshall Report is presented below.

PRODUCT	OPERATION DAYS/YEAR	TONNES PER YEAR	TONNES PER DAY	AVERAGE LOAD
RAW MATERIALS IN	250 + 50 (SAT) x 7	250,000	877.2 (900)	6 TONNES

Truck Movements

		IN LOADED	OUT EMPTY	HOURS
TIPPERS	WEEKDAYS	146	146	6am – 5pm
	SAT	102	102	8am – 4pm

PRODUCT	OPERATION DAYS/YEAR	TONNES PER YEAR	TONNES PER DAY	AVERAGE LOAD
PROCESSED PEF				
LOCAL MARKET	250	45,000	160	32 TONNES
EXPORT	250	65,000	240	30 TONNES
	TOTAL	110,000	400	

Truck Movements

		IN LOADED	OUT EMPTY	HOURS
SEMIS & BD	WEEKDAYS	25	25	6am – 10pm

PRODUCT	OPERATION DAYS/YEAR	TONNES PER YEAR	TONNES PER DAY	AVERAGE LOAD
RESIDUAL WASTE TO LANDFILL	250	25,000	100	16 TONNES

Truck Movements

		IN LOADED	OUT EMPTY	HOURS
TIPPERS	WEEKDAYS	6	6	6am – 5pm

2.8.2 Travel Modes to the Site

The travel modes to Travel Zone 3503 have been processed from the 2011 Census by NSW Bureau of Transport Statistics and downloaded from the JTW Explorer website.

The percentage of car drivers was 87.36%. It is estimated that the car driver travel mode in the night shift will be 100%.

The 4922 vehicle driver employers to TZ 3503 have their origins in 17 suburbs/LGAs. The routes to and from work at the Site in Frank Street have been assessed based upon the most convenient and shortest route. Details are provided in Section 3.5 of the Marshall Report.

2.8.3 Distribution of Vehicles to Main Road System

The distribution of truck movements to and from the Site is an estimate based upon the likely origins of waste materials to the Site and the destinations of processed materials from the Site. The estimated daily movements on the road network within the Wetherill Park area are shown in Figure 4A of the Marshall Report, an extract from which is at **Figure 2-5**.

The distribution of employee car driver movements to the road network is based upon the 2011 JTW data as described in Section 3.5 of the Marshall report. The estimated daily movements are shown in Figure 4B of the Marshall Report, an extract from which is at **Figure 2-6**.

The daily movements on Saturday comprise trucks carrying raw waste materials to and from the Site, cars and car/tailers carrying raw waste materials to and from the Site and staff car drivers travelling to work to and from the Site. The increase in daily vehicle volumes and existing daily volumes are much lower on weekends. The increases in daily traffic volumes generated by the proposed development are shown in the Tables in Appendix A of the Marshall Report.

The existing commuter peak hours are 7:30 – 8:30 am and 4:00 – 5:00 pm. The estimated increase in car and truck volumes in the am and pm peak hours are shown in Figures 4C and 4D respectively of the Marshall report, extracts from which are at **Figure 2-7** and **Figure 2-8**. These are average volumes which will vary from day to day.

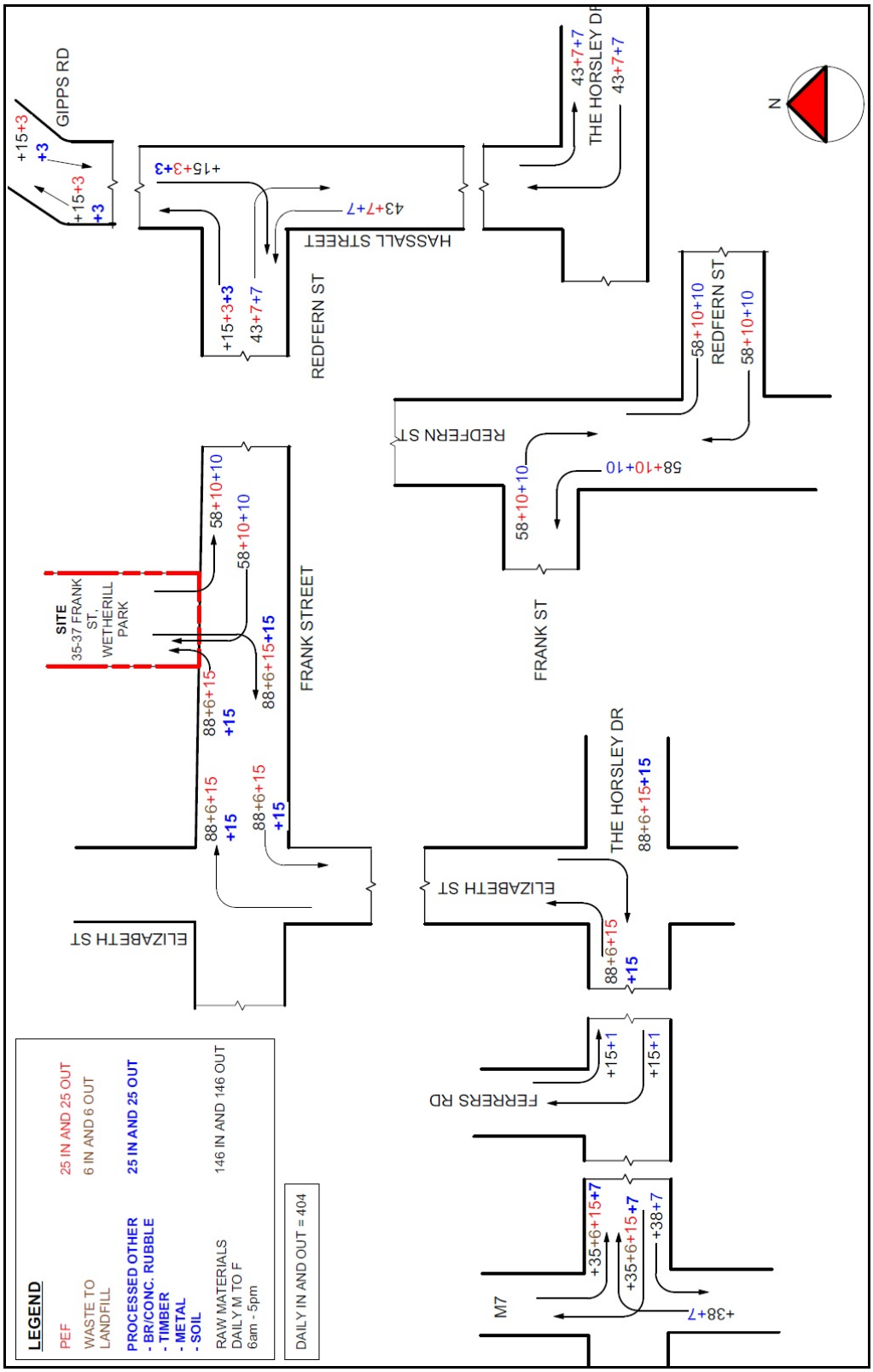


Figure 2-5: Daily increase in truck volumes - weekdays.

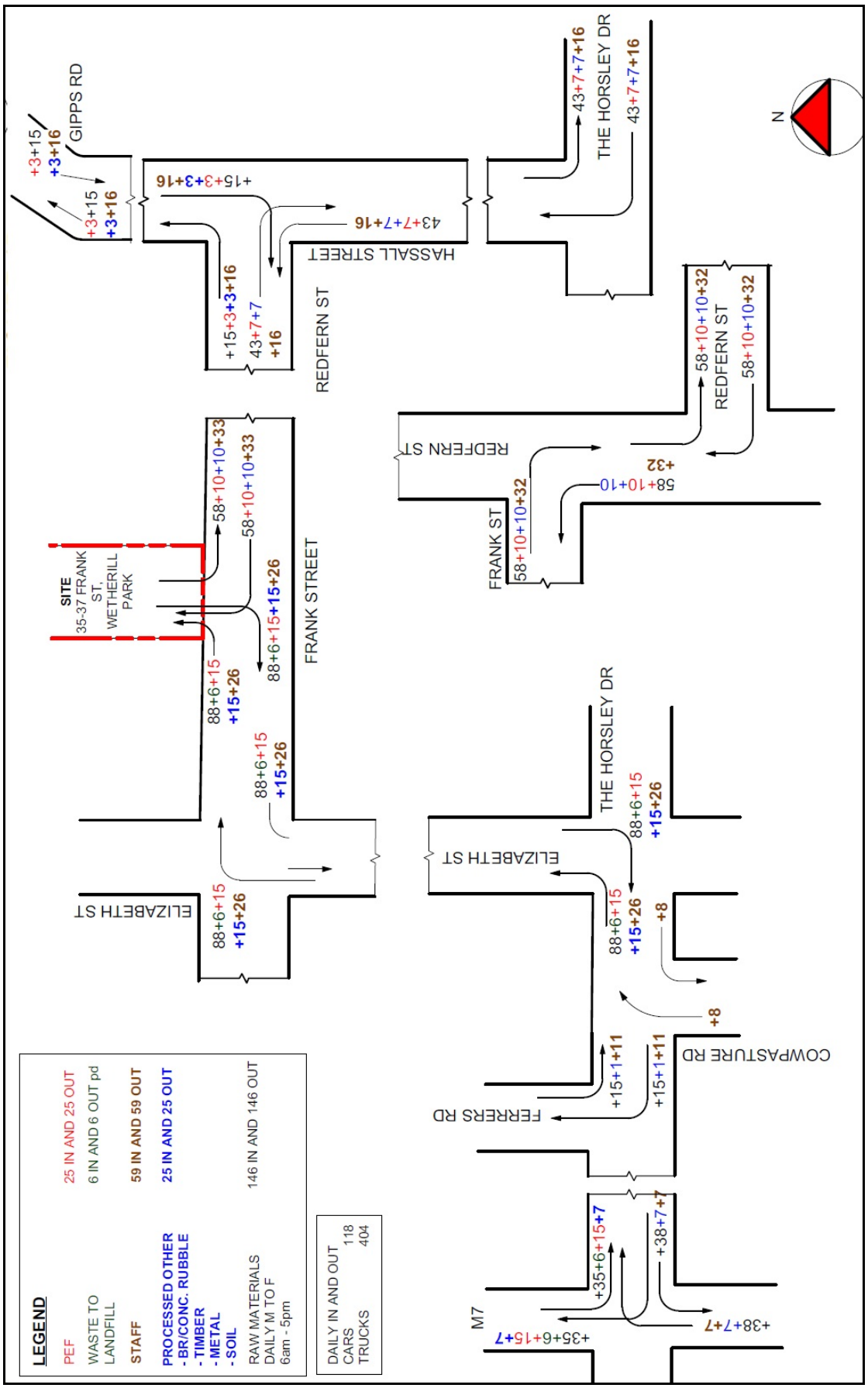


Figure 2-6: Daily increase in truck traffic volumes plus staff vehicles - weekdays.

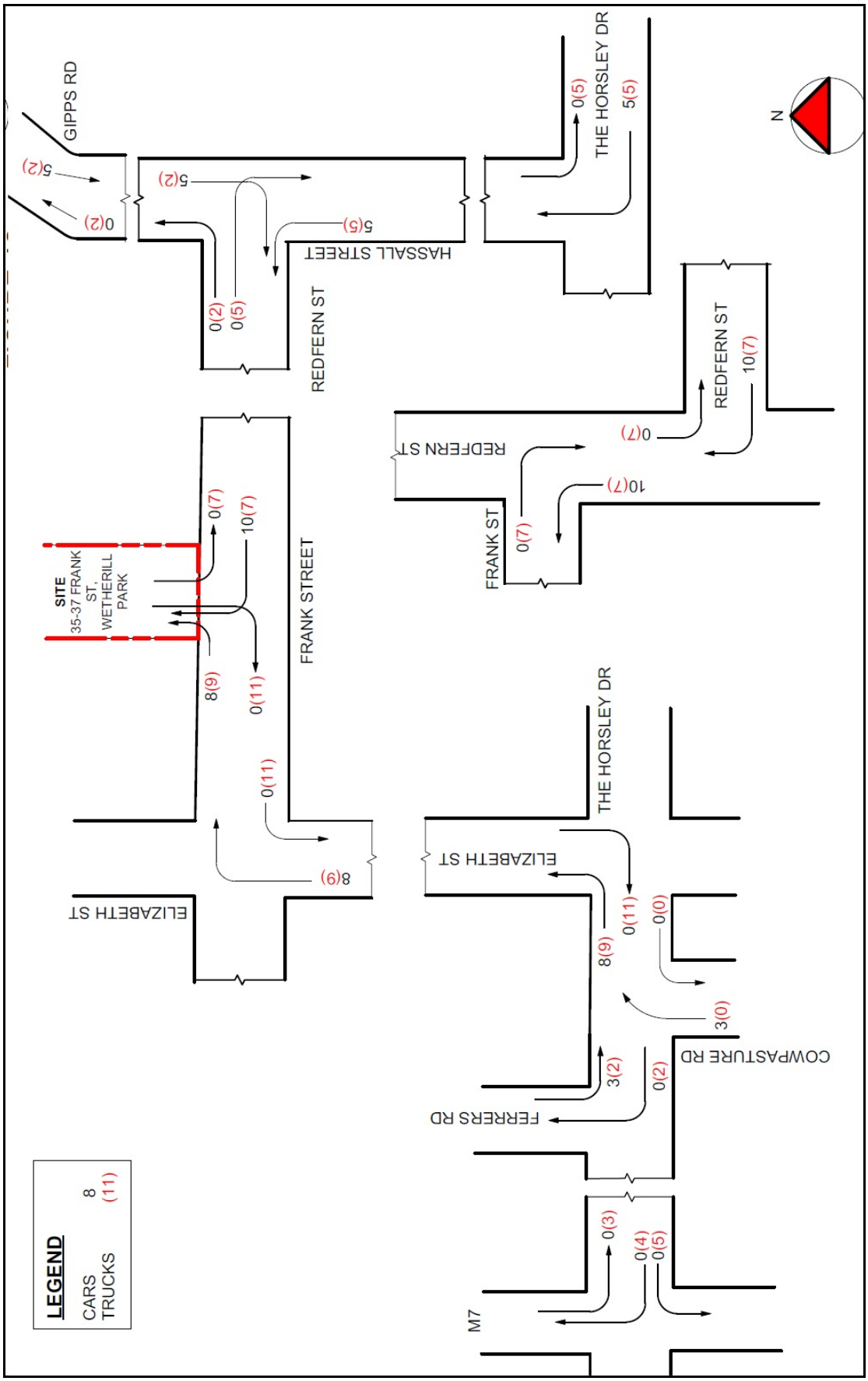


Figure 2-7: Increase in peak hour volumes 7:30 am - 8:30 am - weekdays

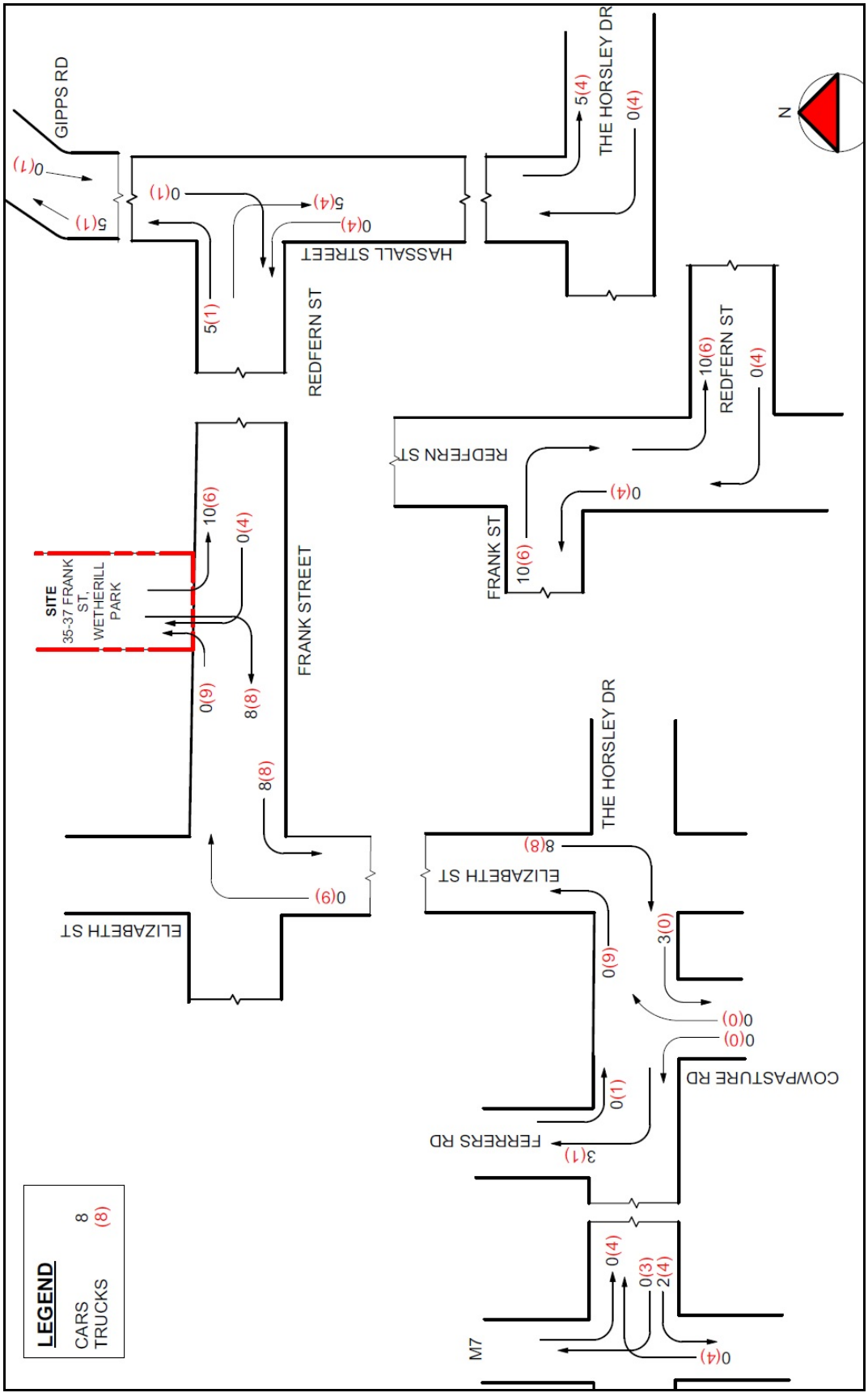


Figure 2-8 Increase in peak hour volumes 4:00 pm - 5:00 pm - weekdays

2.9 Vehicle Access to the Site

The existing vehicular crossings in Frank Street are to be retained. These crossings were constructed for the previous use of the site by Sims Metal and are shown on the Survey plan prepared by William L Backhouse Pty Ltd.

All trucks are proposed to enter and exit using the western vehicular crossing. This crossing will be widened to 13.5 metres.

The existing crossing on the eastern side of the Site is to be used by staff and visitor vehicles only for entry and exit.

Internal Circulation

A 6 metre wide carriageway is to be provided around the perimeter of the manufacturing building for emergency NSW Fire Brigade aerial appliances. These vehicles are to enter and exit via the western crossing and travel in a clockwise direction.

All vehicles delivering waste materials for recycling will enter from the western crossing, travel over the weighbridge, and unload at the northern raw feed stockpile and travel in a clockwise direction to the weighbridge and exit crossing.

Empty B Doubles and other trucks used to transport processed PEF from the Site enter from the western crossing, travel in an anti-clockwise direction to the PEF stockpile, load and travel to the weighbridge, and then the exit.

2.10 Fire Control

The Site is serviced by reticulated mains water supplies.

Fire control facilities on the Site would be provided to meet the requirements of the Building Code of Australia as detailed in **Part 12** and **Appendix 8** of this Environmental Impact Statement.

2.11 Water Requirements

2.11.1 Water Volume and Balance

The primary mechanism for stormwater pollution control would be by means of the capture and re-use of stormwater runoff from the Site. A water balance model (refer **Appendix 9** and **Part 9** of this Environmental Impact Statement) has been prepared to assess what portion of the Site water requirements can be met from onsite runoff and to

quantify the volume and frequency of overflow discharge.

2.12 Waste

Little waste is generated in the operation of the proposed development. The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 10% of the material delivered to the Site is material which cannot be recycled and that waste will be transported to landfill.

2.13 Infrastructure Services

All services are currently available to the Site.

2.14 Approvals Required

Section 43 of the *Protection of the Environmental Operations Act 1997* (**POEO Act**) requires an Environment Protection Licence to be obtained for the carrying out of *scheduled development works* which would enable a *scheduled activity* to be carried out.

Schedule 1 of the POEO Act defines the following scheduled activities for which an Environment Protection Licence is required:

34 Resource recovery

(1) This clause applies to the following activities:

***recovery of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing, otherwise than for the recovery of energy.*

....

(2) However, this clause does not apply to any of the following:

(a) materials separation and sorting of less than 60 tonnes per year of waste lead acid batteries,

(b) the treatment of sewage within a sewage treatment system (whether or not that system is licensed),

(c) the recovery of stormwater.

(3) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

(a) it meets the criteria set out in Column 2 of that Table, and

(b) either:

(i) less than 50% by weight of the waste received in any year requires disposal after processing, or

(ii) the regulations under section 286 exempt the person carrying out the activity from the requirements of section 48 (2) as they apply to waste disposal (application to land), waste disposal (thermal treatment), waste processing (non-thermal treatment) and waste storage.

Table

Column 1	***Column 2***
Activity	***Criteria***
Recovery of general waste	*involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste* *involves processing more than 120 tonnes of waste per day or 30,000 tonnes of waste per year*

The proposed project would fall within the above category of Resource Recovery and, as such, an Environment Protection Licence is required to operate the proposed activity.

Part Three

STATUTORY PLANNING CONTROLS

3.1 Commonwealth Legislation

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) came into force from 16 July 2000. The EPBC Act requires actions which are likely to have a significant impact on matters of National Environmental Significance, or which have a significant impact on Commonwealth land, to be referred to the Commonwealth Minister for the Environment for approval.

The Site is not listed as a national heritage place and the proposed development would not impact on any national heritage places.

The proposed development would not impact on any threatened species and communities.

No National Environmental Significance matters would be impacted by the proposed development. As such, the proposed development has not been referred to the Commonwealth Minister for the Environment and approval pursuant to the EPBC Act is not required.

3.2 NSW Protection of the Environment Operations Act 1997

Section 43 of the *Protection of the Environmental Operations Act 1997* (**POEO Act**) requires an Environment Protection Licence to be obtained for the carrying out of *scheduled development works* which would enable a *scheduled activity* to be carried out.

Schedule 1 of the POEO Act defines the following scheduled activities for which an Environment Protection Licence is required:

> ***34 Resource recovery***
>
> *(1) This clause applies to the following activities:*
>
> ***recovery of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing, otherwise than for the recovery of energy.*
>
> *....*
>
> *(2) However, this clause does not apply to any of the following:*

(a) materials separation and sorting of less than 60 tonnes per year of waste lead acid batteries,

(b) the treatment of sewage within a sewage treatment system (whether or not that system is licensed),

(c) the recovery of stormwater.

(3) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

(a) it meets the criteria set out in Column 2 of that Table, and

(b) either:

(i) less than 50% by weight of the waste received in any year requires disposal after processing, or

(ii) the regulations under section 286 exempt the person carrying out the activity from the requirements of section 48 (2) as they apply to waste disposal (application to land), waste disposal (thermal treatment), waste processing (non-thermal treatment) and waste storage.

Table

Column 1	***Column 2***
Activity	***Criteria***
Recovery of general waste	*involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste*
	involves processing more than 120 tonnes of waste per day or 30,000 tonnes of waste per year
....	....

The proposed development would fall within the above category of Resource Recovery and, as such, an Environment Protection Licence is required to operate the proposed activity.

3.3 State Environmental Planning Legislation

3.3.1 State Environmental Planning Policy (State and Regional Development) 2011

Sub-section 8(1) of State Environmental Planning Policy (State and Regional Development) 2011 states:

> *(1) Development is declared to be State significant development for the purposes of the Act if:*
>
> *(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
>
> *(b) the development is specified in Schedule 1 or 2.*

As stated in **Part 1.4** of this Environmental Impact Statement, the proposed development is for the purpose of resource recovery or recycling facility which handles more than 100,000 tonnes per year of waste. As such, the proposed development is State Significant Development.

