Appendix A

Site survey and development plans

CHANGE OF USE TO
WASTE MANAGEMENT FACILITY
AT
46 PEACHTREE ROAD PENRITH

DOCUMENT REGISTER	
DOC No	DOCUMENT TITLE
A100	COVER SHEET
A101	EXISTING SITE PLAN
A102	DEMOLITION PLAN
A103	PROPOSED SITE PLAN
A104	SITE ELEVATION
A201	SHED FLOOR PLAN
A202	SHED MEZZANINE PLAN
A203	SHED ELEVATION SHEET 1
A204	SHED ELEVATION SHEET 2
A205	SHED SECTION
A206	PROPOSED OFFICES 1 & 2

REFERENCES

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Scale
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0

Project Architect
CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

Project
CHANGE OF USE TO
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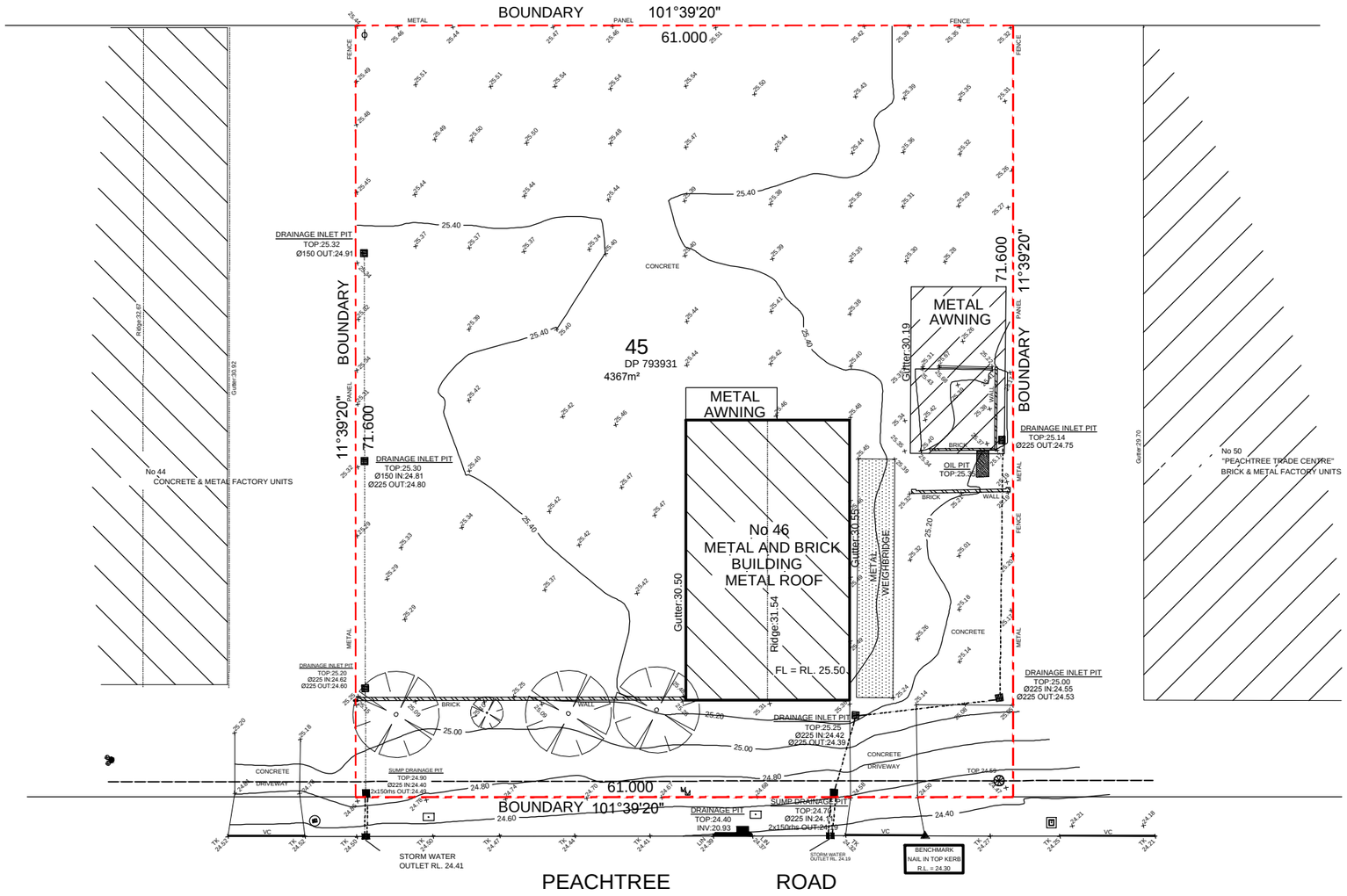
46 PEACHTREE ROAD, PENRITH
NSW 2750