Sub-clause 11(1) of the Policy states:

> ***11 Exclusion of application of development control plans***
>
> *Development control plans (whether made before or after the commencement of this Policy) do not apply to:*
>
> *(a) State significant development, or*
>
> *(b) development for which a relevant council is the consent authority under section 89D (2) of the Act.*

3.3.2 State Environmental Planning Policy No.33 - Hazardous and Offensive Development.

State Environmental Planning Policy No.33 - Hazardous and Offensive Development (**SEPP 33**) aims, among other things:

> *(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account; and*
>
> *(e) to ensure that in considering any application to carry out potentially*

hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

The proposed development is not a *Hazardous Industry*, *Potentially Hazardous Industry* or *Hazardous Storage Establishment* as defined in SEPP 33 as it would not pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposed development is, however, *Potentially Offensive Industry*.

When determining an application for Potentially Offensive Industry, the consent authority must, pursuant to clause 13 of SEPP 33, consider:

(a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development; and

(b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply; and

(c) ....., and

(d) any feasible alternatives to the carrying out of the development, and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location of the subject application); and

(e) any likely future use of the land surrounding the development.

With regard to current circulars and guidelines, the then Department of Planning has prepared Circular B27 and the 1994 publication *Applying SEPP 33 Hazardous and Offensive Development Application Guidelines*. A Consultation Draft of an amending set of Guidelines was prepared in 2008.

With regard to *Potentially Offensive Industry*, the 1994 Guidelines, at pages 13 & 14, give guidance with regard to the information which should be provided with a Development Application. Those requirements were reiterated in the draft 2008 Guidelines. This Environmental Impact Statement provides sufficient detail in this regard.

As indicated in the guidelines, if a licence is required by the Environment Protection Authority, then it is safe to assume that the proposed development is *Potentially Offensive Industry*. The proposed development would fall within the category of Resource Recovery of the Protection of the Environment Operation Act 1997 and, as such, an Environment Protection Licence is required to operate the proposed activity.

It is concluded that the proposed development is Potentially Offensive Industry.

Notwithstanding, as required by the Secretary's Environmental Assessment Requirements, a Hazard and Risk Assessment is contained in **Part 12** of this Environmental Impact Statement.

3.3.3 State Environmental Planning Policy No.55 - Remediation of Land

State Environmental Planning Policy No.55 - Remediation of Land (**SEPP 55**) aims:

> *.... to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.*

Clause 7 of SEPP 55 states:

> *7. (1) A consent authority must not consent to the carrying out of any development on land unless:*
>
> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*
>
> *(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.*
>
> *(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.*
>
> *(4) The land concerned is:*
>
> *(a) land that is within an investigation area,*

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital land:

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

In May 2015, the landowner commissioned a report addressing the potential contamination of the Site. A report titled *Validation Report Remediation of Former Sims Metals Scrap Yard 35 Frank St, Wetherill Park NSW* was prepared by HAZCHEM (**the Hazchem Report**), a summary copy of which is at **Appendix 9**.

The Hazchem Report states:

Hazchem Pty Ltd (Hazchem) was commissioned by Sims Metal Management (Sims) to provide services in relation to the remediation and validation of Sims former scrap metal processing facility at 35-37 Frank Street, Wetherill Park NSW (the Site).

Sims ceased operations at the Site in December 2013 consolidating operations at their scrap metal facility at St Marys with the intention to divest the Site.

Environmental site assessments (ESA) previously conducted at the Site identified contamination in fill material associated with unsealed operational areas at the centre and rear of the Site and a diesel above ground storage tank (AST) at the front of the Site. Investigations found concentrations of volatile and semi-volatile hydrocarbons present in soils above criteria provided in the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) made by the National Environment Protection Council and its schedules as amended in May 2013 and adopted by the NSW Environment Protection Authority (NSW EPA) Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition) (NSW EPA, 2006). Based on the outcomes of the investigations it was concluded that remedial action was required to render the Site suitable for ongoing commercial and industrial land use.

In August 2014, prior to remediation, Hazchem conducted an additional intrusive

soil investigation to address information data gaps identified as part of a review of previous site assessments and their associated data set. Investigation outcomes resulted in the remedial extent being further defined both laterally and vertically for certain Areas of Environmental Concern (AEC). Remediation was conducted between October 2014 and April 2015 in accordance with the Remedial Action Plan (RAP) prepared for the Site by Hazmat Services (2014).

This Validation Report (VR) outlines the methodology and outcomes of the pre-remediation investigation and subsequent remedial works and associated validation program undertaken and completed to ensure that the objectives stated in the RAP were achieved. This VR should be read in conjunction with the RAP developed for the Site.

The VR was prepared in general accordance with the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites 1997 and other guideline documents endorsed by NSW EPA.

The purpose of the remediation was:

.... to render the Site suitable for commercial/industrial land use as defined in the ASC NEPM. The main objective of the validation was to assess whether the Site has been remediated in an acceptable manner, with minimal environmental impact, to a condition suitable for industrial land use.

The objectives of the validation were to:

- *Demonstrate that the remedial goals have been met at the Site;*
- *Demonstrate that the Site is suitable for the intended land-use; and*
- *Demonstrate that the remediated Site does not pose a potential risk of harm to the environment and human health.*

In order to close data gaps identified in previous ESAs, a pre-remediation investigation was required with the objective of further delineating the lateral and vertical extent of areas and contaminants of potential concern at the Site.

The scope of work undertaken to meet the project objectives was as follows:

- *Review of RAP and previous ESAs and preparation of gap analysis;*
- *Undertake a targeted intrusive soil investigation across select areas of the Site to address identified data gaps;*
- *Gain relevant regulatory approvals for remedial works;*
- *Onsite supervision of remediation contractor and environmental monitoring throughout remedial works;*

- *Waste classification assessment of soils requiring offsite disposal;*
- *Visual observation and collection of validation samples from residual soils;*
- *Assess results against Remediation Acceptance Criteria (RAC) as stated in the RAP; and*
- *Preparation of this validation report.*

A Remedial Action Plan (**RAP**) was prepared by Hazmat Services in January 2014 to facilitate remediation of the Site scheduled for the second half of 2014. The RAP included:

- a review of previous investigation,
- identification of areas of environmental concern (**AEC**) which required remediation or further investigation,
- selection of the preferred remedial strategy, and
- detailed validation requirements including setting remediation action criteria (**RAC**).

In August 2014, prior to remediation, Hazchem conducted an additional intrusive soil investigation to address information data gaps identified as part of a review of previous site assessments and their associated data set with the objective of further delineating the lateral and vertical extent of areas and contaminants of potential concern at the Site.

The following conclusions were made based on the findings of the pre-remediation investigation:

- *Two previously unidentified unsealed areas located within the sealed area to the north east of the former weighbridge required removal of contaminated fill and validation of residual soils.*
- *Two hotspots 18.8m in diameter and approximately 0.5m in depth required remediation in order to render soils surrounding the former shear suitable for commercial/industrial land use.*
- *Gross physical contamination consisting of scrap metal, plastic, concrete, etc. within the fill layer at unsealed areas was directly linked to scrap processing and storage, which were identified as the contaminating activity at the Site. Consequently, remediation was required of all fill above underlying natural clay in these areas.*
- *Lead concentrations from the current investigation consistently reported higher than the historical norm of 800-1,200mg/kg and the assessment criterion of 1,500mg/kg. This had potential impacts on the waste*

classification of soils destined for offsite disposal.

- *PCB was detected in fill with a direct link established between the presence of TRH and PCB. PCB should be considered a potential contaminant of concern for validation and waste classification purposes when TRH is present. The inclusion of PCBs as a potential contaminant of concern for the Site does not alter previous conclusions regarding the contamination status of the Site and specifically the areas deemed suitable for commercial/industrial land use without remediation.*

Based on information presented in the RAP and the findings of the pre-remediation investigation the final remedial extent required the removal off contaminated fill down to underlying clays at the following locations:

- *All unsealed areas of the Site north of the former weighbridge;*
- *Two hotpots in the area surrounding the former shear; and*
- *One hotspot associated with the former AST at the front of the Site.*

It was also recommended that soils be screened to recover recyclable materials such as scrap metal, concrete and bricks.

Remediation was conducted between October 2014 and April 2015 in accordance with the RAP with the validation report prepared in general accordance with the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites 1997 and other guideline documents endorsed by NSW EPA. During remediation Hazchem maintained an onsite presence to ensure not only the scope of remediation as set out prior to commencing works was completed appropriately but also that any additional contamination encountered was appropriately assessed, and if required remediated and validated.

The purpose of the remediation was to render the Site suitable for commercial/industrial land use as defined in the ASC NEPM. The main objective of the validation was to assess whether the Site has been remediated in an acceptable manner, with minimal environmental impact, to a condition suitable for industrial land use.

The following outlines the general remediation methodology

- *Site establishment including inductions and WHS documentation, establish environmental and odour controls and monitors, wheel wash, amenities and mobilisation of equipment;*
- *Excavation of contaminated fill at each AEC until visually uncontaminated soils were encountered. Vertically this was when clays were encountered. Horizontally this was generally when physical contamination ceased and the fill type changed to a reddish brown steel stone or light brown crushed sandstone road base.*

- *Preliminary screening of fill to remove large pieces of ferrous scrap and non-ferrous scrap metal and concrete followed by screening of fill using a Trommel fitted with 20mm mesh into plus 20mm (scrap metal and concrete) and minus 20mm (soil) size fractions.*

- *Sampling of screened material to determine suitability to be reused onsite or waste classification for offsite disposal.*

- *Load and transport ferrous and non-ferrous oversize offsite for recycling at Sims' St Marys facility.*

- *Load and transport concrete recovered from fill and removed from surfaces to uncover contaminated fill at each AEC offsite for recycling.*

- *Load and transport contaminated soil off-site to an appropriately licensed landfill facility according to its waste classification.*

- *Visual observation and collection of validation samples from residual soil at each AEC to confirm the adopted criteria for industrial land use are met. Validation was undertaken progressively as sections were cleared of fill.*

- *Reinstate excavations with imported materials once validation results obtained. This included reinstatement of existing levels across the centre of the Site and contouring of the rear of the Site to slope towards the north-western corner.*

- *Remove and clean oily water, sediment and sludge from stormwater pond and oily water separator unit and dispose to appropriately licenced facility.*

Based on the outcomes of the validation program the following conclusions are made:

- *All analytical results for each AEC reported below the RAC adopted for the Site.*

- *The visual assessment of residual soils and fill was satisfactory with regard to the absence of signs of gross physical contamination.*

- *The imported fill used to backfill excavated areas was of appropriate quality and with certification provided from an independent environmental practitioner.*

The sampling program was conducted in accordance with relevant guidelines and the data quality assessment showed that the data set is considered to reflect the true condition of the AECs within the limitations of any soil investigation.

Based on the validation information obtained by Hazchem, and provided in this

validation report, the remediation is considered successful with all contaminated fill having been excavated and disposed offsite from the AECs as evidenced by visual and analytical assessments. The remediated areas, and consequently the Site as a whole, are considered suitable for commercial/industrial land use.

3.3.4 Contaminated Land Management Act

Sub-section 60(1) of the *NSW Contaminated Land Management Act* (**CLM Act**) states:

> *60 Duty to report contamination*
>
> *(1) A person whose activities have contaminated land must notify the EPA in writing in accordance with this section that the land has been so contaminated.*

Notification of the Site's contamination status was provided to NSW EPA in accordance with Section 60 on the 7 October 2014.

The Hazchem Report was to be forwarded to NSW EPA to assist in assessing the need for the Site to be regulated under the CLM Act by providing updated information on the Site's contamination status.

3.3.5 State Environmental Planning Policy No.44 - Koala Habitat Protection

State Environmental Planning Policy No.44 - Koala Habitat Protection (**SEPP 44**) applies in the Fairfield Local Government Area.

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation which provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. The aims and objectives of SEPP 44 are:

> *... to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:*
>
> *(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and*
>
> *(b) by encouraging the identification of areas of core koala habitat, and*
>
> *(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.*

Clause 6 of SEPP 44 states:

This Part applies to land:

(a) that is land to which this Policy applies, and

(b) that is land in relation to which a development application has been made, and

(c) that:

(i) has an area of more than 1 hectare, or

(ii) has, together with any adjoining land in the same ownership, an area of more than 1 hectare,

whether or not the development application applies to the whole, or only part, of the land.

The Site has an area of greater than 1 hectare and, as such, an assessment pursuant to SEPP 44 has been undertaken. There are no habitat trees on the Site and, as such, no further assessment is required.

3.3.6 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (**SEPP Infrastructure**) has as its aim:

... to facilitate the effective delivery of infrastructure across the State by:

(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and

(b) providing greater flexibility in the location of infrastructure and service facilities, and

(c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and

(d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and

(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and

(f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing.

Clause 104 of SEPP Infrastructure states:

104 Traffic-generating development

(1) This clause applies to development specified in Column 1 of the Table to Schedule 3 that involves:

(a) new premises of the relevant size or capacity, or

(b) an enlargement or extension of existing premises, being an alteration or addition of the relevant size or capacity.

(2) In this clause, relevant size or capacity means:

(a) in relation to development on a site that has direct vehicular or pedestrian access to any road—the size or capacity specified opposite that development in Column 2 of the Table to Schedule 3, or

(b) in relation to development on a site that has direct vehicular or pedestrian access to a classified road or to a road that connects to a classified road where the access (measured along the alignment of the connecting road) is within 90m of the connection—the size or capacity specified opposite that development in Column 3 of the Table to Schedule 3.

(3) Before determining a development application for development to which this clause applies, the consent authority must:

(a) give written notice of the application to the RTA within 7 days after the application is made, and

(b) take into consideration:

(i) any submission that the RTA provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, the RTA advises that it will not be making a submission), and

(ii) the accessibility of the site concerned, including:

(A) the efficiency of movement of people and freight to and from the site and the extent

of multi-purpose trips, and

(B) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and

(iii) any potential traffic safety, road congestion or parking implications of the development.

(4) The consent authority must give the RTA a copy of the determination of the application within 7 days after the determination is made.

Schedule 3 of SEPP Infrastructure includes *Landfill, recycling facilities, waste transfer station* of any capacity in both Column 2 and Column 3. As such, the NSW Roads and Maritime Services (**RMS**) must be consulted as part of the assessment of the proposed development.

3.4 Local Environmental Planning Instruments

3.4.1 Fairfield Local Environmental Plan 2013

The Site is zoned IN1 General Industrial pursuant to the Liverpool Local Environmental Plan 2013 (**LEP 2013**). An extract from the Map is at **Figure 3-1**.

The objectives of the IN1 General Industrial Zone are:

- *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 ensure development is not likely to detrimentally affect the viability of any nearby business centre.*

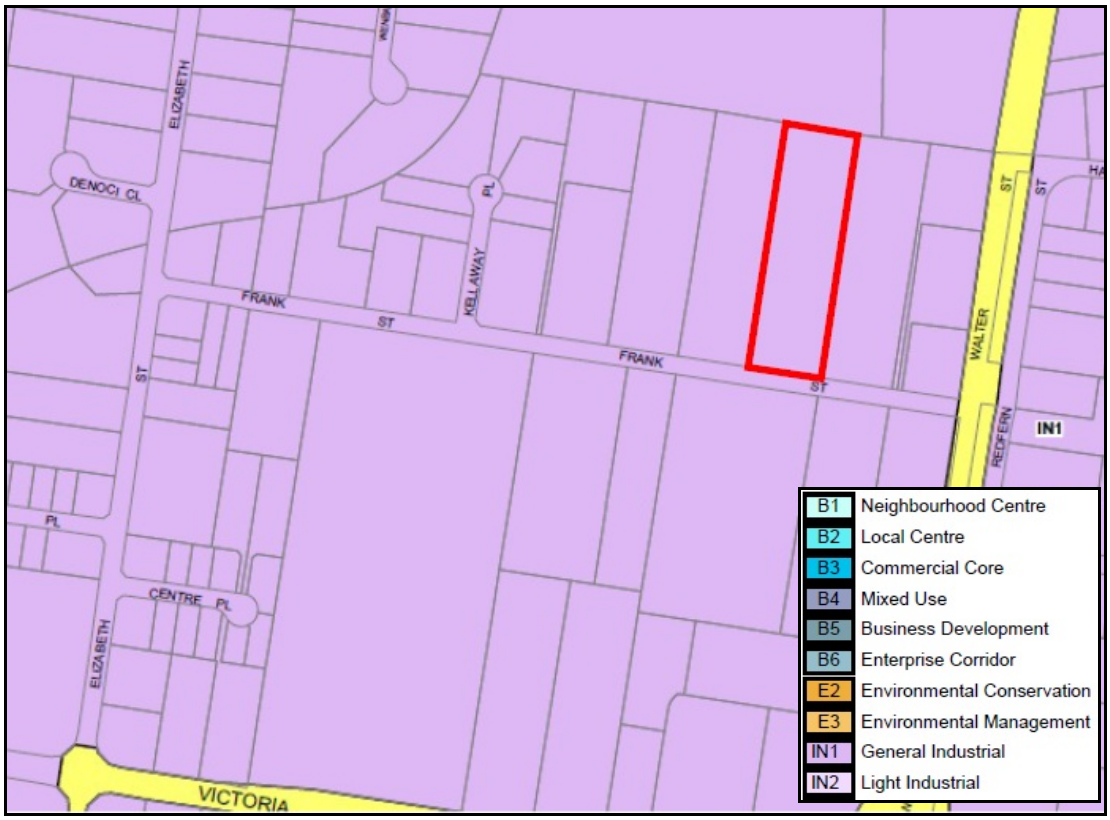


Figure 3-1: Extract from the Fairfield LEP 2013 Zone Map with the Site outlined in red.

The proposed development is consistent with the objectives of the IN1 General Industrial zone in that it would:

- Provide an industrial land use.
- Encourage employment opportunities.
- Minimise any adverse effect of development on other land uses.
- Support and protect industrial land for industrial uses.

Clause 5.9 of LEP 2013 relates to the preservation of trees and vegetation and states, among other things:

> ***5.9 Preservation of trees or vegetation***
>
> *(1) The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation.*
>
> *(2) This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council.*

Note. A development control plan may prescribe the trees or other vegetation to which this clause applies by reference to species, size, location or other manner.

(3) A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation to which any such development control plan applies without the authority conferred by:

(a) development consent, or

(b) a permit granted by the Council.

(4) The refusal by the Council to grant a permit to a person who has duly applied for the grant of the permit is taken for the purposes of the Act to be a refusal by the Council to grant consent for the carrying out of the activity for which a permit was sought.

Clause 5.9AA of LEP 2013 states:

5.9AA Trees or vegetation not prescribed by development control plan

(1) This clause applies to any tree or other vegetation that is not of a species or kind prescribed for the purposes of clause 5.9 by a development control plan made by the Council.

(2) The ringbarking, cutting down, topping, lopping, removal, injuring or destruction of any tree or other vegetation to which this clause applies is permitted without development consent.

The Site contains a number of trees at the Frank Street frontage of the Site. A number of trees are located on adjoining properties to the west and north of the Site.

Plateau Tree Service Pty Ltd has prepared a report titled *Arboricultural Impact Statement* (**the Arborist Report**), a copy of which is at **Appendix 10**. The purpose of the Arborist Report is to:

- Identify the trees within the Site which are likely to be affected by the proposed works.
- Assess the current overall health and condition of the subject trees.
- Evaluate the anticipated impacts the proposed development may have on the subject trees/vegetation and assess their suitability for retention.
- Provide details on tree protection measures, for trees identified as suitable for retention.

Visual Tree Inspection

The subject trees were assessed by the process of a stage one visual tree assessment as formulated by Mattheck & Breloer (1994), and practices consistent with modern arboriculture. The trees were inspected from ground level, without the use of any invasive or diagnostic tools and testing.

No aerial inspections or root mapping was undertaken. Tree heights, canopy spread, and diameter at breast height was estimated, unless otherwise stated. The trees are identified based on broad taxonomical features present and visible from ground level at the time of inspection.

Tree Significance

The significance of a tree is determined using a combination of environmental, heritage/cultural and physical/social value.

To promote a consistent approach to determining these values, guidelines, factors and selection criteria have been formulated into the tree valuation system developed by Phil Witten (the author).

Western Boundary

A variable height retaining wall will be constructed along the western boundary fence line. The reinforced concrete retaining wall will vary from 0.9m to 2.3m to accommodate varying level within the neighbouring property.

The pier and beam style footing of the proposed retaining wall (refer to Landscape Plans at **Appendix 12**) has been specifically designed to reduce impacts and encroachment on trees located on the neighbouring property. The concrete piers will be located at 3m to 4m intervals, with the ability to modify and relocate pier locations upon encountering large or significant roots extending below ground from the neighbouring property. The pier and beam style footing is an excellent design and is unlikely to significantly impact the adjacent trees.

Trees along the western boundary (on the neighbouring property) towards the northern end of the Site are unlikely to be impacted as the proposed works are located outside the protection zone. Trees located towards the southern end will not be impacted due to varied level within the adjacent property, and a retaining wall separating the proposed works from the trees.

Trees which may be impacted appear to be self-seeded and growing between the existing retaining wall (on the neighbouring property) and the boundary fence. These trees have been identified, and placed within a supervision zone. Any excavation within this zone will require the Project Arborist present on site.

Northern Boundary

A variable height retaining wall will also be constructed along the northern boundary. The retaining wall will vary from 1m to 5.2m in height and will be offset from the existing fence line by approximately 3m (0.5m offset from the 2.5m TPZ).

All hard scapes and construction activities will be located outside the designated TPZ, and, therefore, will have a minimal impact on the adjacent neighbouring trees.

There are no other provisions of LEP 2013 which are relevant to the proposed development.

3.4.2 Fairfield City Wide Development Control Plan 2013

The purpose of the Fairfield City Wide Development Control Plan 2013 (**the City Wide DCP**) is to illustrate the controls which apply to particular types of development.

The City Wide DCP fundamentally assists in the preparation of development applications. The City Wide DCP contains detailed development controls used by Council as benchmarks of what is acceptable development taking into consideration an environmental site analysis.

Notwithstanding, as detailed in **Part 3.3.1** of this Environmental Impact Statement, **sub-clause 11(1)** of State Environmental Planning Policy (State and Regional Development) 2011 states:

> ***11 Exclusion of application of development control plans***
>
> *Development control plans (whether made before or after the commencement of this Policy) do not apply to:*
>
> *(a) State significant development, or*
>
> *(b) development for which a relevant council is the consent authority under section 89D (2) of the Act.*

As such, the City Wide DCP 2013 has no work to do in the assessment of the proposed development.

Part Four
CONSULTATION

4.1 Local Government, Government and Statutory Authority Consultation

The Secretary's Environmental Assessment Requirements includes a requirement for consultation:

> *... with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.*

In the preparation of this Environmental Impact Statement, consultation was undertaken with:

- Fairfield City Council.
- the Environment Protection Authority.
- the Department of Primary Industries.
- NSW Roads and Maritime Services.
- Transgrid.

Copies of responses from the above authorities are provided in **Appendix 5**.

Fairfield City Council

All concerns raised by Fairfield City Council are canvassed in this Environmental Impact Statement as detailed in **Table 4-1** below.

Table 4-1: Issues Raised by Fairfield City Council.

Issue	Reference in EIS
Information on SEPP 33	Part 3, Part 12
Risk Assessment	Part 12
Compliance with relevant standards and guidelines of the NSW EPA	Total Document
Exact transport routes to be used	Part 10, Appendix 13
Assessment of the potential visual impact	Part 8

Department of Primary Industries

The Department of Primary Industries, by letter dated 23 September 2015, responded to

the request of the Secretary of the Department of Planning and Environment. All concerns raised by the Department are canvassed in this Environmental Impact Statement as detailed in **Table 4-2** below.

Table 4-2: Issues Raised by the Department of Primary Industries.

Issue	Reference in EIS
Annual volumes of surface water and groundwater proposed to be taken	Part 9, Appendix 19
Volumetric water licence requirements	Not applicable
Identify an adequate and secure water supply	Part 9, Appendix 19
Assessment of the impact on surface and ground water sources	Part 9, Appendix 19
Detail of the data of all surface and groundwater modelling	Part 9, Appendix 19
Proposed surface and groundwater monitoring	Not applicable
Cumulative impacts on water resources	Part 9, Appendix 19
Relevant policies and guidelines	Part 3, Part 9, Appendix 19

Environment Protection Authority

The Environment Protection Authority, by letter dated 18 September 2015, responded to the request of the Department of Planning and Environment indicating that the key information requirements for the project are:

1. Air Quality - including potential impacts and mitigation measures.

2. Noise Management - including potential impacts and mitigation measures.

3. Waste Management.

Table 4-3 below provides information on the issues raised by the Environment Protection Authority.