Drawing Title
COVER SHEET

Job no.	Drawing no.	Rev.
J17401D	A100	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 EXISTING SITE PLAN
SCALE 1:500

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1:500 at A3

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CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
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Drawing Title
EXISTING SITE PLAN

Job no.	Drawing no.	Rev.
J17401D	A101	A

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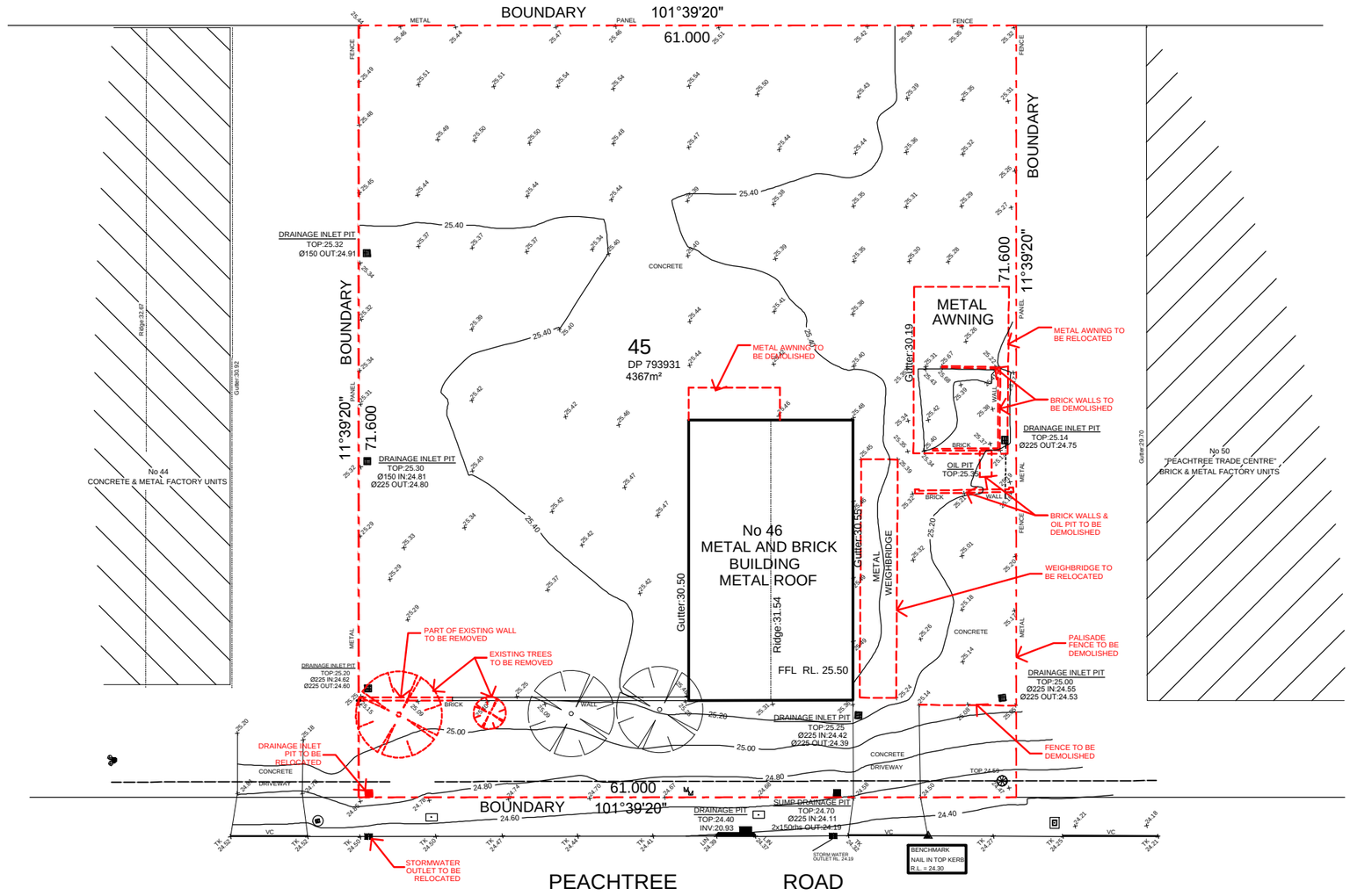
LW	JY	JY	APR 2017