Table 4-3: Summary of issues raised by the Environment Protection Authority

Issue	Reference in EIS
Air Quality	Part 6, Part 7, Appendix 14, Appendix 15
Noise Management	Part 6, Appendix 15
Waste Management	Part 13

4.2 Community Consultation

Community consultation was undertaken as part of the preparation of the Environmental

Impact Statement.

The scope of consultation undertaken included:

- A consultation process undertaken in accordance with the Director-General's requirements and the then NSW Department of Planning Guidelines for Major Project Community Consultation October 2007.

- Demonstration that the applicant understands the issues already identified as well as any new issues which arise during consultations.

- Ensuring that relevant stakeholders are satisfied that their concerns have been adequately heard and, to the extent possible within the Environmental Assessment, addressed.

A document outlining the preliminary assessment information for the proposed development was prepared and distributed to all potentially affected landowners and/or occupiers in the locality of the Site. A copy of the consultation letter is at **Appendix 11**. The letter was distributed to all properties in the area shown in **Figure 4-1**.

Figure 4-1: Location of all properties provided with consultation letter shown highlighted in red.

No written responses have been received from the landowners/occupiers. One landowner responded by telephone to the consultation process, requesting more detail relating to the proposed site layout. The information requested was provided to the satisfaction of the respondent.

Part Five

ACOUSTIC IMPACT ASSESSMENT

5.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a quantitative assessment of potential construction, operational and transport noise and vibration impacts, including potential impacts on nearby noise sensitive receivers; and*

- *details and justification of the proposed noise mitigation and monitoring measures.*

In order to ascertain the potential impact of the proposed development on the acoustic environment of the locality, Wilkinson Murray Pty Ltd has prepared a report titled *Frank Street, Wetherill Park, Waste & Resource Management Facility. Noise Impact Assessment* (**the Wilkinson Murray Report**) a copy of which is at **Appendix 15**.

5.2 Methodology

The noise and vibration impact assessment has been prepared to address the relevant Secretary's Environmental Assessment Requirements. The assessment was conducted in general accordance with the following NSW Government guidelines:

- NSW Industrial Noise Policy (EPA, 2000);
- Noise Guide for Local Government (EPA, 2013);
- NSW Road Noise Policy (DECCW, 2011); and,
- Interim Construction Noise Guideline (DECC, 2009).

Given the substantial setback distances to nearby receivers, it is considered that a vibration assessment is not warranted and, therefore, not considered further in this assessment.

5.3 The Existing Environment

The immediate surrounding land use is industrial.

The nearest residential receivers are located to the south in Maugham Crescent, Wetherill

Park, approximately 840m away (**RES1**). There are residences to the east on Hassall Street (1,450m **RES 2**), to the south-east (Chifley Street and Galton Street near Victoria Street **RES 3**) and to the south-west along The Horsley Drive (1,250m **RES 4**).

The Gipps Road Sporting Complex is located to the north-east with the nearest oval at a distance of approximately 1,150m (**REC1**).

Figure 5-1 shows the location of noise sensitive receivers.

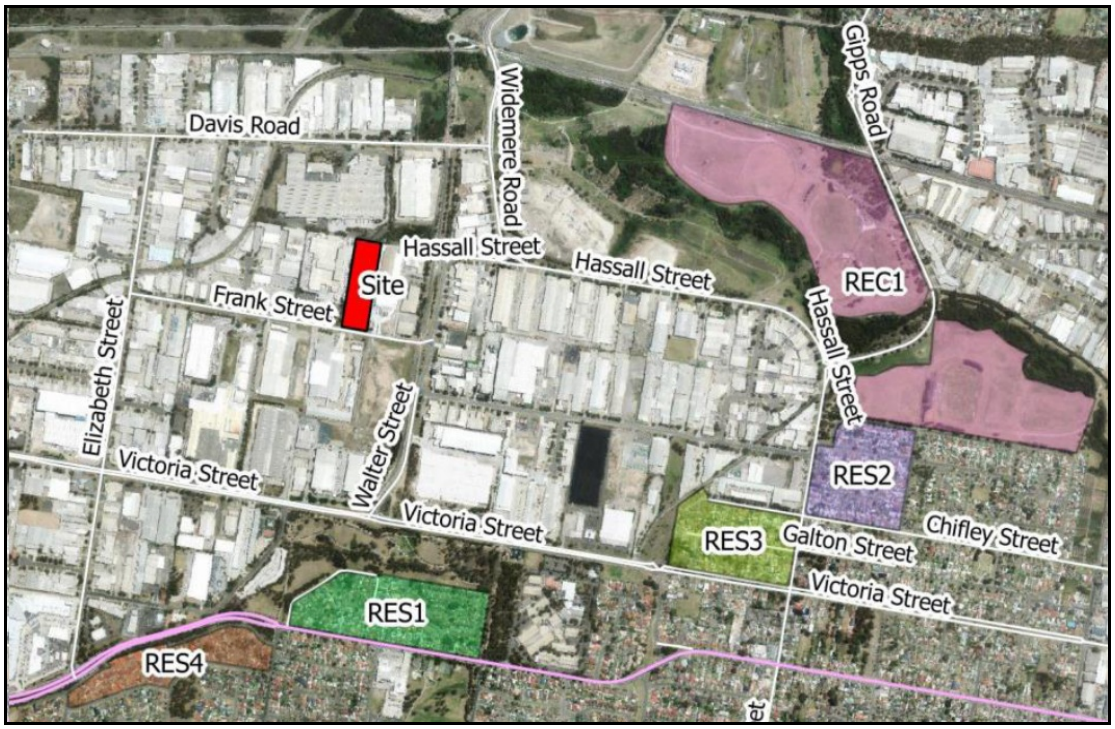


Figure 5-1: Location of sensitive receivers.

Ambient noise levels were monitored at 15 Maugham Crescent, Wetherill Park between Friday, 21 and Saturday, 29 August 2015 at monitoring location L1 which is considered representative of the most affected residential receivers in the vicinity of the Site and is shown in **Figure 5-2**.

Figure 5-2: Location of logger L1 at 15 Maugham Crescent.

The unattended noise monitoring equipment used consisted of environmental noise loggers set to A-weighted, fast response, continuously monitoring over 15-minute sampling periods. This equipment is capable of remotely monitoring and storing noise level descriptors for later detailed analysis. The equipment calibration was checked before and after the survey and no significant drift occurred.

The logger determines L_{A1}, L_{A10}, L_{A90} and L_{Aeq} levels of the ambient noise. L_{A1}, L_{A10} and L_{A90} are the levels exceeded for 1%, 10% and 90% of the sample time respectively. L_{Aeq} represents the average noise energy during a measurement period.

Times when there was rainfall or wind speeds above 5m/s were excluded in accordance with the Industrial Noise Policy (**INP**). Detailed results of the noise monitoring from both monitoring periods are shown graphically in Appendix A of the Wilkinson Murray Report.

Background noise levels may be expressed in terms of the Rating Background Level (**RBL**), a standard measure of background noise which is used in the INP.

Detailed results of the noise monitoring are shown graphically in Appendix A of the Wilkinson Murray Report.

Table 5-1 shows calculated RBL and $L_{Aeq,period}$ levels over all time periods relevant for this assessment. L_{Aeq} noise was dominated by traffic and suburban noise rather than industrial noise.

Table 5-1: Measured RBL and $L_{Aeq, period}$ Values

Location	RBL (dBA)			$L_{Aeq, period}$ (dBA)		
	Day	Evening	Night	Day	Evening	Night
RES1	47	44	40	55	55	49

5.4 Operational Noise Criteria

The NSW EPA have released a draft Industrial Noise Guideline aimed at superseding the INP. In relation to the proposed development, the proposed changes to the guideline would not have a material effect on the assessment outcomes. For this reason, the assessment has followed the procedures of the INP.

The INP seeks to control noise from newly introduced industrial noise sources by means of its "intrusiveness" and "amenity" noise criteria.

The "intrusiveness" criterion requires that the $L_{Aeq,15min}$ noise level from any new source should not exceed the existing Rating Background Level (RBL) for that period by more than 5dBA. Intrusiveness criterion values for potentially affected residences follow directly from the RBL values in **Table 5-1**.

These criteria apply to $L_{Aeq,15min}$ noise levels measured under specific meteorological conditions, determined as outlined in the INP. In general, however, it has been accepted that an appropriate, and conservative, assessment procedure is to compare the intrusiveness criterion with the $L_{Aeq,15min}$ noise level which is exceeded for 10% of 15-minute periods during any season. This procedure has been adopted for this assessment. **Table 5-2** summarises the intrusive noise criteria.

Table 5-2: Intrusive Criteria (dBA)

Location	Intrusive Criterion		
	Day	Evening	Night
RES1 - 15 Maugham Crescent	52	49	45

The "amenity" criterion applies to the $L_{Aeq,period}$ noise level due to all industrial sources affecting a location. It sets an upper limit to the total noise level ($L_{Aeq,period}$) in an area from all industrial noise (existing and future). The criterion depends on the time of the day, area classifications and the relationship of the total measured L_{Aeq} (and contribution from existing industrial noise) to determine the Acceptable Noise Level (**ANL**) for the development.

The potentially-affected areas are classified as "Suburban" by the INP. Given this, the Acceptable and Maximum Amenity levels ($L_{Aeq,period}$) which apply over the whole day, evening and night period are as shown in **Table 5-3**.

Table 5-3: Amenity Criteria (dBA)

Location	Amenity Criterion		
	Day	Evening	Night
Suburban	55-60	45-50	40-45
Active Recreation	55-60		
Industrial	70-75		

Allowing for the different time periods for assessing intrusiveness and amenity, it is considered achieving the following intrusive noise limits over a typical busy 15-minute period will also ensure compliance with the recommended acceptable amenity noise limits.

Table 5-4: Summary of Noise Criteria (dBA)

Location	Assessment Parameter	Criterion (dBA)		
		Day	Evening	Night
RES1 - 15 Maugham Crescent	$L_{Aeq,15min}$	52	48	43
Active Recreation	$L_{Aeq,period}$	55-60		
Industrial	$L_{Aeq,period}$	70-75		

For other residential areas which are all located closer to roads than Maugham Crescent, the criteria for RES1 are conservatively adopted.

5.5 Prediction of Operational Noise Levels

The Wilkinson Murray Report (**Appendix 15**) details the predicted impact of the proposed development as follows.

5.5.1 Meteorological Conditions

The INP requires that, in predicting operational noise levels, wind speed and direction should be taken into account if wind speeds of up to 3m/s in the source to receiver direction occur more than 30% of the time in any season.

Records of wind speed and direction were obtained from the Bureau of Meteorology monitoring station at the Horsley Park Equestrian Centre, approximately 5km south-west of the Site, for the 2012 calendar year. These data were analysed to identify any gradient winds.

The EPA's Noise Enhancement Wind Analysis (**NEWA**) software was used to identify instances of seasonal winds blowing from the source to any sensitive receivers for more than 30% of the time during the day, evening or night time assessment periods.

The NEWA software indicated that gradient winds exist during the night time period in winter for receivers to the east of the Site. No gradient winds where identified for receivers to the south or south-east of the Site.

5.5.2 Prediction Methodology

Table 5-1 of the Wilkinson Murray Report shows all equipment included in noise modelling, and the assumed Sound Power Levels. For activities which do not occur continuously over a 15-minute period, the L_{Aeq} is adjusted to account for the duration over which it occurs in any 15-minute period.

The dominant noise will be generated internally within the main manufacturing facility by the fixed plant as well as mobile plant including front end loaders, excavators and tipping of materials from trucks, or activities in the workshop building which will include intermittent grinding, welding and use of rattle guns. The manufacturing facility building will have thermal insulation on the underside of the roof which will control reverberation times.

Externally, noise will be dominated by trucks arriving and departing as well as intermittent fork lift movements to manage the bale stockpile. There will also be noise associated with air-conditioning plant for the office building.

To Residences

Whilst rapid roller doors are proposed and over a whole day a door would be open one third of the time, it is assumed as a worst-case scenario during a busy 15-minute period that one door on the western facade will remain open the whole time.

Given the distances to the nearest noise-sensitive receivers are in excess of 800 metres, and there is shielding by surrounding buildings in all directions, noise levels have been predicted based on geometric spreading and a conservative allowance of 10dB in relation to shielding from buildings. When considering adverse meteorological conditions, the effects of shielding is reduced to 5dB.

To Industrial Boundary and Active Recreation Area

For these assessment locations, assessed over the whole day, evening or night period, a roller door on the western facade is assumed to be open 1/3 of the time and all truck movements are assumed to occur in the daytime.

Whilst a 1.8 metre fence is proposed along part of the western boundary, it is not allowed for shielding provided calculations to the industrial boundary as it is not required in order

to satisfy noise criteria.

Table 5-2 of the Wilkinson Murray Report (reproduced below) indicates the operational noise levels predicted at potentially affected residences, for the case where all equipment is working, and for acoustically neutral and adverse meteorological conditions, although the adverse conditions only need to be considered at RES 2 for night time. Calculations include the effect of shielding by intervening buildings.

Table 5-2 Predicted L_{Aeq} Operational Noise Levels, dBA

Receiver No.	Operational Noise Criterion, $L_{Aeq,15min}$ (dBA) Day/Eve/Night	Predicted Daytime Operational Noise Level $L_{Aeq,15min}$ (dBA)	
		Neutral Conditions	Adverse Conditions
RES1 – Maugham Cr	52/48/43	30	35
RES2 – Hassall St	52/48/43	24	29
RES3 – Galton St	52/48/43	28	33
RES4 – The Horsley Dr	52/48/43	27	32
Active recreation	55-60 $L_{Aeq,period}$	26	31
Industrial Boundary	70-75 $L_{Aeq,period}$	69	-

The predicted noise levels meet the relevant criteria at all assessment locations for both adverse and neutral conditions. This is based on comparing the typical worst case daytime operations with criteria for all periods even though night time operations are likely to generate much lower noise levels.

5.6 Traffic Noise

Truck movements would primarily occur during the 6:00 am to 6:00 pm period, however, 24-hour access to the Site is proposed.

A typical day would have staff associated with the processing of materials arriving from approximately 5:00 am as it is possible some waste will also arrive after 5:00 am.

The bulk of the waste will arrive between 6:00 am and 5:00 pm.

Product out will also primarily occur between 6:00 am and 6:00 pm, but some product will be dispatched during the evening up until 10:00 pm and it is possible there may be 1 or 2 semi-trailer movements during the night to dispatch PEF, subject to customer needs.

The processing plant will operate on a 2 shift basis, one commencing at 6:00 am and finishing at approximately 2:00 pm and the next until 10:00 pm.

Similarly, office staff will primarily work normal business hours (7:00 am - 5:00 pm). Light vehicle movements associated with these staff are included in the assessment.

5.6.1 Noise Criteria

For existing residences affected by additional traffic on existing freeways / arterial roads generated by land use developments, the appropriate noise assessment criteria are set in the Road Noise Policy (**RNP**).

The appropriate daytime assessment criterion is $L_{Aeq,15hr}$ 60dBA at 1 metre in front of the facade. The night time criterion is $L_{Aeq,9hr}$ 55dBA. Where existing traffic noise levels already exceed these noise levels, the RNP deems an increase of up to 2dB represents a minor impact which is considered barely perceptible to the average person.

Trucks will access via Frank Street from either the east or west and then typically via Redfern Street / Hassall Street or Elizabeth Street and then The Horsley Drive or Gipps Road, dependent on size and RMS requirements.

The nearest residences / noise sensitive receivers to the facility, likely to be affected by additional traffic are located on Hassall Street south of Gipps Road or along The Horsley Drive.

In accordance with the definitions outlined in the RNP all these roads would be classified as arterial.

5.6.2 Prediction of Traffic Noise Levels

A traffic study has been prepared by Lyle Marshall & Associates Pty Ltd which predicted future traffic generation by the recycling facility based upon processing 250,000 tonnes of raw materials per annum. The assessment was based upon 250 working days Monday to Friday and 52 Saturdays per annum (302 days) for waste deliveries to the Site and 250 days for product out and average truck loads.

The number of additional vehicles based on annual average is summarised in Table 6-3 of the Wilkinson Murray Report, which is reproduced below.

Table 6-3 Summary of Estimated Number of Daily Truck Movements

Location	Day (7am-10pm)		Night (10pm-7am)	
	Cars	Trucks	Cars	Trucks
Frank St (east of site)	46	147	20	9
Frank St (west of site)	35	233	17	15
Hassall St (south of Gipps Rd)	22	107	10	7
The Horsley Dr (east of Hassall St)	22	107	10	7
The Horsley Dr (west of Elizabeth St)	35	233	17	15

Existing traffic volumes are summarised in Table 6-4 of the Wilkinson Murray Report which is reproduced below.

Table 6-4 Summary of Estimated Number of Daily Truck Movements

Location	Day (7am-10pm)		Night (10pm-7am)	
	Volume	%HV	Volume	%HV
Frank St (east of site)	3623	35.7	830	22.5
Frank St (west of site)	3623	35.7	830	22.5
Hassall St (south of Gipps Rd)	19548	20 est	4467	-
The Horsley Dr (east of Hassall St)	18230	20 est	4165	-
The Horsley Dr (west of Elizabeth St)	18530	20 est	4240	-

Given the existing high traffic volumes on all the roads where residences are located, existing noise levels are likely to exceed the RNP base criterion. The increased noise level due to traffic from the proposed recycling facility is calculated to be 0.2dB at daytime and less than 0.1dB at night time. This is significantly below the 2dB increase which is described as noticeable and negligible impact is therefore expected.

5.7 Construction Noise

5.7.1 Noise Criteria for Construction Activities

The NSW Interim Construction Noise Guideline (**ICNG**) presents the process to assess construction noise in NSW.

The ICNG was developed by the then Department of Environment Climate Change &

Water taking into consideration that construction is temporary, noisy and difficult to ameliorate. As such, the ICNG was developed to focus on applying a range of work practices most suited to minimising construction noise impacts, rather than focusing only on achieving a numeric noise level.

The ICNG recommends that standard construction work hours should typically be as follows:

- Monday to Friday 7:00 am to 6:00 pm
- Saturday 8:00 am to 1:00 pm
- No work on Sundays or public holiday.

Additionally, the ICNG recommends quantitative management noise goals at residences as presented in Table 7-1 of the Wilkinson Murray Report.

The ICNG presents the following noise management levels for non-residential premises:

- Active recreation areas external $_{LAeq\ (15\ min)}$ 65dBA
- Industrial premises external $L_{Aeq\ (15\ min)}$ 75dBA

The construction noise management levels at all the existing residences are shown in **Table 5-5**. **Table 5-5** also shows the management levels at other receivers.

Table 5-5: Construction Noise Criteria for Daytime Construction

Location	Construction Noise Management Levels L_{Aeq} (dBA)
Residences RES 1-4	56
Active Recreation	65
Industrial	75

5.7.2 Predicted Construction Noise Levels

Earthworks will generate the highest noise levels. There will need to be construction of retaining walls (the highest in the north west corner), import of select material, plus the spreading and compaction. This will be followed by drainage works and then paving.

The final stage will be the construction of buildings followed by fit out.

Construction plant assumed to be required for these works, and the total L_{Aeq} Sound Power Level for are presented in Table 7-3 of the Wilkinson Murray Report which is reproduced below.

Table 7-3 Construction Plant Total Sound Power Level (SWL)

Activity	Typical Equipment Used	Total $L_{Aeq,15min}$ Sound Power Level (dBA)
Earthworks / Drainage / Pavement	Dozer, Front End Loader, Roller, Excavator and Truck	115
Retaining Walls	Piling Rig / Concrete trucks	112
Buildings and Fit out	Cranes, Delivery Trucks and Power Tools	110

Table 7-4 of the Wilkinson Murray Report reproduced below shows the predicted construction noise levels for the main phases.

Table 7-4 Predicted Noise Levels from Construction

Receiver No.	Construction Noise Management Level, $L_{Aeq,15min}$ (dBA)	Predicted Construction Noise Level $L_{Aeq,15min}$ (dBA)		
		Site Earthworks	Retaining Walls	Site Buildings
RES1 – Maugham Cr	58	39	39	34
RES2 – Hassall St	58	34	34	29
RES3 – Galton St	58	36	36	31
RES4 – The Horsley Dr	58	35	35	30
Active recreation	65	34	34	29
Industrial Boundary	75	70-81	70-90	70-76

Predicted noise levels at residences and the active recreation area are expected to comply with the Management Levels. Negligible impact is expected.

There will be exceedance of construction Noise Management Levels at the industrial boundaries from time to time when construction plant is located close to the boundary. In particular, this would relate to the western boundary near the north western corner of the Site where the larger retaining walls and extensive fill is required. This is common across many construction sites.

Inspection of aerial photography indicates the boundary areas of the adjoining sites include some buffer area and are currently used for truck trailer parking or car parking, hence, negligible impact is expected during these noisier construction periods.

Part Six

AIR QUALITY IMPACT ASSESSMENT

6.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a quantitative assessment of the potential air quality, dust and odour impacts of the project on surrounding landowners in accordance with relevant EPA guidelines;*

- *the likely emissions from the manufacturing process and a description of the mechanical extraction system and method of treatment;*

- *a description of the building's mechanical ventilation and doors or other structures that effectively contain emissions;*

- *details of proposed mitigation, management and monitoring measures.*

In order to ascertain the potential impact of the proposed development on the air quality of the locality, Wilkinson Murray has prepared a report titled *Waste and resource Management Facility. Air Quality Impact Assessment* (**the Wilkinson Murray Report**) a copy of which is at **Appendix 14**.

6.2 Surrounding Land Use and Sensitive Receptors

The land use immediately surrounding the Site is industrial. The nearest sensitive receptors are the residences in Wetherill Park, located more than 700 metres away.

A number of residential receptor 'catchments' have been defined to identify receivers to the east, south-east, south and south-west.

Table 2-1, of the Wilkinson Murray Report which is reproduced below, presents each catchment, and identifies the most affected discrete receptor in each catchment, which will be used for the purposes of dispersion modelling and assessment of potential impacts.

Table 2-1 Sensitive Receptors

Catchment	Most Affected Receptor				
	Address	Easting (m)	Northing (m)	Distance from Site	Elevation (m)
R1	15 Maugham Crescent	306488	6252687	730	53
R2	54 Eyre Street	307879	6253087	1,410	32
R3	160 Chifley Street	307467	6252917	1,080	32
R4	6 Cobbett Street	306163	6252516	955	63

Figure 6-1 shows the location of the sensitive receivers and the 'catchments' R1, R2, R3 and R4.

Figure 6-1: Sensitive Receivers and 'catchment' R1, R2, R3 and R4.

6.3 Air Quality Criteria

The NSW EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC, 2005) sets out applicable impact assessment criteria for a number of air pollutants.

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the pollutants of interest in this study and the application of air quality criteria for each pollutant.

6.3.1 Pollutants of Interest

Potential pollutants identified for this development with the potential to result in air quality impacts include odour and dust.

Putrescible waste is not accepted on the Site, however, it is foreseeable that a customer may deliver a load which contains some putrescible waste, and that it would spend a small amount of time on Site before it is rejected and removed.

C&D and C&I waste contain a significant percentage of dusty materials, such as bricks, concrete and sand. The handling of these materials, and the shredding of combustible materials, will produce dust and particulate matter.

6.3.2 Impact Assessment Criteria

Odour

NSW legislation prohibits emissions which cause offensive odour to occur at any off-site receptor. Offensive odour is evaluated in the field by authorised officers, who are obliged to consider the odour in the context of its receiving environment, frequency, duration, character and so on and to determine whether the odour would unreasonably interfere with the comfort and repose of the normal person. In this context, the concept of offensive odour is applied to operational facilities and relates to actual emissions in the air.

In the approval and planning process for proposed new operations, or modifications to existing projects, no actual odour exists and it is necessary to consider hypothetical odour. In this context, odour concentrations are used and are defined in odour units. The number of odour units represents the number of times that the odour would need to be diluted to reach a level that is just detectable to the human nose. By definition, odour less than one odour unit (1 OU), would not be detectable to most people.

The range of a person's ability to detect odour varies greatly in the population, as does their sensitivity to the type of odour, therefore, there can be a wide range of variability in the way odour response is interpreted.

It should be noted that odour refers to complex mixtures of odours, and not 'pure' odour arising from a single chemical. Odour from a single, known chemical very rarely occurs (when it does, it is best to consider that specific chemical in terms of its concentration in the air). In most situations, odour will be comprised of a cocktail of many substances which is referred to as a complex mixture of odorous pollutants, or more simply odour.