01 DEMOLITION PLAN
SCALE 1:500

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CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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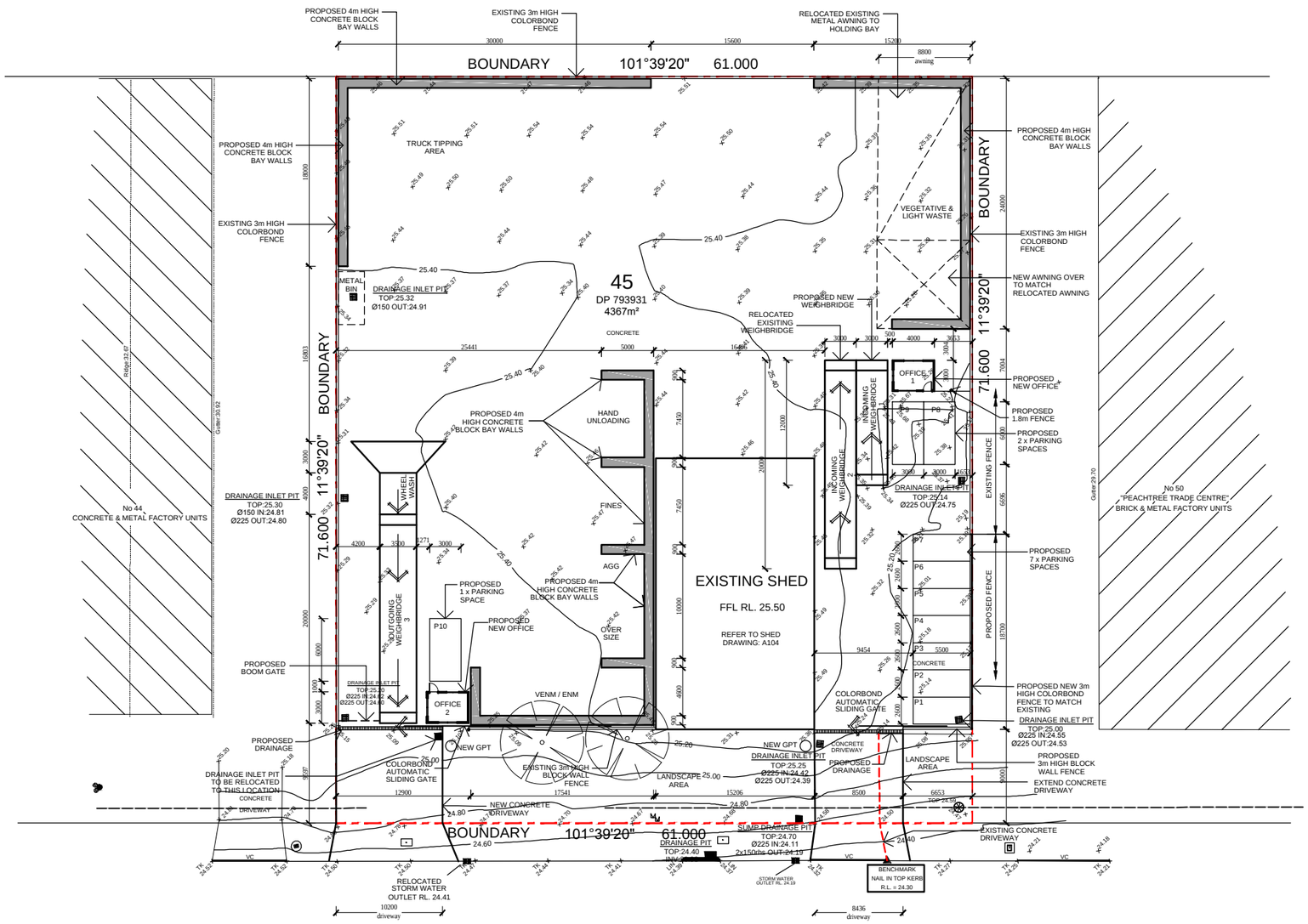
Drawing Title
DEMOLITION PLAN

Job no.	Drawing no.	Rev.
J17401D	A102	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 PROPOSED SITE PLAN
SCALE 1:500

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SYDNEY NSW 2000
P: 02 9267 2000
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Drawing Title
PROPOSED SITE PLAN

Job no.	Drawing no.	Rev.
J17401D	A103	A

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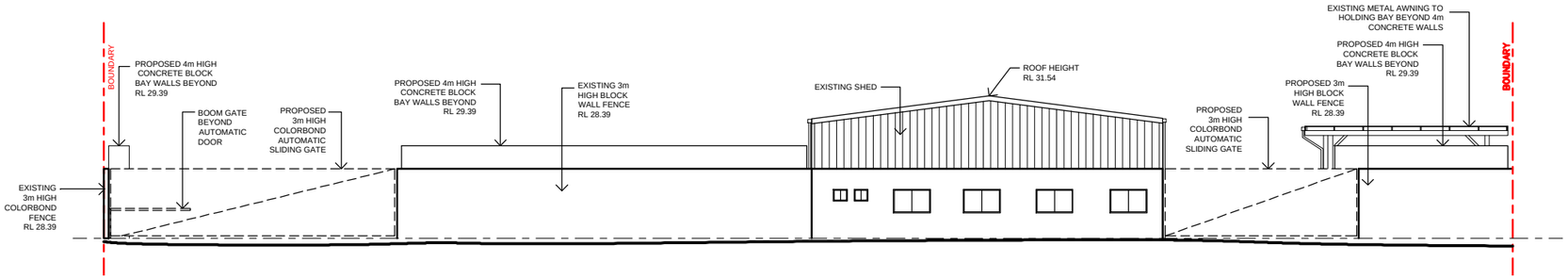