For developments with potential for odour, it may be necessary to predict the likely odour impact which may arise. This is done by using air dispersion modelling which can calculate the level of dilution of odours emitted from the source at the point which it

reaches surrounding receptors. This approach allows the air dispersion model to produce results in terms of odour units.

The NSW criteria for acceptable levels of odour range from 2 to 7 OU, with the more stringent 2 OU criteria applicable to densely populated urban areas and the 7 OU criteria applicable to sparsely populated rural areas.

The sensitive receivers identified in this assessment are located in an urban setting, and, therefore, an impact assessment criterion of 2.0 OU/m^3 has been adopted.

Dust and Particulate Matter

The EPA Approved Methods specifies air quality assessment criteria for assessing impacts from dust generating activities. These criteria are consistent with the National Environment Protection Measures for Ambient Air Quality (NEPC, 1998).

Table 3-2 of the Wilkinson Murray Report, which is reproduced below, summarises the air quality goals for dust and particulate matter which are relevant to this assessment. The air quality goals relate to the total concentrations of dust and particulate matter in the air and not just that from the proposed development. Some consideration of background levels needs to be made when using these goals to assess impacts.

Table 3-2 Impact assessment criteria – dust and particulate matter

Pollutant	Averaging period	Impact	Criteria
Total suspended particulates (TSP)	Annual	Total	90 µg/m³
Particulate matter ≤10 µm (PM_{10})	Annual	Total	30 µg/m³
	24-hour	Total	50 µg/m³
Deposited dust (DD)	Annual	Total	4 g/m²/month
	Annual	Incremental	2 g/m²/month

There are currently no air quality goals for particulate matter ≤ 2.5 µm ($PM_{2.5}$) for projects within NSW, however, the National Environmental Protection Council (**NEPC**) has developed an advisory National Environmental Protection Measure (**NEPM**) for $PM_{2.5}$, as follows:

- A maximum 24 hour average concentration of 25 µg/m^3 and,
- An annual average concentration of 8 µg/m^3.

The above goals for $PM_{2.5}$ concentrations are considered advisory only.

6.4 The Existing Environment

6.4.1 Local Climate

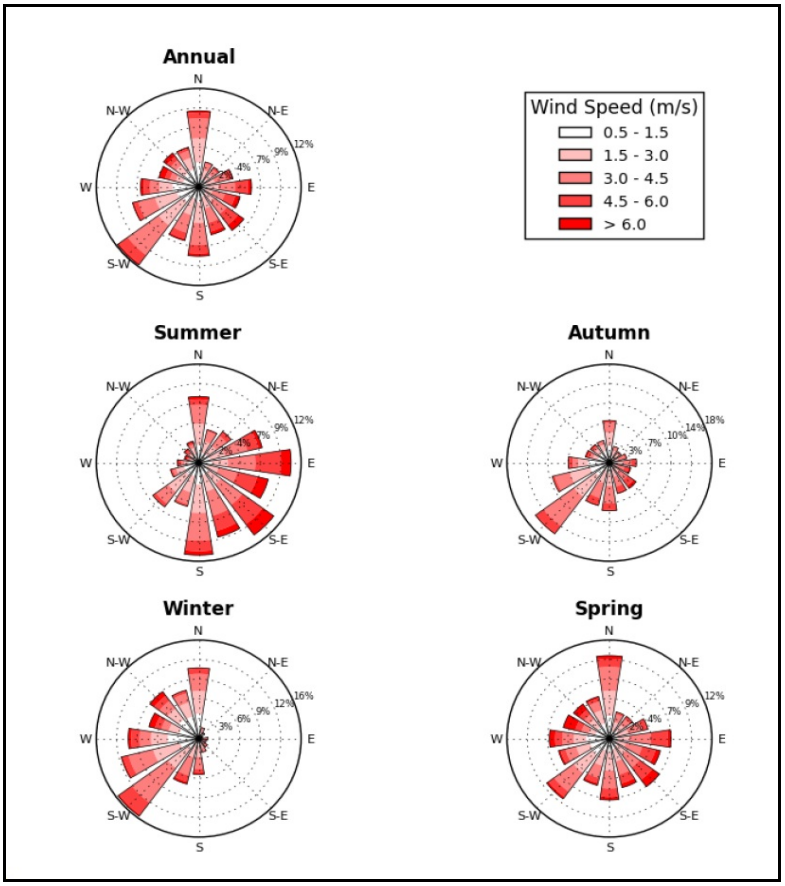
Long term meteorological data for the area surrounding the Site is available from the Bureau of Meteorology (**BOM**) operated Automatic Weather Station (**AWS**) at the Horsley Park Equestrian Centre. The Horsley Park Equestrian Centre AWS is located approximately 5 kilometres south west of the Site and records observations of a number of meteorological data including temperature, humidity, rainfall, wind speed and wind direction.

Long-term climate statistics are presented in Table 4-1 of the Wilkinson Murray Report, which is reproduced below. Temperature data recorded at the Horsley Park Equestrian Centre AWS indicate that January is the hottest month of the year, with a mean daily maximum temperature of 29.8°C. July is the coolest month with a mean daily minimum temperature of 5.8°C. February is the wettest month with an average rainfall of 112 mm falling over almost 8 days. There are on average 77 rain days per year, delivering 770 mm of rain.

Table 4-1 Long-term climate averages – Horsley Park Equestrian Centre AWS

Observation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am Mean Observations													
Temperature (°C)	22.0	21.5	19.4	17.5	13.8	11.1	10.3	12.0	15.6	18.1	19.2	20.9	16.8
Humidity (%)	73	77	81	76	77	80	78	70	65	61	70	71	73
3pm Mean Observations													
Temperature (°C)	28.2	27.1	25.3	22.2	19.2	16.6	16.1	17.8	20.8	22.5	24.2	26.5	22.2
Humidity (%)	49	53	54	53	52	55	50	42	42	45	50	48	49
Daily Minimum and Maximum Temperatures													
Minimum (°C)	17.7	17.8	15.9	12.8	9.0	7.1	5.8	6.5	9.4	11.6	14.4	16.1	12.0
Maximum (°C)	29.8	28.6	26.7	23.5	20.3	17.6	17.2	19.1	22.5	24.6	26.3	28.0	23.7
Rainfall													
Rainfall (mm)	71.1	111.7	74.3	81.8	48.7	65.4	38.3	38.6	34.9	57.5	82.9	65.1	770.2
Rain days	7.7	7.4	7.5	7.7	5.6	6.3	5.5	4.4	4.9	5.7	7.3	7.1	77.1

Windrose plots showing the distribution of wind direction and wind speed at the Horsley Park Equestrian Centre AWS between 2009 and 2014 are presented in Figure 4-1 of the Wilkinson Murray Report which is reproduced below.



6.4.2 Local Ambient Air Quality

Odour

No significant sources of odour have been identified in the vicinity of sensitive receptors considered in this assessment.

Dust and Particulate Matter

Air Quality monitoring data from the Office of Environment and Heritage (**OEH**) air quality monitoring site at Prospect has been used to characterise the ambient air quality in the area surrounding the Site.

The OEH's Prospect site is located approximately 5 kilometres north of the Site. A summary of the PM_{10} monitoring results from 2012 to 2014 collected at the Prospect monitoring site is presented in Table 4-2 of the Wilkinson Murray Report which is reproduced below.

Table 4-2 PM_{10} Monitoring Results – Prospect

Year	Annual Average (µg/m3)	24 Hour Average (µg/m³)	
		Maximum	90th Percentile
2012	17.2	38.7	26.4
2013	19.2	81.8	29.9
2014	17.6	44.3	25.6

The above table indicates that ambient PM_{10} concentrations in the area surrounding the Site are generally below recommended limit of 50 µg/m³. Serious bushfires in the Blue Mountains during October 2013 resulted in a number of days where ambient PM_{10} concentrations were significantly elevated.

There are no readily available site specific Total Suspended Particle (**TSP**) and deposited dust monitoring data. The Prospect monitoring site does not measure these components, however, estimates of the background levels for the area are required to assess the impacts.

Estimates of the annual average background TSP concentrations can be determined from a relationship between measured PM_{10} concentrations. This relationship assumes that 40% of the TSP is PM_{10} and was established as part of a review of ambient monitoring data collected by co-located TSP and PM_{10} monitors operated for reasonably long periods of time in the Hunter Valley.

Applying this relationship with the 2012 annual average PM_{10} concentration of 17.2 µg/m³ at the Prospect monitoring station estimates an annual average TSP concentration of 43.0 µg/m³.

To estimate annual average dust deposition levels, a similar process to the method used to estimate TSP concentrations is applied. This approach assumes that a TSP concentration of 90µg/m³ will have an equivalent dust deposition value of 4 g/m²/month, and indicates a background annual average dust deposition of 1.4 g/m²/month for the area surrounding the Site.

The OEH monitoring site in Prospect began to record ambient concentrations of $PM_{2.5}$ in December 2014. Table 4-3 of the Wilkinson Murray report which is reproduced below presents a summary of these data between December 2014 and 15 October 2015.

Table 4-3 $PM_{2.5}$ Monitoring Results – Prospect

Year	Annual Average (µg/m3)	24 Hour Average (µg/m³)	
		Maximum	90th Percentile
2014/15	8.4	29.6	13.8

It should be noted that the annual average and maximum 24 hour average $PM_{2.5}$

concentrations measured at the Prospect OEH monitoring site exceed the NEPM advisory goals. There is one exceedance of the 24-hour average NEPM goal for $PM_{2.5}$ during 2015. This occurred during June, and is most likely the result of wood heaters being used in nearby residential areas.

For the purposes of assessing total $PM_{2.5}$ levels resulting from the proposed development, the second highest 24-hour average observation of 24.9 $\mu g/m^3$ will be used to represent the background level. This facilitates the identification of any additional exceedances of the NEPM goal.

6.5 Meteorological Modelling

The Air Pollution Model

No meteorological observation data is available for the Site. The Horsley Park Equestrian Centre AWS is located approximately 5 kilometres south west of the Site, therefore, site-specific meteorological data was generated through the use of a prognostic model. The prognostic model used was The Air Pollution Model (**TAPM**), developed and distributed by the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**).

TAPM is an incompressible, non-hydrostatic, primitive equations prognostic model with a terrain-following vertical coordinate for three-dimensional simulations. It predicts the flows important to local scale air pollution, such as sea breezes and terrain induced flows, against a background of large scale meteorology provided by synoptic analyses. TAPM benefits from having access to databases of terrain, vegetation and soil type, leaf area index, sea-surface temperature, and synoptic scale meteorological analyses for various regions around the world.

The prognostic modelling domain was centred at 33.84° S, 150.91° E and involved four nesting grids of 30km, 10 km, 3 km and 1km with 25 grids in the lateral dimensions and 25 vertical levels.

The TAPM model included assimilation of data collected at the Horsley Park Equestrian Centre AWS during the year 2012. This modelling year was chosen based on a long term meteorological analysis.

CALMET

The three dimensional prognostic wind field from the TAPM simulation was incorporated in a CALMET model as the initial guess wind field. CALMET was run using the "No-Observations Approach" recommended by TRC (2011).

The CALMET domain was 6 x 6 km with a grid resolution of 0.15 km. Local land use and topographical data (SRTM 3) were used to produce realistic fine scale flow fields in the area surrounding the Site.

Dispersion Modelling

CALPUFF is a non-steady state Gaussian puff dispersion model, developed for the US EPA and approved for use in DEC (2005). CALPUFF is considered an advanced dispersion model and is intended for use in situations where less advanced Gaussian plume models are not appropriate. CALPUFF is most often used in areas exhibiting one or more of the following features:

- Complex terrain;
- Recirculating coastal sea breezes;
- High frequency of calm winds, and
- Buoyant line sources.

CALPUFF is also the preferred dispersion model for odour, and for this reason has been selected for this assessment.

Peak to Mean Ratios

To account for the time-averaging limitations of the dispersion model, peak-to-mean ratios have been incorporated into all odour flux rates in accordance with the Approved Methods.

Building Wake Effects

All emissions associated with the proposed development were modelled using volume sources, which are not affected by building wakes.

Dust Particle Size Distribution

Dust deposition is strongly influence by particle size, therefore, the total dust emissions from the Site are separated into three fractions, based on particle size, as presented in Table 5-2 of the Wilkinson Murray Report which is reproduced below.

Table 5-2 Dust Particle Size Distribution

Particle Category	Size Range	Distribution (% of TSP)
Fine Particles (FP)	<2.5 µg	4.68%
Coarse Matter (CM)	2.5 – 10 µg	34.4%
Rest	10 – 30 µg	60.92

Each fraction is modelled as a separate species in CALPUFF, and the predicted ground level concentrations of $PM_{2.5}$, PM_{10}, TSP and dust deposition levels are calculated as combinations of the relevant fractions.

6.6 Emissions to Air

6.6.1 Odour Emissions

No significant odour sources have been identified for the normal operations of the facility, however, it is foreseeable that a customer may deliver a load which contains some putrescible waste, and that it would spend a small amount of time on Site before it is rejected and removed. A partial load of putrescible waste would spend no more than 1 - 2 hours on the Site.

A specific odour emission rate (**SOER**) of 3.65 $OU.m^3/s^2/s$ has been used to represent the likely odour emissions from putrescible waste on the tipping floor. This value is adopted from an assessment of putrescible waste in a resource recovery facility in Newcastle (PAE Holmes, 2011). It is assumed that a partial load of putrescible waste would cover no more than $100m^2$ of the tipping floor.

A summary of the estimate odour emissions from the tipping floor are presented in Table 6-1 of the Wilkinson Murray Report which is reproduced below.

Table 6-1 Odour Emission Estimate

Source	SOER ($OU.m^3/m^2/s$)	Area (m^2)	Odour flux rate	Peak to mean ratio	Peak odour flux rate
Tipping Floor	3.65	100	365	2.3	840

6.6.2 Dust Emissions

Dust emissions during operation of the facility have been estimated based on information provided by ResourceCo, using emission factors sourced from both locally developed and US EPA developed documentation.

Dust would be generated during site operations due to the handling and processing of materials, and from truck movements on paved roads.

The majority of the PEF production process involves separating the incoming waste, by size and weight, to extract materials with sufficient calorific value. Aggregate materials, such as bricks and concrete, are quickly removed and are, therefore, not handled as many times as the combustible materials which are included in PEF.

Over the duration of the production process, aggregate materials are handled approximately 5 times, whereas combustible materials are handled approximately 10 times.

Since the PEF production takes place inside a building with dust suppression sprinklers, it is assumed that dust emissions are reduced by 50%. Although roadways would be kept clean, no reduction has been applied to the dust emissions from truck movements.

Total dust emissions from all significant dust generating activities during site operations are presented in Table 6-2 of the Wilkinson Murray Report which is reproduced below.

Table 6-2 Estimated Annual TSP Emissions

Activity	TSP Emissions (kg/year)
Truck movements on paved roads	2,480
Handling aggregate materials	21
Handling combustible/PEF materials	<1
Shredding PEF materials	135
Total	**2,636**

Detailed emission inventory and emission estimation calculations are presented in Appendix B of the Wilkinson Murray Report.

6.7 Assessment of Impacts

The following section presents quantitative assessments of the potential odour and dust impacts on nearby sensitive receptors from the operation the facility.

6.7.1 Assessment of Operational Odour Impacts

Based on dispersion modelling results, the predicted operational odour impacts on nearby receptors is presented numerically in Table 7-1 of the Wilkinson Murray Report which is reproduced below and graphically via contours in **Figure 6-1**.

Table 7-1 Predicted 99th percentile peak odour concentrations

Receptor	Predicted peak odour concentration (OU/m^3)	Impact assessment criterion (OU/m^3)	Complies? (Yes/ No)
R1	<0.1	2.0	Yes
R2	<0.1	2.0	Yes
R3	<0.1	2.0	Yes
R4	<0.1	2.0	Yes

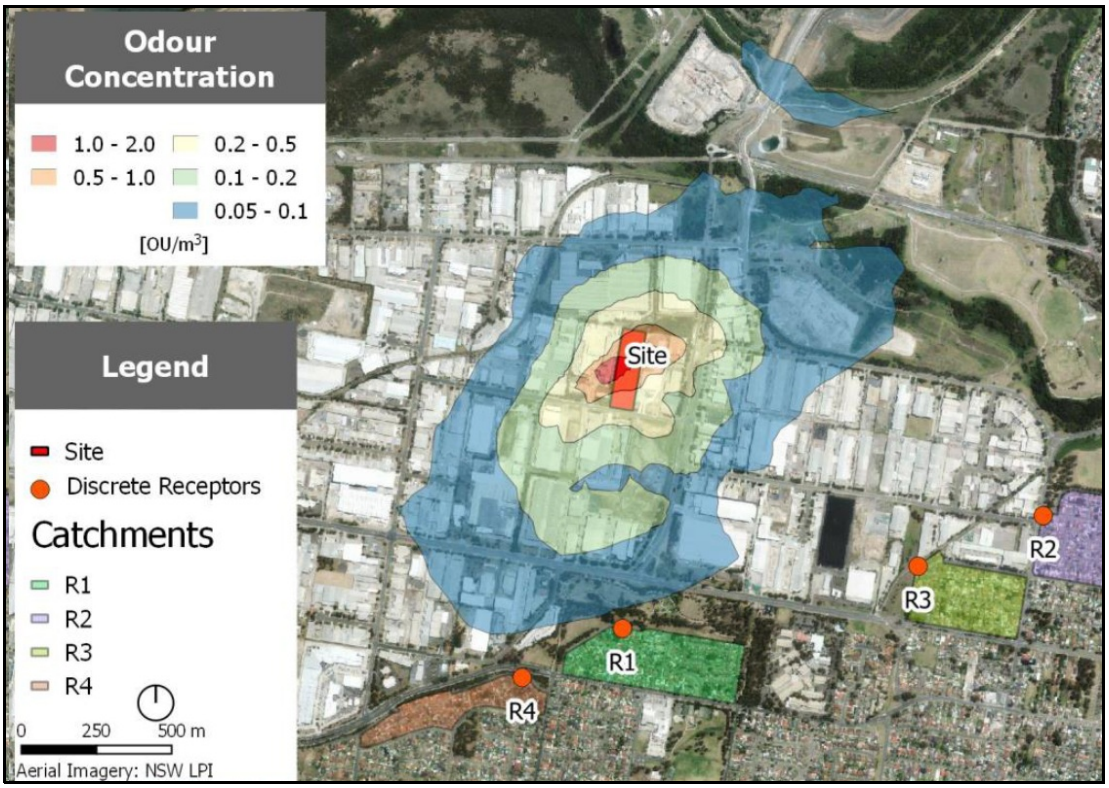


Figure 6-1: Predicted 99th percentile peak odour concentrations.

The predicted 99th percentile odour concentrations comply with the established criterion of 2.0 OU/m^3. The 1.0 OU/m^3 contour does not include any sensitive receptors, indicating that peak odour emissions from the Site would not be detectable.

6.7.2 Assessment of Operational Dust Impacts

Table 7-2 of the Wilkinson Murray Report which is reproduced below presents the dispersion modelling results for criteria dust and particulate matter pollutants at sensitive receptors. Review of Table 7-2 demonstrates that dust and particulate matter emissions from the facility have a negligible contribution to air quality at nearby sensitive residential receptors. The impact assessment criteria are met at all receptors for TSP.

Table 7-2 Predicted Criteria Dust Impacts at Discrete Receptors

Receptor	TSP		PM_{10}				Dust Deposition	
	Annual Average		24-hour Average		Annual Average		Annual Average	
	Increment	Total	Increment	Total	Increment	Total	Increment	Total
Goal	**90 µg/m^3**		**50 µg/m^3**		**30 µg/m^3**		**2 g/m^2/month**	**4 g/m^2/month**
R1	0.19	43.19	0.67	39.37	0.09	17.29	0.00	1.40
R2	0.03	43.03	0.18	38.88	0.02	17.22	0.00	1.40
R3	0.05	43.05	0.31	39.01	0.02	17.22	0.00	1.40
R4	0.15	43.15	0.53	39.23	0.08	17.28	0.00	1.40

A contour plot of the incremental 24 hour average PM_{10} concentrations is presented in **Figure 6-2**.

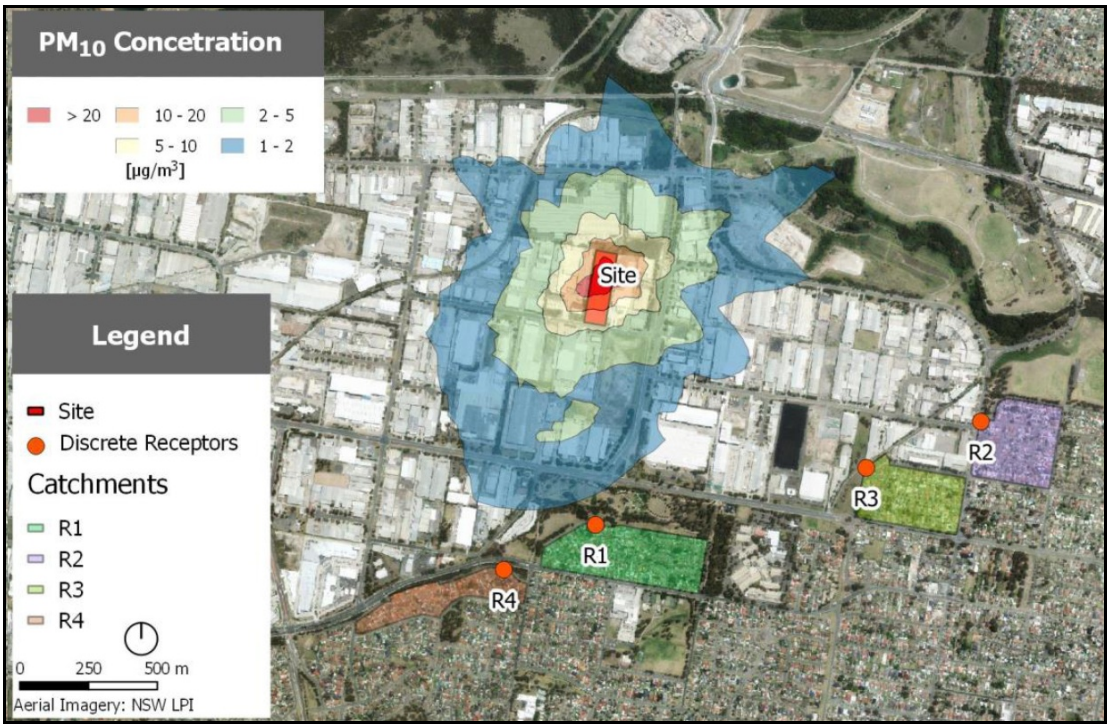


Figure 6-2: Predicted Incremental 24-hour Average PM_{10} Concentration.

Table 7-3 of the Wilkinson Murray Report which is reproduced below presents the dispersion modelling results for $PM_{2.5}$ at discrete receptors. Review of Table 7-3 indicates that the facility is unlikely to generate additional exceedances of the 24-hour average NEPM goal for $PM_{2.5}$. The existing ambient annual average concentrations of $PM_{2.5}$ are slightly above the NEPM goal, and the facility has a negligible contribution to these concentrations.

Table 7-3 Predicted $PM_{2.5}$ Impacts at Discrete Receptors

Receptor	$PM_{2.5}$			
	24-hour Average		Annual Average	
	Increment	Total	Increment	Total
Goal	**25 µg/m³**		**8 µg/m³**	
R1	0.08	24.98	0.01	8.41
R2	0.02	24.92	0.00	8.40
R3	0.04	24.94	0.00	8.40
R4	0.07	24.97	0.01	8.41

The air quality impact assessment has demonstrated that the facility is expected to comply with relevant air quality criteria. Notwithstanding, responsible developments should implement reasonable and feasible measures to reduce their burden on local and regional air quality. To this end, the following section presents a number of measures

to reduce odour and dust emissions from the Site.

Odour Management

Any incoming loads containing odorous materials will be identified immediately and rejected from the Site. Additionally, the following odour management measures should be considered during the operation of the facility:

- Procedures for staff to report the presence of odours, and
- Maintaining an odour complaints register which captures any complaints from off-site receptors.

Dust Management

The main building will be fitted with dust suppression sprinklers and automatic roller doors. In addition, the following dust management measures should be considered during the operation of the facility:

- Engines of trucks and mobile plant to be switched off when not in use;
- Maintain and service plant in accordance with manufacturer's specifications;
- Sweep trafficable areas at least once daily;
- Limit vehicle speeds to 20 km/h;
- Cover vehicle loads if transporting material off-site, and
- Reduce drop heights during loading and unloading of material.

Part Seven

GREENHOUSE GAS ASSESSMENT

7.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

> *... a greenhouse gas assessment.*

In order to ascertain the potential impact of the proposed facility on Greenhouse Gas Emissions, Wilkinson Murray has prepared a report titled Waste and Recourse Management Facility. Greenhouse Gas Assessment (**the Wilkinson Murray Report**), a copy of which is at **Appendix 16**.

The Greenhouse Gas Assessment has been prepared in accordance with the following documents:

- *Technical Guidelines for the Estimation of Greenhouse Gas Emissions by Facilities in Australia* (DoE, 2014), and
- *National Greenhouse Accounts Factors* (DoE, 2015).

7.2 Methodology

The following greenhouse gases have been identified as significant contributors to global warming:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Synthetic gases, and
- Hydro fluorocarbons HFCs, SF_6, CF_4, $C2F_6$.

No significant emissions of HFCs and synthetic gases are likely to occur as a result of the construction or operation of the project and have, therefore, been omitted from the remainder of the assessment.

Under the Department of Climate Change and Energy Efficiency protocol, Green House Gas (**GHG**) emissions are categorized as Scope 1, Scope 2 and Scope 3 emissions which are defined as follows:

- **Scope 1 - Direct (or point-source) emissions** - emissions from sources owned or operated by the facility. These may be calculated using 'Point Source Emissions Factors' as defined in the AGO Factors and Methods Workbook.

- **Scope 2 - Indirect emissions** - emissions released as a result of the generation of electricity, or the production of heat, cooling or steam purchased by the reporting company.

- **Scope 3 - Various emissions** - all other GHG emissions which are not covered under Scope 1 or Scope 2. Scope 3 emissions can include activities such as employees commuting to work, extraction, production and transport of fuels, materials and other goods, and use of products manufactured and sold.

This GHG assessment considers the following GHG emissions and energy consumption activities associated with the proposed development:

Scope 1 - Direct Emissions

- Combustion of fuel in facility, stationary and mobile plant and equipment.

Scope 2 - Indirect Emissions

- Electricity generated off-site which is consumed on the Site.

7.2.1 Emission Factors

Based on the identified sources of GHG emissions from the proposed development, relevant emission factors have been adopted from the National Greenhouse Accounts Factors, August 2015.

Table 7-1 presents the Scope 1 emissions factors used in this assessment.

Table 7-1: Scope 1 Emission Factors (Transport Fuels)

Fuel Type	Energy Content (GJ/kL)	Emission Factor (kg CO_{2-e}/GJ)		
		CO_2	CH_4	N_2O
Diesel Oil	38.6	69.9	0.1	1.8

Scope 2 emissions have been calculated using an emission factor of 0.86 (kg CO_{2-e}/kWh), applicable to electricity produced in New South Wales.

7.3 Estimation of Greenhouse Gas Emissions

Greenhouse gas emissions associated with the construction and operation of the facility

have been estimated based on information obtained from ResourceCo, and published emissions factors. The emissions estimates are based on the best available design data for the facility at the time of undertaken the assessment.

7.3.1 Construction Greenhouse Gas Emissions

The most significant greenhouse gas emissions from the construction of the facility would result from fuel combusting in mobile plant during the Bulk Earthworks phase.

The Bulk Earthworks phase would involve importing approximately 9,000m^3 of fill material over approximately 12 weeks.

The annual greenhouse gas emissions during the construction of the facility would be small compared to those during the operation of the facility. For this reason, a quantitative assessment of construction greenhouse gas emissions has not been undertaken.

7.3.2 Operational Greenhouse Gas Emissions

Greenhouse gas emissions associated with the operation of the facility will result from fuel combusted in mobile plant, and electricity used to power both the processing equipment and offices.

The following section presents an estimation of greenhouse gas emissions associated with the operation of the facility.

Fuel Consumption

ResourceCo estimates the total usage of diesel fuel for on-site mobile plant to be 30,000 litres per month.

Based on the emission factor for diesel transport fuel, the $CO_{2\text{-}e}$ emissions associated with on-site fuel combustion are 1,197 tonnes per annum.

Electricity Use

ResourceCo estimates the total electricity usage for the Site to be 300,000 kWh per month. This accounts for electricity used in the processing facility and in office and administration areas.

Based on the emission factor for purchased electricity, the $CO_{2\text{-}e}$ emissions associated with electricity use at the Site are 3,096 tonnes per annum.

The total operational GHG emissions for the facility are summarised in **Table 7-2**.

Table 7-1: Scope 1 Emission Factors (Transport Fuels)

Source	CO_{2-e} Emissions (tonnes)
Diesel	1,197
Electricity	3,096
Total	**4,293**

7.4 Overall Emissions

The total estimated annual greenhouse gas emissions during the construction and operation of the facility are 4,293 tCO2-e.

Australia's total greenhouse gas emissions in 2012/13 amounted to 549 million tonnes of carbon dioxide equivalent ($MtCO_{2-e}$) whilst New South Wales, in 2012/13, accounted for 142 Mt of the total, therefore, operation of the facility will account for approximately 0.003% of current NSW emissions.

7.5 Conclusion

The greenhouse gas assessment has identified sources of greenhouse gas emissions associated with the construction and operation of the facility, in accordance with the Secretary's Environmental Assessment Requirements.

Estimates of equivalent carbon dioxide have been predicted and it has been determined that the operation of the facility will account for approximately 0.003% of current NSW emissions.

Part Eight

VISUAL IMPACT ASSESSMENT

8.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

> *... an assessment of the potential visual impacts of the project on the amenity of the surrounding area.*

In order to ascertain the potential impact of the proposed development on the visual environment of the locality, a Visual Impact Assessment has been undertaken.

8.2 Methodology

The assessment of visual impacts is a field which requires a degree of subjective judgment and cannot be made fully objective.

It is necessary to limit the subjectivity of the work by adopting a systematic, explicit and comprehensive approach with the aim of separating aspects which can be more objective, for example the physical setting, visual character, visibility and visual qualities of a proposal, from more subjective elements, such as matters of personal taste and emotion.

The methodology utilised consists of the steps described below.

1. Identification and description of the existing visual character of the land within which the proposal would be seen.

2. Analysis and evaluation of the potential future visibility of and visual accessibility of the proposal.

3. Assessment of the residual visual impacts of the proposal, if any, and any necessary mitigation measures which are the subject of commitments to environmental management programs for which conditions of consent would be required.

A viewpoint analysis was conducted to assess the visual impacts which may be experienced which consisted of visiting the Site and the locality and assessing the likely impact on views from selected locations. The locations were selected to represent all of the types of view of the development which would exist in the immediate area. At each viewing place, a series of observations and assessments were made. A variety of locations were also visited to ascertain the extent of the visual catchment and the characteristics of the views.

The catchment from where the Site can be seen is limited due largely to the industrial nature of the locality. **Figure 8-1** shows the general catchment of the locality from where views of the Site might be obtained.

Figure 8-1: View shed to the Site shown as red shading with the Site shown as yellow shading.

8.3 The Existing Environment

The Site has been previously used by Sims Metal as a metal recycling facility. Apart from the disused buildings on the Site, the Site is vacant.

The land along the western boundary of the Site contains vegetation and a solid boundary fence.

At the northern end of the Site, the vegetation covers a large area between the Site and the adjoining land. The vegetation is located within an easement which runs along the northern boundary of the Site. Factory development and associated landscaping are contained on the land to the north of the easement.

To the south of the Site, there is a vacant parcel of land and also established factory and warehousing facilities.

Views from the surrounding area to the Site are restricted to a significant extent by retaining walls and fencing which have been established to make the adjoining sites more amenable to industrial development, however, there are some limited viewing opportunities into the interior of the Site.

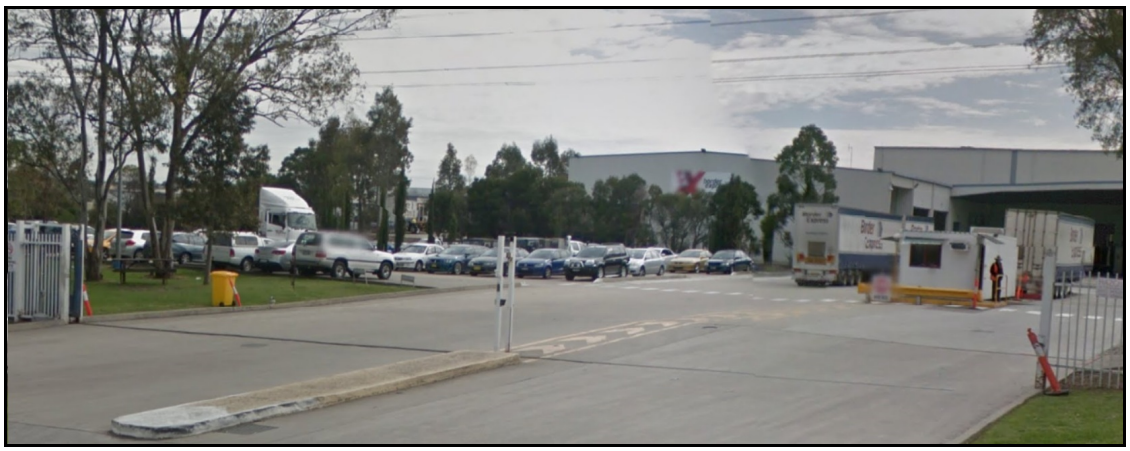
To the west of the Site, is an extensive industrial complex operated by Border Express and associated car parking. Limited views to the Site would be obtained from this adjoining land due to the presence of a large factory/warehouse building on that site and the difference in elevation between that site and the Site. A boundary fence along the length of the Site also limits the view corridor from the adjoining land to the Site.

The land surface on which the proposed development would exist is not visible from any existing residential location outside the Site because of the distance and topographic relationships which exist between them and the Site.

A series of photographs demonstrating the existing development in the immediate locality of the Site are provided below.

Photograph 1: This photograph shows the fence along the western boundary of the Site. © GOOGLE

Photograph 2: This photograph is taken from Frank Street looking to the north east over the corner of the adjoining land to the west. The green boundary fence on the Site is seen in this photograph. © GOOGLE



Photograph 3: This photograph shows the entrance to the Border Express facility to the west of the Site. The car park for that facility is also visible. Glimpses to the proposed development would be obtained from this area. © GOOGLE

Photograph 4: This photograph shows the entrance to the Sleepmaker facility and the Border Express facility on the southern side of Frank Street and to the west of the Site. Glimpses of the proposed facility would be obtained from this area. © GOOGLE

Photograph 5: This photograph shows part of the car park at the Sleepmaker facility opposite the Site. Glimpses of the proposed development would be obtained from this car parking area. © GOOGLE

Photograph 6: This photograph shows part of the car park at the Sleepmaker facility. The Site would be visible from this car park. © GOOGLE

Photograph 7: This photograph shows the loading dock at the Sleepmaker facility opposite the Site. The front of the Site which contains the proposed office and workshop complex would be visible from this location. © GOOGLE

Photograph 8: This photograph shows the vacant land opposite and to the south east of the Site. © GOOGLE

Photograph 9: This photograph shows some of the vegetation located at the rear of the Site in the easement. This vegetation will not be impacted by the proposed development.

Photograph 10: This photograph shows the existing retaining wall located on the eastern boundary of the Site. The property to the east has been significantly filled behind the retaining wall.

8.4 Impacts of the Proposed Development

Visibility from existing residential areas

There is no visibility of the Site from residential areas.

Visibility from the locality

There are limited and heavily screened views into the southern part of the Site from

Frank Street. As seen on the plans of the proposed development, and the landscape plan in particular, the frontage of the Site will accommodate the office and workshop complex. The Landscape Plan for the Site is provided as **Appendix 12**.

The landscape plan has been conceived to create a quality landscaped area in the Frank Street streetscape which will also assist in screening the visual impact of the proposed development. An extract from the Landscape Plan is at **Figure 8-2**.

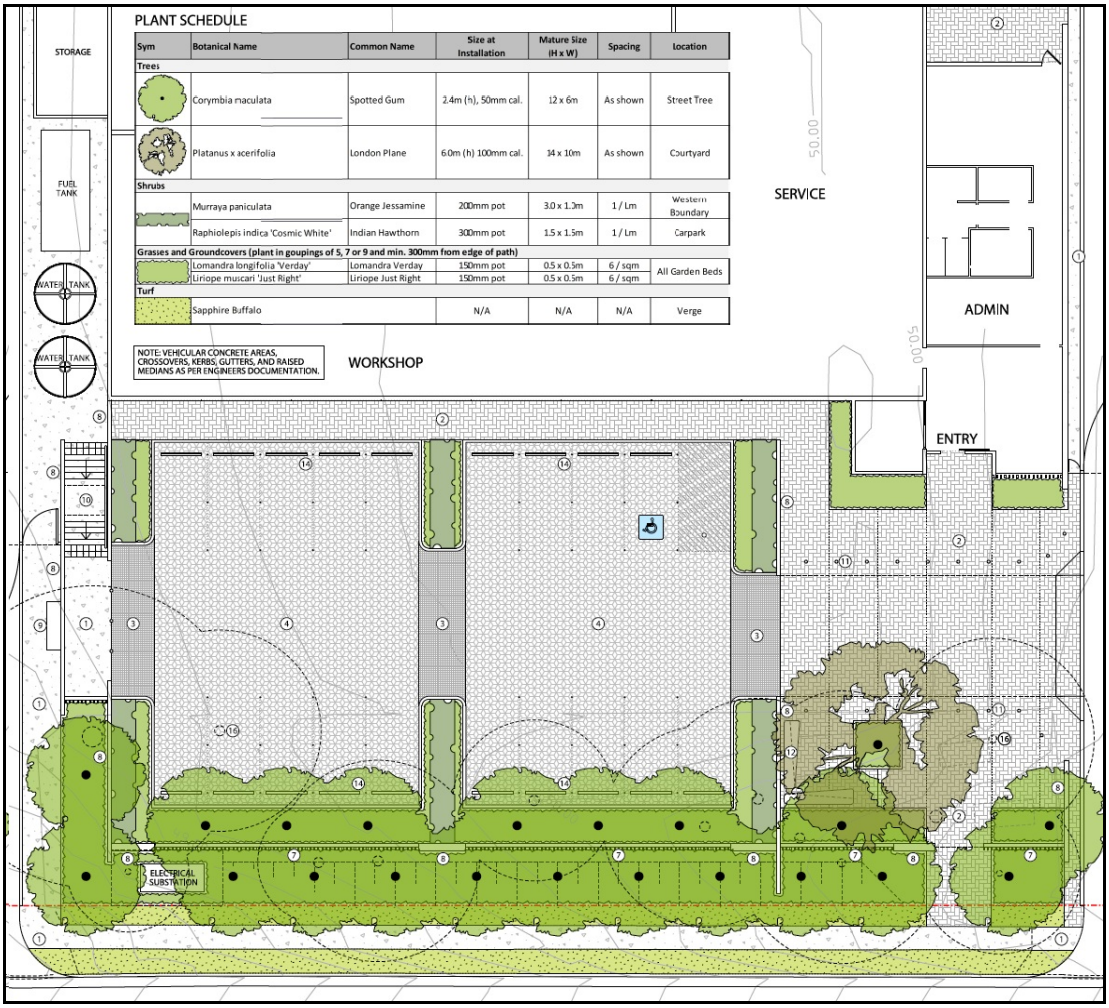


Figure 8-2: Extract from the Landscape Plan showing the proposed treatment to the Frank Street frontage of the Site.

The proposed development will be such that the delivery of waste, processing of that waste, and loading of the end products for delivery off the Site are all undertaken indoors. The visible component of the proposed development would be restricted to the car park and associated office complex and the arrival and departure of trucks servicing the Site. This activity would be entirely consistent with the majority of the industrial and warehousing activity in the locality.

8.5 Residual Impacts

The residual visual impacts of the proposal on the surrounding areas are limited. The general lack of visibility of the proposal from most viewpoints means that there are few issues requiring any mitigation measures.

The only residual issues are those of visibility into the Site from very limited view locations and directions.

Visibility of activities and equipment

The proposed ground levels of the Site and the range of tree heights in the proposed landscaping at the frontage of the Site, provide a buffer area between a potential viewer and the western boundary of the Site.

No waste processing activity would be visible on the Site from viewing locations in the public domain or residential areas.

The final matter of residual impact, which has a visual impact component, is traffic, specifically, the visibility of and character of vehicles entering and leaving the Site. Vehicles travelling to or from the Site would be indistinguishable from other traffic in th Wetherill Park industrial area. The nature and character of the proposed use would not be unique and the visibility of vehicles is not considered to be determinative.

8.6 Mitigation Measures

Buffer planting of appropriate indigenous native trees of various sizes appropriate to the screening effect and planted as shown on the Landscape Plan would, in the fullness of time, reduce or eliminate the residual visibility of the development.

The proposed buffer planting in the car park and between the proposed car park and the office and workshop component of the proposed development would help to mitigate any visual impact issues from the immediate locality. This planting would also have the effect of reducing any view of the proposal from Frank Street.

Landscape plans have been prepared for the proposed development by Tract Landscape Architects, a copy of which are at **Appendix 12**. A Landscape Design Statement is also included at **Appendix 12** which states, in part:

> *The landscape treatment for 35 – 37 Frank Street, Wetherill Park has been designed to complement the architecture of the proposed administration building, accommodate the practical aspects of the industrial facility whilst being respectful of the existing streetscape character and significantly improving the landscape amenity to the lot.*

The existing landscape character to the frontage is poor and currently comprised of only turf and various tree species in relatively modest condition. An opportunity exists to rejuvenate and significantly improve the quality of the landscape/streetscape character by incorporating a variety of elements that will complement the architecture of the building and improve the streetscape character. This would involve removing some 17 No. trees in relatively poor condition to accommodate new hardscape areas and subsequent earthworks and replacing with some 21 No. advanced specimen trees.

... The proposed landscape design has sought to provide a dedicated 5m vegetated buffer integrated with pedestrian orientated urban character within the 10m setback area, by incorporating various hard and soft landscape elements to discreetly facilitate functional movement and parking of light vehicles, whilst providing passive / contemplative space for visitors and staff to enjoy.

High quality permeable landscape materials such as Eco-Trihex within the car park area, allows stormwater to be retained on-site for longer periods of time and reduces the impact upon council's existing infrastructure during times of heavy rain. Garden beds are incorporated within the carpark area as well, to help soften visual impact of the permeable paved area.

Part Nine

WATER QUALITY IMPACT ASSESSMENT

9.1 Introduction

The Secretary's Environmental Assessment Requirements require:

- *identification of water and soil resources, drainage lines, watercourses and riparian lands;*

- *the proposed erosion and sediment controls during construction;*

- *a detailed site water balance, including identification of water requirements for the life of the project, measures that would be implemented to ensure an adequate and secure water supply is available for the proposal and a detailed description of the measures to minimise the water use at the site;*

- *potential impacts on watercourses and groundwater;*

- *the proposed stormwater/wastewater/leachate management systems including the capacity of onsite detention systems, and measures to treat, reuse or dispose of water; and*

- *consideration of any potential salinity, soil contamination, flooding and acid sulfate soil impacts of the project.*

In order to ascertain the potential impact of the proposed development on the stormwater drainage system, Advisian has prepared a report titled *Waste and Resource Management Facility. Surface Water Management.* (**the Advisian Report**) a copy of which is at **Appendix 19** An additional report has been prepared by Mott MacDonald titled *Stormwater Management Report*, a copy of which is also at **Appendix 19**.

9.2 Methodology

This part of the Environmental Impact Statement describes the proposed systems for surface water management on the Site including:

- Rainwater collection for re-use and reduction of demand from the mains potable supply.

- Stormwater pollution control using various proprietary treatment devices.

The stormwater drainage for the proposed development has been designed to comply

with the following guidelines:

- Australian Rainfall and Runoff 2001.
- Fairfield City Council's Urban Area On-site Detention Handbook 1997.
- Fairfield City Council's Stormwater Drainage Policy - September 2002.
- Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, March 2004.

9.3 Erosion and Sediment Control

Temporary erosion and sediment controls would be implemented prior to the construction of the facilities which comprise the water management system. A combination of localised controls including silt fencing and temporary sediment basins, etc would be used.

Prior to any earthworks commencing on the Site, erosion and sediment control measures will be put in place generally in accordance with *Managing Urban Stormwater: Soils and Construction 4th Edition, March 2004*. These measures include:

- Installation of a 1.8m high chain wire fence covered with geo-textile filter fabric, to the perimeter of the work site area, where required.
- The use of sediment diverting methods to minimise sediment in Council's stormwater drainage using sandbags around kerb inlet pits and geo-textile filter fabric around drop inlet pits.
- The provision of a sediment basin towards the lower perimeter of the Site to which stormwater runoff will be channelled and treated during construction. It is possible that an existing pond in the northwest corner may be utilised and converted for this purpose depending on its current capacity.
- Construct temporary site entrance with shaker grid.

The proposed capacity of the sediment control basin is based on a 5 day 85th percentile rainfall event of 32.2 mm (Table 6.3a of Managing Urban Stormwater: Soils and Construction). In accordance with the management requirements, the basin will be emptied within 5 days of the end of a storm as long as sufficient settlement has occurred. If necessary, a flocculant may be used to accelerate the settlement process.

Erosion and sediment controls measures to be employed are detailed further in the Engineering plans of the proposed development at **Appendix 17**.

Following project approval, a detailed Erosion and Sediment Control Plan would be

prepared in accordance with the requirements of *Managing Urban Stormwater: Soils & Construction*.

9.4 Water Re-use and Stormwater Management

The proposed stormwater management system applies the relevant principles of water sensitive urban design applicable to an industrial site, including maximising the capture and re-use of rainwater. This section describes the methodology used to assess the effectiveness of the proposed stormwater management systems:

- Rainwater re-use for dust suppression in the production process.
- Rainwater re-use for toilet flushing and landscape watering.
- Stormwater treatment prior to discharge from the Site.

9.4.1 Climate

For purposes of assessing the performance of the rainwater re-use systems, the following climate data has been used from the closest Bureau of Meteorology site:

- Daily rainfall for Prospect Reservoir (1889 – 2015)
- Daily pan evaporation for Prospect Reservoir (1965 - 2000).

Table 4.1 of the Advisian Report, a copy of which is reproduced below, summarises the long term average monthly climate statistics for rainfall and pan evaporation (**Epan**) together with the corresponding evapotranspiration (**ET**) calculated on the basis of pan factors given by McMahon at al (2013).

Month	Rainfall (mm)	Epan (mm)	Pan Factor	ET (mm)
Jan	93.7	169.5	0.839	142.2
Feb	96.4	139.0	0.837	116.3
Mar	97.3	124.6	0.846	105.4
Apr	77.0	90.4	0.842	76.1
May	71.1	63.2	0.899	56.8
Jun	75.7	51.5	0.880	45.3
Jul	56.5	56.6	0.869	49.2
Aug	49.9	80.7	0.850	68.6
Sep	46.6	109.6	0.849	93.0
Oct	59.2	139.1	0.848	117.9
Nov	73.2	151.3	0.854	129.2
Dec	74.0	182.2	0.825	150.4
Year	**869.9**	**1,357.7**		**1,150.6**

9.4.2 Potential Rainwater Re-use

The water demands which could utilise rainwater in lieu of potable supply have been derived as follows:

Process Water Quarterly water use data for an existing waste and resource management facility was provided by ResourceCo and, based on discussion with ResourceCo, was disaggregated on a monthly basis using the overall monthly distribution of pan evaporation as a guide.

Toilet Flushing Estimated water requirements for toilet flushing were based on 40 employees allowing for 2 x full flush (6 L) and 3 x half flush (3 L) per day.

Landscape Watering Water requirements for landscape watering have been estimated based on 300m^2 of landscaping (from landscape plans) and difference between evapotranspiration and rainfall. Where monthly rainfall exceeds evapotranspiration, it is assumed that no landscape watering is required.

Table 4.2, of the Advisian Report, a copy of which is reproduced below, summarises the estimated daily water demands for each month of the year.