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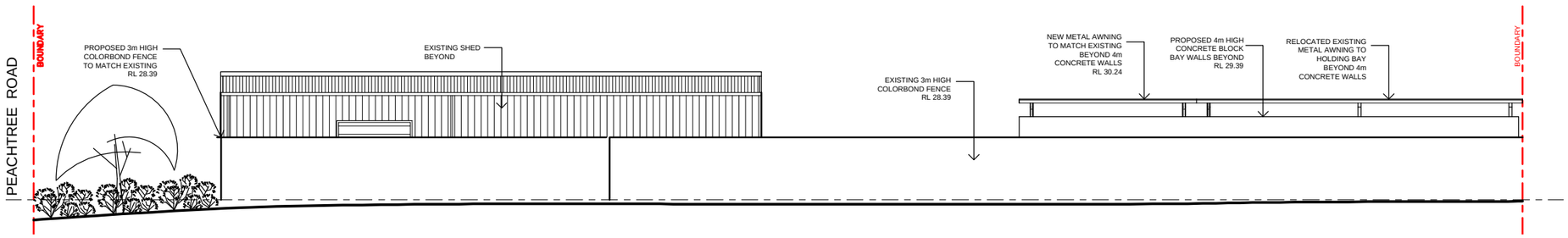
SCALE 1:250



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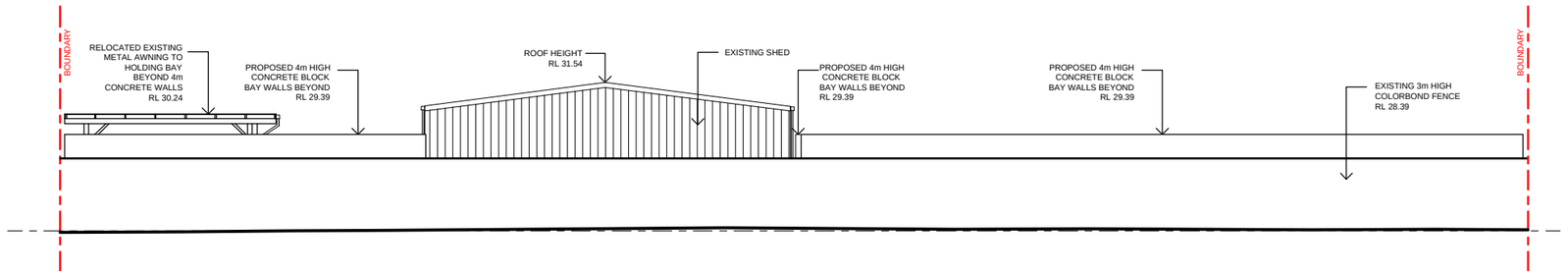
SCALE 1:250



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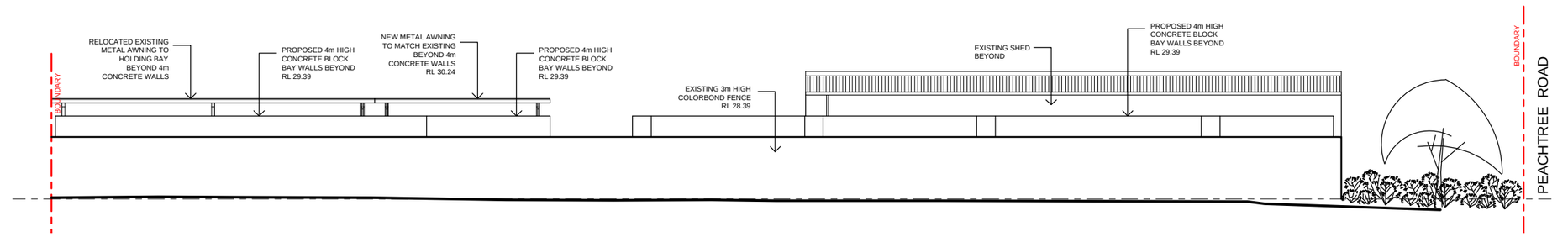
SCALE 1:250



04 WEST ELEVATION
SCALE 1:250

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Scale
m 0 2.5 5 7.5 10
1:250 at A3