Table 4.2: Daily Water Demands

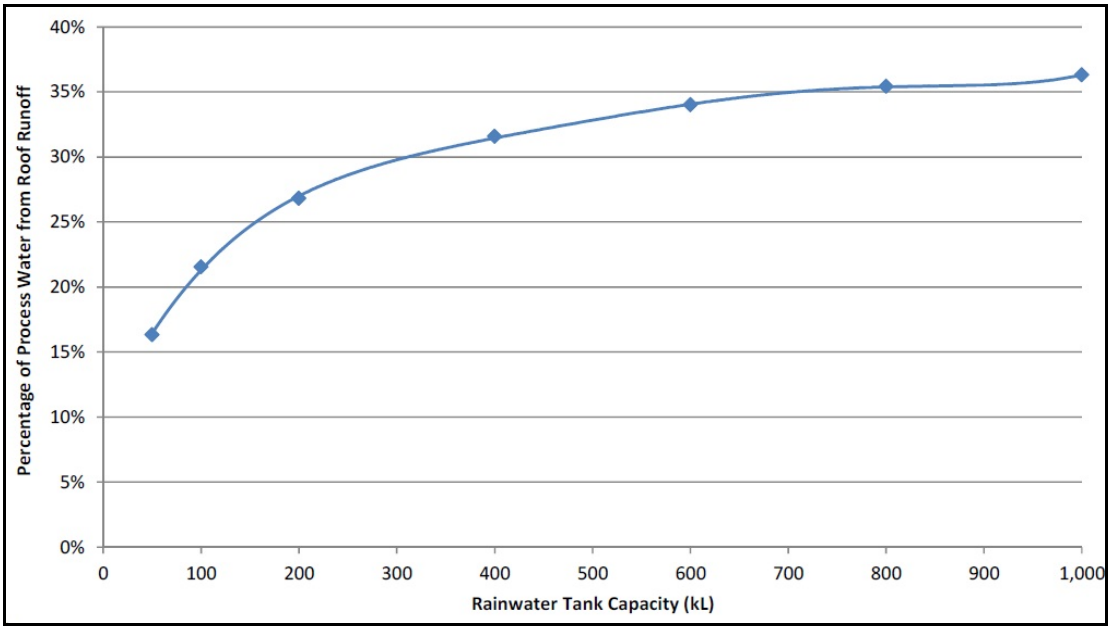
Month	Processing Use (kL/day)	Toilet Flushing (kL/day)	Landscape Watering (kL/day)
Jan	55.9	0.84	0.47
Feb	54.6	0.84	0.19
Mar	50.5	0.84	0.08
Apr	43.4	0.84	0.00
May	33.1	0.84	0.00
Jun	19.9	0.84	0.00
Jul	16.5	0.84	0.00
Aug	29.0	0.84	0.18
Sep	39.3	0.84	0.45
Oct	47.6	0.84	0.57
Nov	51.7	0.84	0.54
Dec	55.9	0.84	0.74

9.4.3 Assessment of Rainwater Re-use

For purposes of assessing the potential for rainwater re-use, the daily water demands listed in Table 4.2 of the Advisian Report were incorporated into a daily rainfall runoff model with the following features:

- 127 years of daily rainfall from Prospect Reservoir.
- Roof runoff from the processing warehouse (7,900m^2) directed to an in ground tank from which supply is drawn to meet processing water demands.
- Roof runoff from the office and workshop (1,000m^2) directed to two rainwater tanks with a combined capacity of 27 kL from which supply is drawn for both toilet flushing and landscape watering.
- In the event of there being insufficient water in the rainwater tanks to meet the water demand, the model assumes that water from the mains potable supply is used.
- Parameters derived from measurements of roof runoff in Sydney by Chapman and Salmon (1996) have been used to characterise roof runoff.

In the case of water supply for processing, the analysis included an assessment of the proportion of supply which could be met from roof runoff with different size tanks. The results of that assessment are summarised in Figure 4.1 of the Advisian Report, a copy of which is reproduced below.



The figure above shows significant diminishing benefit for tank sizes greater than 300 kL and indicates that the supply from rainwater is primarily constrained by the available

roof area. A tank size of 300 kL is proposed for the process water supply.

Apart from a minor volume of water for amenities, the facility is expected to require about 15.5 ML of water per year of which an average of 4.82 ML per year (31%) would be provided by rainwater as follows:

- Process water supply of 30% from rainwater (a saving of potable water of 4.49 ML/year).
- Toilet flushing and landscape water supply of 82% from rainwater (a saving of potable water of 0.33 ML/year).

9.5 Stormwater Drainage and Pollution Control

Details of the site stormwater drainage and pollution control systems are included in the Stormwater Management Report (**Appendix 19**). The features and performance of these systems are summarised below.

Stormwater Drainage

The proposed stormwater drainage system provides a below ground pit and pipe network designed to control nuisance flooding and enable effective stormwater management for the Site. The piped system has been designed to convey runoff from 20 year average recurrence interval (**ARI**) storm.

For storms larger than 20 year ARI up to 100 year ARI, the drainage system incorporates overland flow routes over proposed hardstand, car parking and landscaped areas designed to ensure that personal safety is not compromised.

An indicative pit and pipe network was developed which reflected the existing split of drainage between Frank Street (20%) and the north-west corner (80%). The DRAINS software has been used to assess the required capacity of the drainage system to convey runoff from a 20 year ARI storm, with safe overland flows for a 100 year ARI storm.

Stormwater Pollution Control

In addition to capture and re-use of rainwater, the following typical stormwater pollution control systems are proposed:

Draining to Frank Street: HumeGuard GPT and HumeCeptor.

Draining to Frank Street: HumeGuard GPT and Humes JellyFish.

The performance of the stormwater pollution control systems, including the capture and reuse of rainwater, have been assessed using the MUSIC software.

As Fairfield City Council does not specify stormwater pollution control targets, the relevant targets and pollutant generation characteristics specified by Blacktown City Council have been adopted for the analysis.

Details of the MUSIC modelling are set out in the Stormwater Management Report (**Appendix 19**) and the results summarised in Table 4.3 of the Advisian Report below.

Table 4.3: Results of Stormwater Pollution Assessment using MUSIC

Pollutant	Post Development (no Treatment) (kg/year)	Post Development (with Treatment) (kg/year)	Removal Rate (%)	Target Removal Rate (%)
Gross pollutants	377	8	99%	90%
Total suspended solids	2820	422	85%	85%
Phosphorus	5.4	1.6	70%	65%
Nitrogen	33.4	10.5	69%	45%

The table shows that the proposed stormwater pollution control system would achieve or exceed the relevant target reductions in pollutant loads.

9.6 Surface Water Impact Assessment

The Site is located within the Wetherill Park industrial area and is largely vacant with a mixture of concrete and bare soil surfaces.

Adjoining land use is limited to industrial buildings and associated vehicle parking.

There are no riparian lands adjacent to the Site.

A concept erosion and sediment control plan has been prepared in accordance with the relevant requirements of *Managing Urban Stormwater: Soils & Construction* (Landcom 2004). Following development approval, the erosion and sediment control plan will be finalised. Implementation of the plan will ensure that potential impacts will be managed in accordance with the relevant guidelines.

Sections 4.2 and 4.3 of the Advisian Report provide details of the methodology adopted for the assessment of the water demands for the proposed development (estimated 15.5 ML/year) and a detailed daily water balance analysis using 127 years of daily data.

Rainwater collected from the roofs of the buildings is estimated to provide:

- 30% of the water required for the waste processing (a saving of potable water of 4.49 ML/year).
- 82% of the water required for toilet flushing and landscape watering (a saving of

potable water of 0.33 ML/year).

The ability to provide rainwater for the waste process is primarily constrained by the area of available roof, not the capacity of the rainwater collection tank.

The proposed water management system is based on the relevant principles of "water sensitive urban design" and the analysis demonstrates that stormwater pollutant loads discharged from the Site would comply with, or exceed the relevant guidelines.

In accordance with the requirements of Fairfield City Council, no on-site detention of stormwater is proposed. It is expected that the development would have no impact on water quality in Prospect Creek.

The proposed diesel fuel tank will be fully enclosed and self-bunded. There will, therefore, be no risk of hydrocarbons draining to the stormwater system.

The Site will be fully sealed and would, therefore, have no impact on any groundwater underlying the Site.

All imported fill will be verified to ensure it does not contain any contaminants, saline soils or acid sulfate soils.

In conclusion, the assessment provided demonstrates that:

- Surface water risks can be adequately managed by application of relevant guidelines.

- The development poses no significant risk to the downstream environment.

Part Ten

TRAFFIC IMPACT ASSESSMENT

10.1 Introduction

In order to ascertain the potential impact of the proposed development on the local traffic network, Lyle Marshall & Associates Pty Ltd has prepared a report titled *Traffic Impact Assessment for EIS for Proposed Resource Recovery Facility at Nos.35-37 Frank Street, Wetherill Park* (**the Marshall Report**) a copy of which is at **Appendix 13**.

10.2 Scope

NSW Planning and Environment has listed the Secretary's Environmental Assessment Requirements and advised that the Environmental Impact Statement must address the following specific matters:

> ***Traffic and Transport*** *- including:*
>
> - *details of all traffic types and volumes likely to be generated during construction and operation, including a description of haul routes;*
> - *an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model;*
> - *detailed plans of the proposed layout of the internal road network and parking on site in accordance with the relevant Australian standards; and*
> - *detailed plans of any proposed road upgrades, infrastructure works or new roads required for the development.*

10.3 The Existing Environment

Historical traffic volumes at RMS Counting Stations in Horsley Drive (MR609), Gipps Road (MR646), Ferrers Road (RR7153) and Cowpasture Road (MR648) were published by the RMS until 2005. Later counts have been provided by request.

The location of the above Counting Stations is shown in **Figures 10-1, 10-2 and 10-3**.

Figure 10-1: Counting Stations 70074 and 66237.

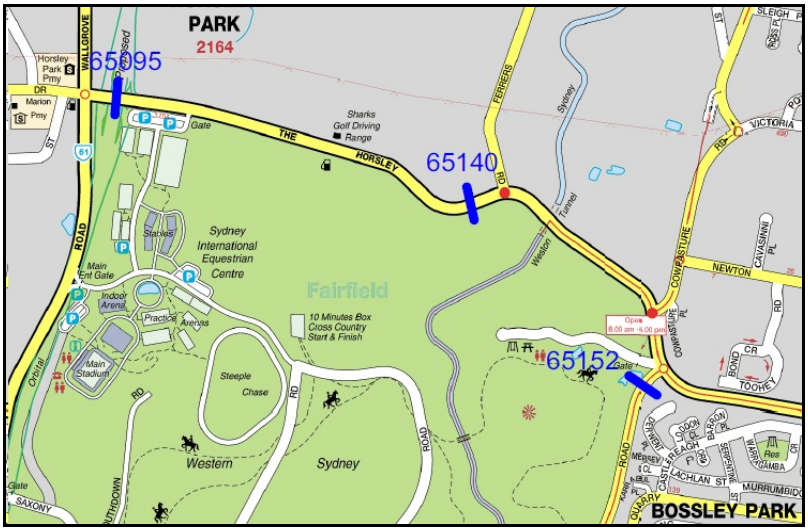


Figure 10-2: Counting Stations 65095, 65140 and 65152.

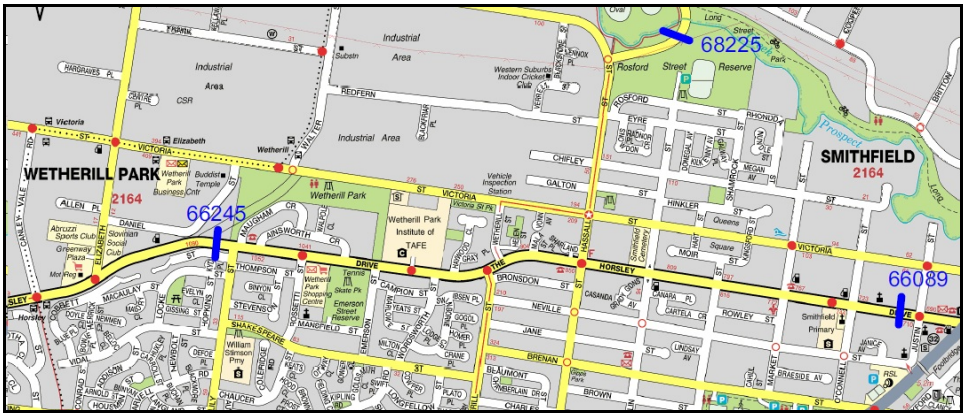


Figure 10-3: Counting Stations 66245, 68225 and 66089.

Available volumes are provided in Table 2.1a of the Marshall Report, a copy of which is provided below.

Table 2.1a – AADT Volumes

ROAD	STATION LOCATION	1993	1996	1999	2002	2005	2008	2009	2012	2015	ANNUAL GROWTH COMPOUND
Horsley Drive	66240 Fairfield Railway	37927	40889	40373	41273	40354	40934	40722	40021	41881	93 to 2015 +0.45%
	66089 West of Cumb. Hwy	16005	19487	22336	18240	19645					
	66245 West of Maugham Cr.	14600	21267	20815	21564	19972		21295			93 to 2009 +2.4%
	65140 West of Ferrers Rd	17627	18833	19376	19278	17547		28713			
	65095 East of Wallgrove Rd	17656		19244	18913	17084		28774			
Gipps Road	68225 South of Long St		17574	22784	22395	21067		18820	19488	17926	96 to 2012 +0.7%
Cowpasture Road	65152 South of Horsley Dr.		18119								
Ferrers Road	66237 Supply Canal	8571	11333	16184	17250	17449		11278			
	70074 South of Gt West Hwy	9134	12554	18113	18399	18703					
Cowpasture	65151 South of Prairievale Rd	17354	22794	25771	28879	32609		28365			

Peak Hour Traffic Volumes

Traffic Volume and Pedestrian Counts were undertaken from 7:00 am - 9:00 am and 4:00 pm - 6:00 pm on Tuesday 24 November 2015 and Wednesday 25 November 2015 at 6 intersections on the road network surrounding the Site as shown in **Figure 10-4**.

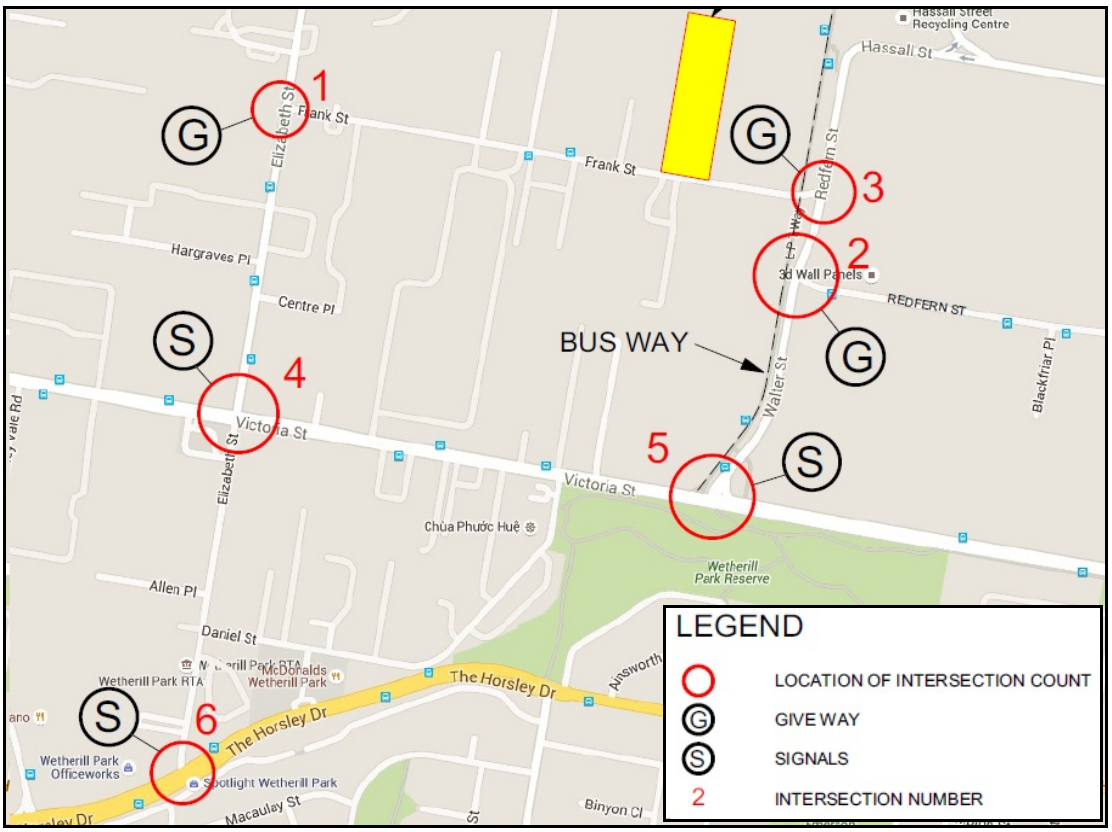


Figure 10-4: Location of traffic volume and pedestrian counts.

The peak hours were generally 7:30 am - 8:30 am and 4:00 pm - 5:00 pm. The counts are shown in Figure 3C of the Marshall Report for the am and pm peak hours (refer **Figure 10-5**). The peak hour Pedestrian Movements at the signalised pedestrian crossings ranged from 0 to 4.

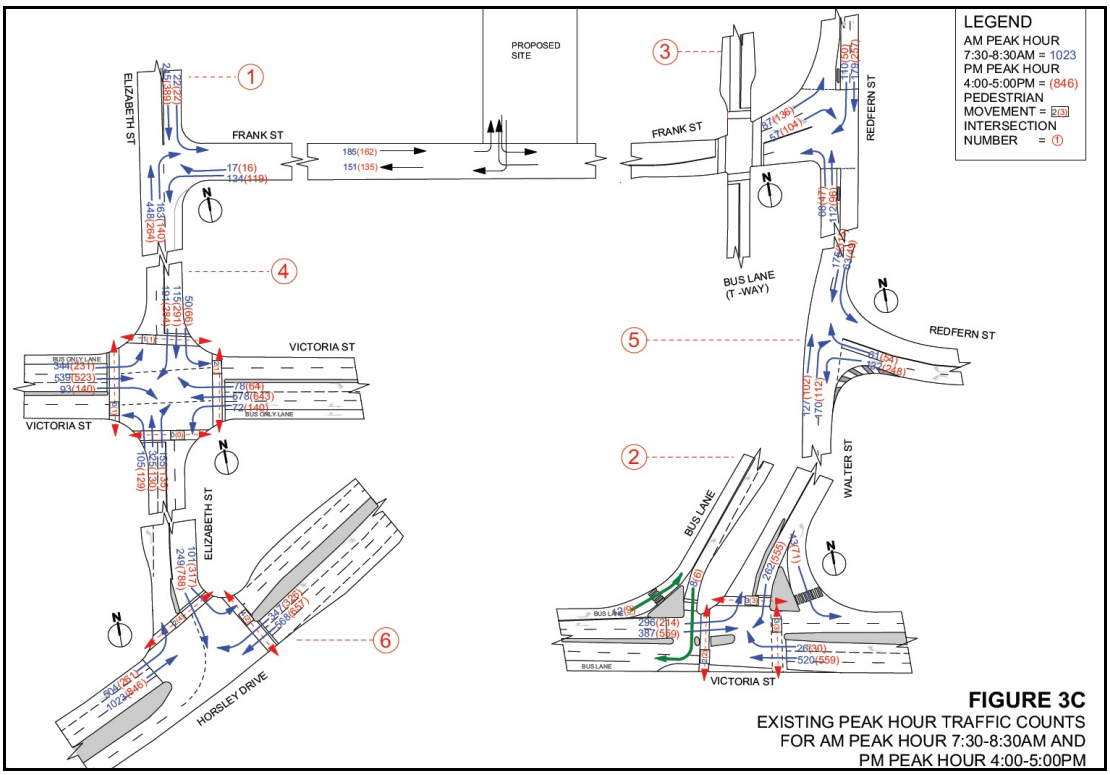


Figure 10-5: Figure 3C of the Marshall Report.

10.4 Road Inventory and Traffic Controls

The following road inventory exists in the locality of the Site:

1. Frank Street is a 2 lane industrial road. The movements at the Elizabeth Street intersection are controlled by Give Way signs. The movements at Redfern Street are controlled by Stop signs.

2. Elizabeth Street is a 4 lane industrial road with traffic signal control at the Victoria Street and The Horsley Drive intersections.

3. Victoria Street is a 4 lane industrial road with additional right turning lanes at the Elizabeth Street and Walter Street signalised intersections.

4. The Horsley Drive is a 4 lane industrial road with additional right turn bays at the signalised intersections.

5. Redfern Street is a 2 lane industrial road and movements at the Walter Street tee-intersection are controlled by Give Way signs.

6. The signposted speed limits are:

- 50kph in Frank Street,
- 60kph in Redfern Street, Elizabeth Street and Gipps Road, and
- 70kph in The Horsley Drive.

10.5 Intersection Capacity Analysis

The Classification Counts in Frank Street show that the percentages of heavy vehicles (Austroad Classes 3 to 12) were 34.7% in the 7:30 am - 8:30 am peak hour and 25.9% in the 4:00 pm - 5:00 pm peak hour. These percentages were used in the SIDRA analysis of intersections 1 to 3, as shown in **Figure 10-4**.

In The Horsley Drive Upgrade - M7 Motorway to Cowpasture Road corridor study for the RMS, the percentage of heavy vehicles is stated to range from 18 to 22% in *Section 2.1.1 of the Preferred Option Corridor Report by Hills Environmental, August 2015*. The report does not state whether the daily volumes are weekday or 7 day.

In the analysis of intersections 2, 4, 5 and 6, as shown in **Figure 10-4**, the percentage of heavy vehicles has been assumed to be 20%. A Classification Count will be made in The Horsley Drive west of Walter Street to confirm the percentage of heavy vehicles.

All 6 intersections located in **Figure 10-4** have been analysed using SIDRA Version 6.1.

The network performance is determined by the Level of Service (**LoS**), Average Delay (**AVD**), Degree of Saturation (**DoS**) and maximum delay on the critical movement at the intersections during peak hours. The Level of Service criteria for intersections are explained in Table 4.2 taken from the RTA *Guide to Traffic Engineering Developments*.

As shown in Table 2.3 of the Marshall Report at **Appendix 13**, all intersections are providing a satisfactory Level of Service.

10.6 Impacts of the Proposed Development

Access, Internal Traffic Circulation and Parking

The western vehicular crossing is to be widened to 13.5 metres and constructed in compliance with Fairfield City Council's standard for heavy duty vehicular crossings.

The swept paths of B Doubles for entry and exit have been checked using Autoturn. The ingress and egress crossings are separated by a raised 1 metre wide concrete median and comply with *Figure 3.1 in AS 2890.2 Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities*.

The swept paths of B Doubles for access to and from stockpiles of baled PEF, swept paths of a 19m long articulated vehicle or truck and dog trailer for deliveries of raw waste material, and for NSW Fire Brigade aerial appliances to circulate around the perimeter road have been prepared using Autoturn.

The car parking provision on-site meets the maximum parking demand by staff at the mid afternoon shift change. The parking can be increased by 4 spaces by line marking on the western side of the staff access driveway and a further 5 spaces by constructing additional pavement in front of the office building. A further 8 spaces are available along the Site frontage to Frank Street. Adequate parking can be provided to meet the anticipated future maximum demand.

Effects of Increased Traffic on Intersection Performance

The increase in heavy and light vehicle traffic movements in peak hours due to the operation of the proposed development are relatively minor at all intersections. The Victoria Street / Walter Street intersection is already at capacity, and the Elizabeth Street / Horsley Drive intersection requires improvements in the pm peak hour. All other intersections analysed using SIDRA 6.1 will continue to provide satisfactory performance. The SIDRA analysis is shown in Table 4.2 of the Marshall Report at **Appendix 13**.

Effects of Increased Traffic on Road Network

To cater for expected traffic increases to 2036, the RMS is planning an upgrade of The Horsley Drive between Cowpasture Road and the M7 motorway to a 4 lane divided carriageway, realignment of the Ferrers Road intersection, and provision of traffic lights at the Cowpasture Road south intersection.

The estimated increase in light and heavy vehicle movements on the major approach roads in the day-time 7:00 am to 10:00 pm and at night from 10:00 pm to 7:00 am are shown in Table 4.3A of the Marshall report at **Appendix 13**. The existing traffic volumes during these periods have been estimated and are shown in Table 4.3B of the Marshall Report.

These small increases will have minimal effect on the performance of the road network.

10.7 Traffic Movements During Construction Stages

Indicative Construction Programme

The construction staging and duration of each stage have been reviewed by Mike Haywood, Project Consultant for Resource Co and are shown in Table 3.9.1 of the Marshall Report, a copy of which is provided below.

TABLE 3.9.1 – Construction Program:

STAGE	DESCRIPTION OF WORKS	DURATION OF CONSTRUCTION PERIOD	ESTIMATED COMMENCEMENT DATE
Stage 1 PRELIMINARY WORKS			
	Demolition	1 week	
	Bulk Excavation	2 weeks	
Stage 2 EXCAVATION			
	Excavation for Floor Slab and drainage pits etc	2 months	
	Construction of Retaining walls	1 month	
Stage 3 MAIN FRAME CONSTRUCTION			
	Main Frame Construction	6 months	
Stage 4 CONSTRUCTION OF CAR PARKING AREAS			
	Car Parking Areas	2 months	
Stage 5 CONSTRUCTION OF VEHICULAR LAYBACK AND LANDSCAPING			
	Construction of Vehicle Layback	3 days	

Estimated Daily Vehicle Movements

The estimated daily vehicle movements have been reviewed by Mike Haywood, Project Consultant for Resource Co and are shown in Table 3.9.2 of the Marshall Report, a copy of which is provided below.

Table 3.9.2

TOTAL NO. OF VEHICLE MOVEMENTS / DAILY											
Stage Phase of Construction	Cars		Trucks up to 6.4 metres long		MRV Vehicles 8.8m Long		MRV Vehicles 12.5m Long		Articulated AV		Parking Notes. (e.g whether construction workers park on site)
	IN	OUT	IN	IN	IN	OUT	IN	OUT	IN	OUT	
Stage 1	2	2			3-6	3-6			5	5	On site
Stage 2	2	2			3-6	3-6			17	17	On site
Stage 3					6-10	6-10	1	1	10 #	10 #	On site
Stage 4	1	1	1	1	3-5	3-5	5	5			On site
Stage 5			1	1	1	1	3	3			

 # note 1

Max loads per day estimated at 10 however only 50-60 loads over the life of the project.

Part Eleven

SOCIO-ECONOMIC IMPACT

11.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

> *... an assessment of the economic and social impacts of the development, particularly of any benefits to the community.*

This part of the Environmental Impact Statement describes the potential socio-economic impacts associated with the proposed development.

Consideration is given to the impacts identified in other assessment sections such as air quality and odour, visual amenity, noise and vibration, and traffic and transport, as these are connected to the potential socio-economic impact.

A summary of key socio-economic indicators is provided, based on information included in the Fairfield City Council community profiles.

Measures for the mitigation and management of socio-economic impacts associated with the facility have been identified for both the construction and operational phases.

11.2 Fairfield Local Government Area

Fairfield City is located in Sydney's south western suburbs, about 32 kilometres from the Sydney GPO.

The city is bounded by Blacktown, Holroyd and Parramatta Cities in the north, Bankstown City in the east, Liverpool City in the south and Penrith City in the west.

Fairfield City is continuing to develop, prosper and rise to its full potential. Fairfield is a vibrant and culturally diverse city with many advantages for business.

Fairfield City is approximately 104 square km in size, incorporates 27 suburbs, and is home to more than 181,000 people. The population of Fairfield has come from 133 countries and speaks more than 70 languages.

Whilst mainly residential, Fairfield contains the large-scale regional industrial estate of Smithfield Wetherill Park, as well as a number of smaller industrial centres.

With two major business and retail centres at Fairfield and Cabramatta, growing centres in Prairiewood and Bonnyrigg and many neighbourhood retail centres, Fairfield offers excellent shopping and eating opportunities. In addition, Fairfield City has beautiful

parklands and large expanses of rural land in the suburbs of Horsley Park and Cecil Park, providing people with a close at hand retreat from city life, when they wish.

It is estimated that 46,167 people work in Fairfield. Fairfield represents 7.50% of the 615,223 people working in Greater Western Sydney, 1.54% of the 2,996,038 people working in New South Wales, and 0.47% of the 9,824,444 people working in Australia.

The wages and salaries paid by businesses and organisations in Fairfield is estimated at $3.546 billion. Fairfield represents 7.21% of the $49.147 billion in wages and salaries paid by businesses and organisations in Greater Western Sydney, 1.48% of the $239.696 billion in wages and salaries paid by businesses and organisations in New South Wales and, 0.46% of the $766.085 billion in wages and salaries paid by businesses and organisations in Australia.

The output generated by the Fairfield economy is estimated at $17.156 billion. Fairfield represents 7.90% of the $217.258 billion in output generated in Greater Western Sydney, 1.71% of the $1.003 trillion in output generated in New South Wales and 0.52% of the $3.294 trillion in output generated in Australia.

Fairfield's Gross Regional Product is estimated at $7.602 billion. Fairfield represents 7.40% of Greater Western Sydney's GRP of $102.713 billion, 1.54% of New South Wales' Gross State Product (GSP) of $492.478 billion and 0.48% of Australia's GRP of $1.584 trillion.

11.3 Potential Impacts

Potential social and economic impacts resulting from the facility are generally positive.

Adverse social impacts are associated with the potential air, noise, traffic impacts, and visual amenity. The facility would employ best management practices and mitigation measures to minimise the potential for adverse impacts upon the local environment such that any adverse social impacts would be negligible.

Construction Impacts

Construction of the facility would create new temporary employment, contributing positively to the local economy.

The Capital Investment Value (**CIV**) of the facility is estimated at approximately $30.795 million (refer **Appendix 18**).

Construction of the facility would create increased levels of traffic, noise and air pollution for the duration of the construction phase, which has the potential to impact on local residents if not appropriately managed, however, the distance to the nearest residential receptors is 800 metres from the Site and impacts at these locations are expected to be minimal.

Assessments of noise, air quality, visual amenity and traffic impacts associated with construction of the facility are presented in **Parts 5, 6, 8** and **10** of this Environmental Impact Statement respectively.

Operational Impacts

Potential social and economic impacts resulting from the operation of the facility are generally positive.

The operation of the Waste Resource Management Facility would provide employment for approximately 40 staff at this location, with the potential for increased employment in the future. All staff employed at the facility will be new positions, and would not involve transferring current employees to the Site.

Consumable products and services required to operate and maintain the facility, include:

- Annual telecommunications, electricity, water and gas supply costs.
- Opportunities for suppliers to provide various goods and services to the Site, including materials, operational fuels, machinery, and equipment.
- Opportunities for local businesses to fulfil maintenance and servicing requirements.
- Convenient, locally supported, cost-effective disposal of commercial and industrial waste.

The money which would be spent on consumables, along with the significant flow-on benefits, would result in a substantial stimulus to the local and regional economies.

The facility would contribute to the ongoing sustainability of the NSW economy through the provision of efficient waste management infrastructure as the population and commercial expansion of Sydney generates additional waste.

As stated in **Part 13** of this Environmental Impact Statement, the benefits of implementing better practice 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.
- Improved environmental outcomes.

The facility aligns with the Waste Avoidance and Resource Recovery Act 2007 hierarchy principles of avoidance, resource recovery and disposal, and can potentially reduce the amount of waste going to landfill in the future.

11.4 Mitigation and Management

Construction

A Construction Environmental Management Plan (**CEMP**) would be prepared for the facility. The CEMP would include:

- Measures to minimise noise impacts during construction.
- Measures for controlling dust generated during construction.

Additionally, the facility has been designed to minimise visual impact though locating all production activity within a purpose built building which would be consistent in size, colour and location with other industrial development in the Wetherill Park Industrial Estate.

Operation

Prior to commencing operation, a site-specific Operational Environmental Management Plan (**OEMP**) would be developed for approval.

The OEMP would ensure that the commitments made within the Environmental Impact Statement, along with the conditions contained in the Development Consent and Environment Protection Licence, are fully implemented and complied with.

The OEMP would establish the framework for managing and mitigating the potential environmental impacts of the facility over the life of the operation.

Social impacts associated with the facility would be managed and mitigated by:

- Adoption of measures to minimise air quality at receptors.
- Implementation of measures to minimise noise impacts at receptors.
- Maintenance of vegetation screens to minimise visual impact.
- Implementation of a Complaints Handling Procedure and maintenance of a Complaints Register.

Mitigation of noise, air quality, visual amenity and traffic impacts associated with construction of the facility are presented in **Parts 5, 6, 8** and **10** respectively of this Environmental Impact Statement.

Part Twelve

HAZARD AND RISK ASSESSMENT

12.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a preliminary risk screening undertaken in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DoP, 2011), and if necessary, a Preliminary Hazard Analysis (PHA); and*

- *an assessment of the likely toxicity levels of loads transported to and from the site.*

The proposed Waste and Resource Management Facility has a number of potentially hazardous operations including:

- Re-fuelling of plant and equipment.
- Potentially contaminated run-off.
- Equipment, raw material and product fires.
- Acoustic and air quality impacts.

These operations have the potential to impact offsite or cause impact at the adjacent properties.

12.2 Methodology

Reference has been had to the methodology described in *Hazardous Industry Planning Advisory Paper No.6, Hazard Analysis Guidelines* prepared by the then Department of Urban Affairs and Planning.

The proposed development was considered in the context of its location, the quantity and type of dangerous goods likely to be stored and used, and safety management.

State Environmental Planning Policy No.33 - Hazardous and Offensive Development (**SEPP 33**) was also considered which aims, among other things:

(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account; and

(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

12.3 Assessment

As detailed in **Part 3.3.2** of this Environmental Impact Statement, the proposed development is not a *Hazardous Industry*, *Potentially Hazardous Industry* or *Hazardous Storage Establishment* as defined in SEPP 33 as it would not pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposed development is, however, *Potentially Offensive Industry*.

Notwithstanding, the following assessment is provided.

12.3.1 Hazard Analysis

The following potential hazards would exist on the Site as part of the proposed development:

- the storage and handling of dangerous goods.
- contaminated runoff.
- refuelling of plant and equipment.
- contaminated material deliveries.

12.3.1.1 Dangerous Goods Storage and Handling

Materials stored and handled at the proposed development include:

- Mobile plant would be used at the proposed development including front end loaders and excavators. Diesel is to be stored in a 30,000 L purpose designed storage tank which is self bunding.

The site processes waste materials which could contain contaminants. Rainwater impacting the Site could become contaminated by the materials stored in the open areas of the Site. Rainwater runoff could, therefore, cause damage to the biophysical

environment adjacent to the proposed development. Release of potentially contaminated water could result in impact to these sensitive areas. To mitigate this potential, all waste materials are delivered to the Site and processed with a purpose built building such that rainwater would not come in contact with the waste either before or during processing. All processed waste is also stored internally such that contact with rainwater would not occur. Baled product is stored in a covered area, however, the product is wrapped in rain proof material.

In addition, contaminants such as bottles, cans, drums, cylinders of dangerous goods could enter the Site mixed with waste materials. These materials could be released during processing (i.e. shredding and screening), resulting in contaminated materials release, flammable liquid ignition and fire and flammable gas ignition and explosion.

12.3.1.2 Storage of Diesel

Diesel fuel would be stored in a purpose built, self bunded 30,000 L tank which would comply with the requirements of the relevant Australian Standard. **Figure 12-1** provides an example of the type of self bunding diesel tank to be installed on the Site.

Figure 12-1: Example of a self bunded fuel tank similar to that which would be used on the Site.

The self bunded nature of the storage tank would contain any spills and prevent any release offsite, hence, there would be no impact offsite from such an incident. Notwithstanding, a spill kit would be provided adjacent to the diesel storage area.

In the event of a release of diesel, there is a potential for the liquid to ignite, resulting in a fire. Local fire fighting may be required to contain the fire in the vicinity of the tank or to extinguish the fire itself. A dry powder type fire extinguisher would be installed adjacent to the diesel tank storage area.

In summary, there would be no impact offsite as a result of the storage of diesel fuel at the facility.

12.3.1.3 Contaminated Runoff

There is potential for leachate being produced from the operation of the facility.

Management measures

Pollutants which could potentially originate from the facility include suspended solids in site runoff, and oil, fuel or chemicals used on the Site.

All runoff from the operational area of the Site which is not diverted to storage tanks for re-use on the Site, is captured in sumps. The sump design would prevent the escape of oils and fuels from the Site. The sumps also give the Site operator the opportunity to respond to any spills by preventing such spills flowing immediately off site. Full detail of the stormwater management system is provided in **Appendix 19**.

12.3.1.4 Refuelling of Plant and Equipment

The proposed development would operate with a number of internal combustion engine powered components (e.g. front end loaders, excavators etc). This equipment would require periodical refuelling.

During the refuelling operation, there is a potential for fuel leaks and spills to occur from split or failed hoses, overfill of the truck/equipment or tanker/vehicle tank failure. Whilst the likelihood of these incidents would be low, heat radiation impact offsite could occur if the incident eventuated, therefore, there is potential for the adjacent properties to be impacted. A dedicated refuelling procedure would be established for mobile plant, and when such plant is refuelled.

12.3.1.5 Contaminated Materials Delivery

The waste to be received at the Site would be limited to that which the EPA Licence for the Site permits.

Visual inspections of waste as it arrives at the Site would be undertaken and any

contaminated waste would be returned to the delivery truck and removed from the Site.

The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 10% of the material delivered to the Site is material which cannot be recycled and that waste would be transported to landfill.

12.4 Risk Assessment

Each of the issues identified above, and other minor issues, have been addressed and, where appropriate, management and mitigation options have been developed.

Each of the potential environmental issues was ranked as being low, moderate, high or critical risk, the risk rating allocated being dependant upon the probability of the impact occurring and the potential consequences should the impact materialise.

Table 12-1 summaries the findings of the risk assessment which indicate that, in the absence of controls and mitigation measures, aspects of the proposed development pose a moderate to high risk to the environment. No critical risks were identified.

Aspects of the proposed modification which have been identified as having a moderate to high environmental impact risk ranking have been the primary focus of the Environmental Impact Statement with appropriate mitigation measures identified. Aspects which were identified as having a low risk were also assessed, however, mitigation measures were considered either of lesser importance or unwarranted.

Ratings in **Table 12-1** were determined based on the following criteria:

Critical Recurring event during the life time of the operation.

High An event which may occur frequently during the life time of the operation.

Moderate An event which may occur during the life time of the operation.

Low An event which is unlikely to occur during the life time of the operation.

Table 12-1: Environmental Risk Rating Without Mitigation

Critical	High	Moderate	Low
None	Fire	Air Quality	Traffic
		Hazardous Materials	Contaminated Land
		Noise	Groundwater
		Surface Water	Local Ecology

Table 12-2 provides a summary of each potential risk and mitigation measures proposed.

Table 12-2: Environmental Risk Rating Without Mitigation

Source of Risk	Nature of Risk and Potential Impact	Risk Rating	Mitigation Measures
Local Ecology	Destruction of any remaining ecological value to local terrestrial or riparian environment.	Low No significant terrestrial or riparian ecology remaining.	Protection of existing trees on the adjoining site. Stormwater treatment to minimise potential impact on any remaining riparian ecological value.
Noise	Noise from processing machinery. Noise from mobile machinery around the site.	Moderate	All processing machinery operates within an enclosed, purpose built shed. Mobile plant would use approved exhaust mufflers.
Air Quality	Dust from sorting and packing process.	Moderate	Mist sprays and dust shields are used in the production shed to control dust.
Hazardous Materials	Storage and use of hazardous materials.	Moderate	External fuel storage in fully enclosed self-bunded tank. Approved spill kits and fire extinguishers would be provided. The workshop entrance would be graded to ensure runoff cannot enter and any inside spillage cannot escape.
Fire	Fire within the processing shed or in the outside storage of baled product.	High	The Fire Engineering Statement at **Appendix 8** demonstrates that the proposed development an comply with the relevant requirements of the BCA
Groundwater	Groundwater pollution from site activities.	Low	The Site will be fully sealed (no pathway for drainage to groundwater). Baled product stored on the Site is largely inert.
Surface Water	Stormwater pollution.	Moderate	Recognised pollution control systems in conjunction with rainwater harvesting.
Contaminated Land	Land contaminated from previous activities or from imported fill.	Low	The Site has been decontaminated and verified. Imported fill to be screened for contamination/salinity/acid-sulfates.
Traffic	Additional traffic of local and regional road network	Low	The Environmental Management Plan for the Site will contain procedures for all truck drivers servicing the facility to ensure minimal impact to the local road network.

Part Thirteen

WASTE MANAGEMENT PLAN

13.1 Introduction

The Secretary's Environmental Assessment Requirements stipulate that the Environmental Impact Statement must contain a Waste Management Plan (**WMP**) including:

- *a detailed description of the likely waste streams that would be handled, stored and processed at the facility including maximum volumes of each type of waste to be stored onsite at any one time and the maximum throughput of each waste type;*
- *details of how this waste would be stored and handled on site, and transported to and from the site including details of how the receipt of non-conforming waste would be dealt with;*
- *details of the proposed location and size of stockpiles of unprocessed and processed recycled waste on the site;*
- *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;*
- *a description of the technology and timeframes for processing waste and the quality control measures that would be implemented;*
- *details of the potential impacts associated with treating, storing, using and disposing of this waste and waste product; and*
- *details of the type of commercial operations the waste will come from and the end use of each waste type.*

This WMP applies to both the construction and operation of the proposed development.

13.2 Objectives of the Waste Management Plan

The principal objective of this WMP is to identify all potential wastes likely to be received and generated at the Site during development and operational phases of the development, including a description of how waste would be handled, processed and disposed of (or re-used/recycled). The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource

recovery.

- To identify procedures for waste management.

13.3 Better Practice for Waste Management and Recycling

13.3.1 Waste Management Hierarchy

The 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.
- Waste disposal, in a manner which causes the least harm to the natural environment.

Figure 13-1 demonstrates a classification of waste management options, as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

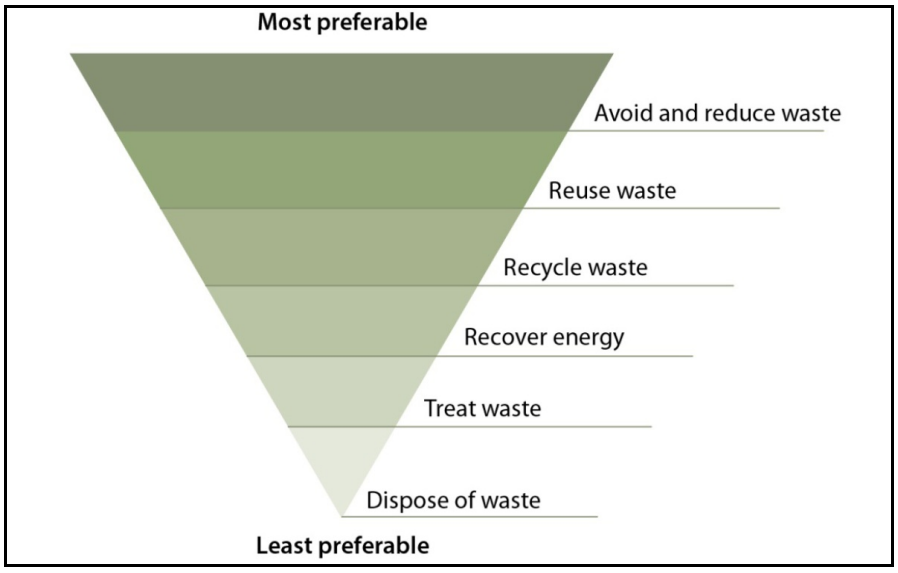


Figure 13-1: The waste hierarchy.

At the top of the hierarchy, avoiding and reducing the generation of waste is the most preferred approach. This is because it preserves resources, avoids the use of additional resources to manage waste which would have been generated, and aims to eliminate disposal costs. The goal is to maximise efficiency and avoid unnecessary consumption through such positive behaviours as:

- selecting items with the least packaging or which require the least resources to produce.
- avoiding disposable goods or single-use materials.
- buying products which are recycled, recyclable, repairable, refillable, reusable or biodegradable.
- using leftover food rather than throwing it away.

Where avoiding and reducing waste is not possible, the next most preferred option is to reuse the materials without further processing, avoiding the costs of energy and other resources required for recycling. For example, many household and industrial items can be repaired, reused, sold or donated to charities.

The next step in the hierarchy is recycling, which involves processing waste materials to make the same or different products. This includes composting, which recycles nutrients back into the soil. Recycling keeps materials in the productive economy and benefits the environment by decreasing the need for new materials and waste absorption.

Recycling a product generally requires fewer resources than drawing virgin materials from the environment to create a new one.

Where further recycling is not feasible, it may be possible to recover the energy from the material and feed that back into the economy where this is acceptable to the community.

Some materials may be inappropriate to reuse, recycle or recover for energy and instead require treatment to stabilise them and minimise their environmental or health impacts.

Finally, the waste hierarchy recognises that some types of waste, such as hazardous chemicals or asbestos, cannot be safely recycled and direct treatment or disposal is the most appropriate management option.

13.3.2 Benefits of Implementing Better Practice for Waste Management and Recycling

- Enhanced social and environmental reputation of an organisation.
- Reduced costs associated with waste disposal.

- Benefits to all stakeholders and the wider community.
- Improved environmental outcomes.

13.4 Construction Waste Management Plan

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

Construction of the proposed development would initially require the demolition and removal of the existing buildings and redundant infrastructure on the Site.

13.4.1 Waste Streams and Classifications

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

- green waste
- demolition wastes
- excavation material
- construction wastes
- plant maintenance waste
- packaging waste
- office waste
- waste water

Waste Generation Rates

The Construction Site Manager will need to record the types and quantities (including the volume in cubic metres and weight in tonnes) of wastes produced during the Site preparatory and construction stages.

13.4.2 Estimation of Waste Volumes

Site Preparatory Works

Significant earthworks would be required to achieve a level site. The site works would include cut and fill of the Site and the importation of fill materials to reach the desired finished level. Approximately 9,000m^3 of fill would need to be imported.

Existing hardstand areas on the Site would be crushed on site and use for fill.

There are also a number of trees which would need to be removed to make way for the new facility, primarily along the site's southern boundary. These trees will be chipped, mulched and reused on the Site for landscaping where practicable.

The excavated, crushed and chipped materials would be transported to a stockpile within the Site for later use.

Other structures to be removed may include service cables, ducting, sewage pipework. Metal clad structures on Site would also be demolished.

It is estimated that approximately 70% of the predicted construction waste can be re-used (on-site or at another development) or recycled off-site (i.e. concrete, green waste, soil, metal, and a proportion of timber and hard materials).

13.4.3 Targets for Resource Recovery

Estimated tonnages for both demolition and construction phases demonstrate that a significant proportion of waste (approximately 70%) can be diverted from landfill. The recycling and resource recovery performance contributes to overall NSW State recycling targets.

13.4.4 Waste Avoidance Measures

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

- Selecting construction materials taking into consideration their long lifespan and potential for reuse.
- Ordering materials to size and ordering pre-cut and prefabricated materials.
- Reuse of formwork (where possible).
- Reducing packaging waste on site by:

- 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.
- Coordination and sequencing of various trades.

13.4.5 Reuse, 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 wastes which cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

The following procedures are to be implemented:

- Excavated materials will be re-used on site.
- Green waste will be mulched and re-used in landscaping on site.
- Concrete, tiles (where applicable) and bricks will be crushed on site for reuse in the proposed construction or recycled off site.
- Steel will be recycled off site, all other metals will be recycled where economically viable.
- Colorbond roof material off cuts to be stockpiled on site for reuse or recycling.
- Framing timber will be reused on site or recycled off site.
- Windows, doors and joinery will be recycled off site (where possible).
- Waste oil will be recycled or disposed of in an appropriate manner.
- All used crates will be stored for reuse unless damaged.
- All glass which can be economically recycled will be.

- All solid waste timber, brick, concrete, rock which cannot be reused or recycled will be taken to an appropriate landfill site and disposed of in an approved manner.

- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with EPA requirements.

- Provision will be made on site for the collection of batteries, fluorescent tubes, smoke detectors and other recyclable resources.

- Container and paper/cardboard recycling will be provided on site for employee use or these items will be sorted recycling at an appropriately licensed facility.

- All garbage will be disposed of via a Council approved system.

- All other solid waste including bitumen paving, tile, rock and soil will be taken to an appropriate materials recycling facility/landfill site and processed in an approved manner.

13.4.6 Waste Storage and Servicing

The facility will be managed to ensure effective source separation and appropriate collection of waste during demolition and construction works.

For construction stages, minimum dedicated skips would be used for:

- timber

- plasterboard/gyprock

- concrete

- bricks

- steel/scrap metal

- general waste

- other waste.

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

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.

Where possible, recycling bins will be provided in common areas 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.

13.4.7 Servicing and Transport

The frequency of the waste removal will 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 Site Manager to ensure that skips do not overflow. If skips and/or bins are reaching capacity, removal and replacement should be organised for the next 24 hours.

All skips/bins leaving the Site will be covered with a suitable tarpaulin to prevent the spillage of wastes from the skips whilst in transit.

13.4.8 Contaminated / Hazardous Waste

During the construction phase, qualified and certified contractors would be engaged to remove all contaminated/hazardous materials (eg asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility in accordance with EPA regulations.

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.

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

13.4.9 Spills Management

Spills on the work site 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 does not spread.

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

13.5 Operational Waste Management Plan

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

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.

13.5.1 Waste Streams and Classifications

The general operation of the Site will generate the following waste streams:

- Office wastes.
- Packaging wastes (i.e. cardboard, paper, plastic / shrink wrap, pallets).
- Amenity wastes.
- Maintenance wastes.

13.5.2 Waste Avoidance, Re-use and Recycling Measures

Waste Avoidance

Waste avoidance measures may include:

- Avoiding printing where ever possible.
- Printing double sided to avoid paper and printer toner / ink cartridge wastes.
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items in kitchen and staff common areas.
- Purchasing consumables in bulk to avoid unnecessary packaging.

Re-use

Establish systems to transport products in re-useable packaging where possible.

Recycling

Recycling opportunities include:

- Paper recycling trays provided in office areas for scrap paper collection and recycling.
- Printer toners/ink cartridges collected in allocated bins for appropriate contractor recycling.
- Development of purchasing policy to include purchase of recycled products.
- Providing recycling collections within each of the offices (e.g. plastics, cans and glass and also paper and cardboard if not collected separately).
- The office and amenities will have its own waste and recycling storage area where the recycling and garbage bins will be stored prior to collection.

13.5.3 Special Wastes

Contaminated / Hazardous Wastes

- All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes) will be recycled at an appropriately licensed facility.
- E-waste (electronic waste such as computers, mobile phones, printer toners and ink cartridges) and batteries containing heavy metal contaminants will be recycled at an appropriately licensed recycling facility.

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 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.

13.5.4 Spills Management

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

Material Safety Data Sheets should also be located nearby spill kit areas for advice on

spillage clean up and disposal.

Part Fourteen

DEVELOPMENT JUSTIFICATION AND ALTERNATIVES

14.1 Development Need and Justification

The Secretary's Environmental Assessment Requirements includes a requirement for:

A detailed description of the development, including:

- *need for the proposed development;*
- *justification for the proposed development.*

As detailed in **Part 2** of this Environmental Impact Statement, the NSW government and the NSW Environment Protection Authority has released the *NSW Waste Avoidance and Resource Recovery Strategy 2004-21* which states, among other things:

Effective waste management is a fundamental responsibility for the NSW community as well as the global community. Without it, we risk compromising our environment, our health and our economy.

The NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014–21 is a key component of the Government's vision for the environmental, social and economic future of the state that will be supported financially by the Waste Less, Recycle More initiative.

The primary goal of this strategy 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.

Using resources efficiently and keeping materials circulating in the productive economy can also help to create jobs and grow the NSW economy.

WARR Strategy 2014–21 objectives and targets

Avoid and reduce waste generation

- *By 2021-22, reduce the rate of waste generation per capita.*

Increase recycling

- *By 2021-22, increase recycling rates for:*
  - *municipal solid waste from 52% (in 2010-11) to 70%*
  - *commercial and industrial waste from 57% (in 2010-11) to 70%*

- *construction and demolition waste from 75% (in 2010-11) to 80%.*

Divert more waste from landfill

- *By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%.*

Manage problem wastes better

- *By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide.*

Reduce litter

- *By 2016-17, reduce the number of litter items by 40% compared with 2011-12 levels and then continue to reduce litter items to 2021-22.*

Reduce illegal dumping

- *From 2013-14, implement the NSW Illegal Dumping Strategy 2014-16 to reduce the incidence of illegal dumping statewide.*

It is proposed to establish a Waste and Resource Management Facility on the Site which would process waste material to produce *Processed Engineering Fuel* (**PEF**) and other reusable commodities including aggregates, metal, timber and soil.

The objectives of the proposal are:

(a) To establish a commercially viable Waste and Resource Management Facility which is capable of recovering waste from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

The proposed development would assist in achieving the above targets of the State government through the removal of Commercial and Industrial waste from the waste stream which might otherwise have been diverted to landfill.

14.2 The Principles of Ecologically Sustainable Development

Schedule 2 of the Environmental Planning and Assessment Regulation 2000 provides the parameters for an Environmental Impact Statement with regard to the principles of ecologically sustainable development, being:

(1) The reasons justifying the carrying out of the development or activity in the manner proposed, having regard to biophysical, economic and social considerations, including the following principles of ecologically sustainable development:

*(a) the **precautionary principle**, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

*(b) **inter-generational equity**, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

*(c) **conservation of biological diversity and ecological integrity**, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

*(d) **improved valuation, pricing and incentive mechanisms**, namely, that environmental factors should be included in the valuation of assets and services, such as:*

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best

placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

14.2.1 The Precautionary Principle

This Environmental Impact Statement has assessed the possible alternatives to the proposed development in terms of environmental risk. Investigations have been undertaken to identify risk associated with the proposed development in terms of hazardous impacts, air quality, traffic, acoustic amenity and visual amenity.

None of the potential risks identified during the assessment of the proposed development would pose a threat of serious irreversible environmental damage. Where potential impacts have been identified, mitigation measures have been put into place which would mitigate those potential impacts.

14.2.2 Inter-generational Equity

The principle of inter-generational equity requires that the present generation ensures that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The proposed development is for the establishment of a Waste and Resource Recovery Facility on the Site for the collection and recovery of commercial and industrial waste which will be reused and recycled. The proposed development would remove some of the pressure on natural material resources which might otherwise have been required to produce fuel for the cement industry which would be generated by the proposed facility.

The proposed development would divert commercial and industrial waste from the waste stream which might otherwise have been directed to landfill, thus minimising the environmental impacts to existing landfill operations, assisting in extending the lifespan of such landfill operations, and, hence, assisting in stalling the need for the creation of new landfill sites.

14.2.3 Conservation of Biological Diversity and Ecological Integrity

There would be no impact to biological diversity or ecological integrity as a result of the proposed development.

14.2.4 Improved Valuation, Pricing and Incentive Mechanisms

The proposed development is one where waste from commercial and industrial development in the Sydney metropolitan area would be received as an incentive to recycle waste rather than dispose of that waste to landfill. The money saved by industry and the State government in waste disposal costs is such that there is an economic incentive to recycle waste.

The proposed development would provide:

(i) Increased life to existing landfill operations by the removal of commercial and industrial waste from the waste stream.

(ii) A means by which the waste reduction targets of the State government can be achieved.

(iii) An avenue whereby what would otherwise be waste becomes a valuable resource and, hence, improves its value.

(iv) A resource based industry which would provide benefits to future generations through the reduction in the use of raw materials for the production of fuel for the cement industry, and extending the life of existing landfill operations.

14.3 Development Alternatives

14.3.1 Location

ResourceCo has incurred considerable expense in the investigation of suitable sites in the Sydney metropolitan area for the proposed facility such that the environmental impact of such a facility would be minimal.

There is a shortage of land in the Sydney metropolitan area which is large enough to accommodate a facility such as that which is proposed while at the same time being sufficient distance from potentially affected land uses to ensure that such a facility operates in harmony with other land uses.

Notwithstanding a continued review of the available industrial land, ResourceCo has concluded that the most cost effective and environmentally acceptable location is the subject site.

14.3.2 Production Method

The proposed means by which waste from commercial and industrial development would be received, processed and recycled to the market is state of the art practice which has been developed by ResourceCo.

There are no practical cost effective alternatives to those proposed as part of the proposed development.

14.3.3 Non Development

The proposed development is to facilitate the recycling of commercial and industrial waste.

The proposed operation of the ResourceCo facility from the Site is a business decision made by that company to promote the most cost effective means by which its business can establish in the Sydney metropolitan area. The non development option would not promote the efficient operation of its business in the Sydney metropolitan area and would not assist the State government in its goal to reduce the waste stream to landfill.

No significant environmental benefit would be gained by non development.

Part Fifteen

DRAFT STATEMENT OF COMMITMENTS

15.1 Introduction

The Secretary's Environmental Assessment Requirements stipulate that the Environmental Impact Statement must contain:

> *... a consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS.*

This part of the Environmental Impact Statement provides a draft Statement of Commitments which describes the management measures which ResourceCo is prepared to implement with regard to the environmental management of the Site, and the mitigation and monitoring of potential environmental impacts associated with the operation of the proposed Waste and Resource Management Facility.

ResourceCo is committed to the following objectives:

- To provide a long term, fully licensed Waste and Resource Management Facility capable of recycling mixed Construction and Demolition (**C&D**) waste and dry Commercial and Industrial (**C&I**) waste.

- To protect the health and safety of site workers and the general public, and ensure business viability by compliance with relevant legislation, standards and regulating authorities.

- To ensure site operations do not significantly impact on potential environmental receptors and comply with the following environmental legislation:

  - the *Environmental Planning and Assessment Act 1979*, and

  - the *Protection of the Environment Operations Act 1997*.

- To ensure that new technologies are implemented in relation to resource recovery and environmental management of the Waste and Resource Management Facility throughout its life.

- To encourage and facilitate community participation in the recycling of building and construction waste.

- To protect the surrounding environment through the implementation and management of environmental controls and contingency measures.

- To operate the Waste and Resource Management Facility in a manner which is sympathetic to the amenity of the area in which it is located.

15.2 General Commitments

1. The development will be undertaken in accordance with the Environmental Impact Statement prepared by Nexus Environmental Planning Pty Ltd (**the EIS**), including accompanying appendices.

2. The development will be undertaken in accordance with the following drawings:

   - Drawings prepared by Bell Architects as contained in **Appendix 7** of the EIS.

   - Drawings prepared by Mott MacDonald as contained in **Appendix 17** of the EIS.

   - Drawings prepared by Tract Landscape Architects as contained in **Appendix 12** of the EIS.

3. The Project will be conducted and operated in accordance with this Statement of Commitments.

4. ResourceCo will develop a program of informing the NSW Department of Planning and Environment and Fairfield City Council of construction staging and operation of the Waste and Resource Management Facility throughout the development process.

5. ResourceCo will obtain the necessary approvals and permits to undertake both construction and operation of the Waste and Resource Management Facility.

6. A copy of the approved and certified plans, specifications and documents, including conditions of approval will be kept on the Site at all times.

7. All building works will be carried out in accordance with the Building Code of Australia.

15.3 Environmental Management Plan

An Environmental Management Plan (**EMP**) will be developed for both the construction and operation stages of the Waste and Resource Management Facility.

The key principles of the EMP will be to provide:

- An environmental management tool for the construction and operation of the proposed Waste and Resource Management Facility.

- A means of identifying baselines for monitoring the impact of the Waste and

Resource Management Facility.

- An outline of reporting requirements associated with the Waste and Resource Management Facility.
- The processes for interaction between ResourceCo and the relevant government authorities.
- The means by which compliance with the Secretary's requirements and the requirements of the Environmental Protection Licence will be achieved.

The EMP will contain sub-sections which will provide details of the management of the Waste and Resource Management Facility to minimise potential impacts discussed in the EIS. Sub-sections of the EMP will include:

- Induction and Training.
- An Erosion and Sediment Control Plan which will cover both establishment and operation of the facility.
- A Construction and Operational Noise Management Plan which will detail measures to minimise acoustic impact during establishment and operation of the facility.
- An Air Quality Management Plan which will detail measures to be employed to minimise air quality impacts during both establishment and operation of the facility.
- A Waste Management Plan.
- A Stormwater Management Plan.
- A Traffic Management Plan.
- A Complaints Register.
- A Hazard Reduction Plan.

Following are drafts of the relevant sections of the EMP, refinement of which will be undertaken following receipt of consent for the proposed development.

TITLE	EMP 1 - INDUCTION AND TRAINING
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To ensure all persons working on the site are aware of their environmental obligations, site environmental issues and control measures, as well as roles and responsibilities.
Procedures	1. Environmental induction for all employees and contractors before starting work. Induction to cover the following issues: (i) requirements of the EMP; (ii) specific environmental issues on the Site and control measures; (iii) roles and responsibilities for environmental management, and (iv) environmental incident procedures. 2. Retraining sessions within one month of changes to relevant sections of the EMP. 3. Retraining sessions within one month to persons identified by *Complaints Register* as not conforming to procedures. 4. All truck drivers entering the site for the first time to be provided with the *Site Induction for Drivers* form.
Monitoring	Status of inductions to be checked monthly.
Reporting	Record of all inductions and retraining, including name and date provided, to be retained on site.
Responsible Person	Environmental Officer responsible for ensuring all persons working on the Site are properly inducted and retraining provided as required.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 2 - EROSION AND SEDIMENT CONTROL
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To minimise and manage erosion and sedimentation on the site and ensure that sediment laden runoff is not discharged from the site.
Procedures	1. Construct all erosion and sedimentation controls as per Appendix 19 of the Environmental Impact Statement and relevant EPA requirements. 2. Divert runoff to sediment basins, sediment traps and catch ponds as a primary means of sediment trapping before water is discharged to main tank storage. 3. Inspect drainage and sediment controls monthly and conduct maintenance as required to ensure effectiveness. Where erosion is observed to be occurring, implement rehabilitation/stabilisation measures. 4. Implement and maintain silt fence. Fence to be maintained along boundary.
Monitoring	Monthly inspection of all drainage and sediment controls on site, including water storage, pumps and pipes.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer or person(s) authorised by Environmental Officer.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 3 - NOISE MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To ensure that construction and operation noise complies with EPA regulations. To minimise impact of noise to surrounding properties. To ensure employees are not subject to noise levels above those specified in the OH&S legislation.
Procedures	1. Standard construction work hours will be as follows: • Monday to Friday 7.00 am to 6.00 pm. • Saturday 8.00 am to 1.00 pm. • No work on Sundays or public holiday. 2. Ensure mobile plant used is fitted with residential grade silencers. 3. At all times, but particularly prior to 7:00 am, trucks should be loaded in a quiet manner. 4. Plant based at the site must incorporate "quacker" style reversing alarms. 5. Implement any acoustic impact mitigation measures outlined in the Acoustic Impact Assessment at Appendix 15 of the EIS.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer to organise monitoring and reporting as required. Truck drivers responsible for required actions to reduce noise.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 4 - AIR QUALITY MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To minimise dust generation and air pollution to prevent impact on surrounding development as detailed in the Air Quality Impact Assessment at Appendix 14 of the EIS. To ensure employees are not subject to dust levels above those specified in the OH&S legislation.
Procedures	1. Minimise the area of disturbance. 2. Maintain dust suppression and extraction devices to all processing equipment and areas. 3. Maintain the sprinkler system including fine sprays on the conveyors of the processing plant and stockpile sprinklers. 4. Use water cart to suppress dust on roads, truck loading areas and non permanent stockpiles during dry conditions on days of operation. 5. 20 km/hr speed limit on internal to minimise dust generation. 6. All loaded vehicles entering and leaving the Site to be covered. 7. Regular maintenance of mobile and fixed equipment to minimise exhaust emissions.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	1. Drivers responsible for adherence to speed limits, covering loads, regular vehicle maintenance. 2. Site supervisor responsible for ensuring processing plant operator(s) maintain dust suppression equipment on the plant. 3. Environmental Officer or person(s) authorised by Environmental Officer responsible for dust and air quality monitoring and reporting, implementation of dust suppression controls.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 5 - WASTE MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To minimise waste generated, maximise reuse and recycling, and ensure wastes are managed effectively to minimise impact on the environment.
Procedures	1. Maintain separate receptacles for recyclables to be taken off site for recycling. 2. Non-recyclable waste to be disposed of at registered landfill. 3. No putrescible material to be disposed of on site. 4. Encouragement of employees to adopt waste-reducing practices.
Monitoring	Monthly inspection of on-site sorting and storage of recyclables.
Reporting	As required by Conditions/Licence.
Responsible Person	All staff are responsible for correct management and disposal of waste. Environmental Officer to educate new staff of waste minimisation procedures.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 6 - STORMWATER MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To ensure discharge of stormwater from the Site is clear of sediment, downstream ecosystems are protected, on-site re-use of water is maximised.
Procedures	1. Install and maintain water management structures as per EIS Appendix 19 to contain and treat all rainfall and runoff. 2. Erosion and sediment control works to be implemented in accordance with EMP 2. 3. Minimise the area of disturbance. 4. Install tank farm to store stormwater collected on the site for re-use in dust mitigation.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer or person(s) authorised by Environmental Officer.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 7 - TRAFFIC MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To minimise the impact of trucks on the local road network and local residents, and to comply with approved access and vehicle movements.
Procedures	1. All new truck drivers to be provided with *Site Induction for Drivers* form at the site entrance. 2. Drivers provided with Site Traffic Management Policy. 3. All loads must be fully covered prior to leaving the Site. 4. 20 kph speed limit on internal road. 5. All vehicles are to enter and leave the Site in a forward direction.
Monitoring	1. All loads to be inspected at site entrance to make sure they are covered. 2. Complaints register to be used to record traffic management complaints.
Reporting	As required by Conditions/Licence.
Responsible Person	1. Environmental Officer responsible for weekly inspections of site entrance for waste accumulation, monthly inspections of road pavements for damage condition. 2. Truck drivers responsible to comply with permitted hours of operation.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 8 - COMPLAINTS MANAGEMENT
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To ensure any site problems brought to the attention of ResourceCo by the local community and/or relevant authorities are documented and acted upon to avoid re-occurrence.
Procedures	1. Complaints telephone number signposted at front gate. Telephone number, along with postal and email address for complaints advertised on website. 2. All complaints/concerns raised by local community/relevant authorities to be recorded on *Complaints Register* by Environmental Officer. *Complaints register* to be retained on site. 3. All complaints to be bought to the attention of the Environmental Officer immediately. 4. Environmental Officer to identify and initiate appropriate action in response to complaint and follow-up contact with complainant. 5. Any complaints received to be reviewed to ascertain if site management requires amendment.
Monitoring	1. All complaints to be recorded on *Complaints Register*. 2. *Complaints Register* to be checked monthly.
Reporting	Summary of complaints to the EPA as part of Annual Return for Licence.
Responsible Person	1. All persons who receive telephone complaints are responsible for completing the *Complaints Register* and notifying the Environmental Officer within 24 hours. 2. Environmental Officer responsible for initiating follow-up action and contact with complainant.
Information/References	Insert relevant EMPs and Policies

TITLE	EMP 9 - HAZARD REDUCTION
Consent/Licence Ref.	Insert relevant Conditions of Consent Insert relevant POEO Licence Conditions
Objectives	To ensure any potential hazards are mitigated.
Procedures	1. Spill kits in the workshop, storage shed and adjacent to the diesel fuel tank will be installed. 2. Staff will be trained in spill cleanup procedures and use of the spill kits at the Site. 3. A dry powder fire extinguisher will be installed in the workshop and adjacent to the diesel fuel tank. 4. Staff will be trained in the use of first attack fire fighting. 5. A procedure for the refuelling of mobile plant will be developed and implemented.
Monitoring	1. All incidents will be recorded detailing measures taken to mitigate impact. 2. Spill kits and firefighting equipment to be checked monthly.
Reporting	Summary of incidents to the EPA as part of Annual Return for Licence.
Responsible Person	1. Environmental Officer responsible for initiating follow-up action and monitoring of equipment.
Information/References	Insert relevant EMPs and Policies

15.4 Monitoring and Reporting

During both the construction and operational stages of the development, environmental reporting is essential to ensure that the facility operates within the parameters set down in the consent for the development and the relevant legislation and licences which guide the operation of the facility.

Reporting will include details of:

- The parties who are responsible for the on-site Management Plan at the Site.
- The methods of communication with regard to matters contained in the EMP.
- Contact details of those responsible for the operation of the EMP.
- Compliance reports.
- Remedial action taken as a result of the reporting on an incident.

- Details of auditing carried out in compliance of consent and licence conditions.
- Details of any monitoring such as air quality, acoustic monitoring and water quality monitoring.

Part Sixteen

CONCLUSIONS

16.1 Introduction

Consultation with the Secretary of the Department of Planning and Environment has resulted in a number of Key Issues being identified for assessment as part of the preparation of this Environmental Impact Statement.

In accordance with the requirements of the Secretary, consideration has been given to the likely impacts to the environment which might potentially result from the use of the Site as a Waste and Resource Management Facility.

Key issues which have been identified are:

- the potential for the proposed development to impact on the acoustic environment of the Site and its surroundings;

- the potential for activity associated with the proposed development to affect air quality in the environs of the Site;

- the potential for traffic generated by the proposed development to impact on the local road network, and

- to potential for visual impact to the locality associated with the buildings and other structures.

16.2 Acoustic Impact

There is potential for the activities associated with the proposed development to impact on the existing acoustic environment of both the Site and its environs.

A comprehensive acoustic impact assessment has been undertaken by Wilkinson Murray which concludes that the proposed development of a Waste and Resource Recycling Facility at Frank Street, Wetherill Park has been assessed against NSW government policies in relation to industrial noise, construction noise and traffic noise on the road network.

Industrial noise has been assessed in accordance with the NSW EPA Industrial Noise Policy. The predicted noise levels indicate compliance with intrusive criteria under neutral and adverse meteorological conditions at both residential receivers and the industrial boundary. At residential receivers, activities are predicted to be inaudible at all times.

Potential noise impacts from traffic on the surrounding road network, arising from additional truck and car movements associated with the operation of the facility are predicted to not be noticeable as increases in noise are less than 0.2dB at daytime and 0.1dB at night time.

Noise levels associated with the construction of the facility, including the earthworks, are predicted to be within the relevant Noise Management Levels for residences.

Construction noise from the shorter term retaining walls and earthworks close to the industrial boundary are predicted to exceed Noise Management Levels at times. Since construction is limited to standard daytime hours, these works are short-term, beyond notification of the neighbours at the commencement of construction, no further mitigation measures are considered feasible and reasonable.

16.3 Air Quality

There is potential for the proposed development to impact the existing air quality in the environs of the Site.

Wilkinson Murray has assessed that potential impact. The assessment has been conducted in general accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DEC, 2005).

Quantitative assessments of potential odour and dust impacts from the operation of the facility have been conducted, based on TAPM meteorological simulations and the CALPUFF dispersion modelling system.

The results of the dispersion modelling indicate that odour concentrations at sensitive receptors due to the operation of the facility comply with the established criterion, and are likely to be undetectable.

Total ground level concentrations of criteria dust and particulate matter pollutants are predicted to comply with the impact assessment criteria at all sensitive receptors.

The existing ambient concentrations of $PM_{2.5}$ are slightly above the NEPM advisory goals, and the facility is predicted to have a negligible effect on these levels.

It is concluded that there would be no adverse air quality impacts arising from the operation of the proposed facility.

16.4 Traffic Impact

The proposed access to the Site is discussed in the report of Lyle Marshall & Associates Pty Ltd.

With regard to the performance of intersections in proximity of the Site, the Level of Service and Degree of Saturation shows that tested intersections will provide satisfactory performance.

With regard to the impact truck traffic from the proposed facility would have on the existing road network, the estimated hourly truck volumes generated by the facility are low and will have no impact on either the local or the arterial road network.

16.5 Visual Impact

A development such as that which is proposed has potential to impact on the visual environment in that it would comprise of buildings to house processing machinery and there would be stockpiles of processed material on the Site in the form of baled and wrapped product.

The visual assessment has considered the range of potential visual impacts which could ensue as a result of the establishment of the proposal as well as the range of potential public and private domain locations from which it may potentially be visible.

It is concluded that the overall visibility of the structures and activities on the Site would be minimal. The minimal impacts lead to few residual impacts which require mitigation measures.

Subject to:

- Controls on the colours and materials to be employed in buildings on the Site;
- A requirement for screen planting where required, and
- Assuming a best practice dust management plan,

the visual impacts of the development would be negligible and the application can be supported on visual grounds.

16.6 Conclusion

The proposed development is for a Waste and Resource Management Facility to be located at Frank Street, Wetherill Park.

The assessment undertaken of the impact the proposed development would have on the environment of the Site and its locality has been canvassed in the main body of the Environmental Impact Statement.

With implementation of the recommended attenuation measures discussed in this

Environmental Impact Statement, there would be no impact to the environment of the Site which would be considered significant.

It is concluded that the proposed development is an acceptable land use for the Site.

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