Project Architect
CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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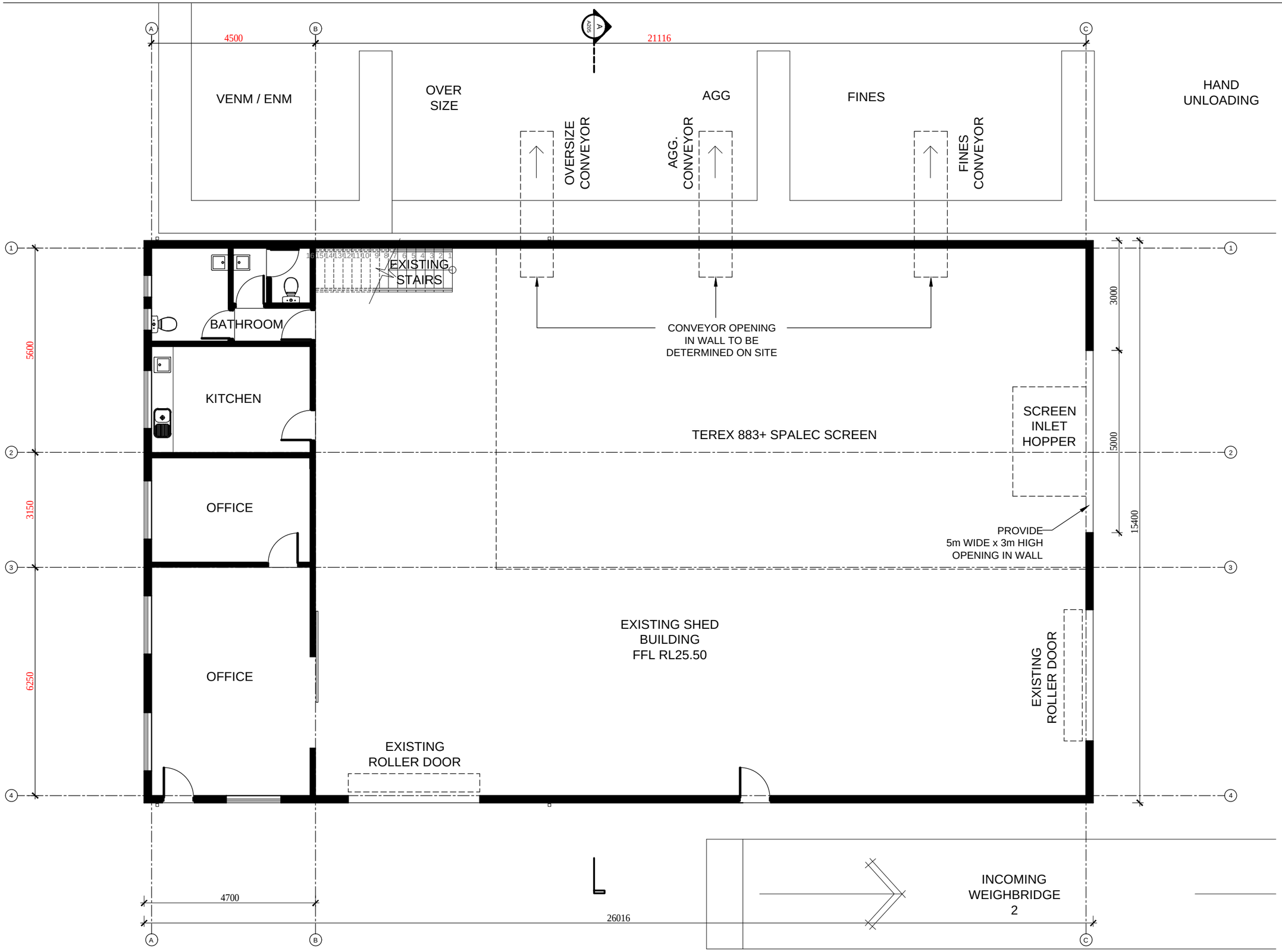
46 PEACHTREE ROAD, PENRITH
NSW 2750

Drawing Title
SITE ELEVATION

Job no.	Drawing no.	Rev.
J17401D	A104	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 SHED FLOOR PLAN
SCALE 1:100

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Project Architect
CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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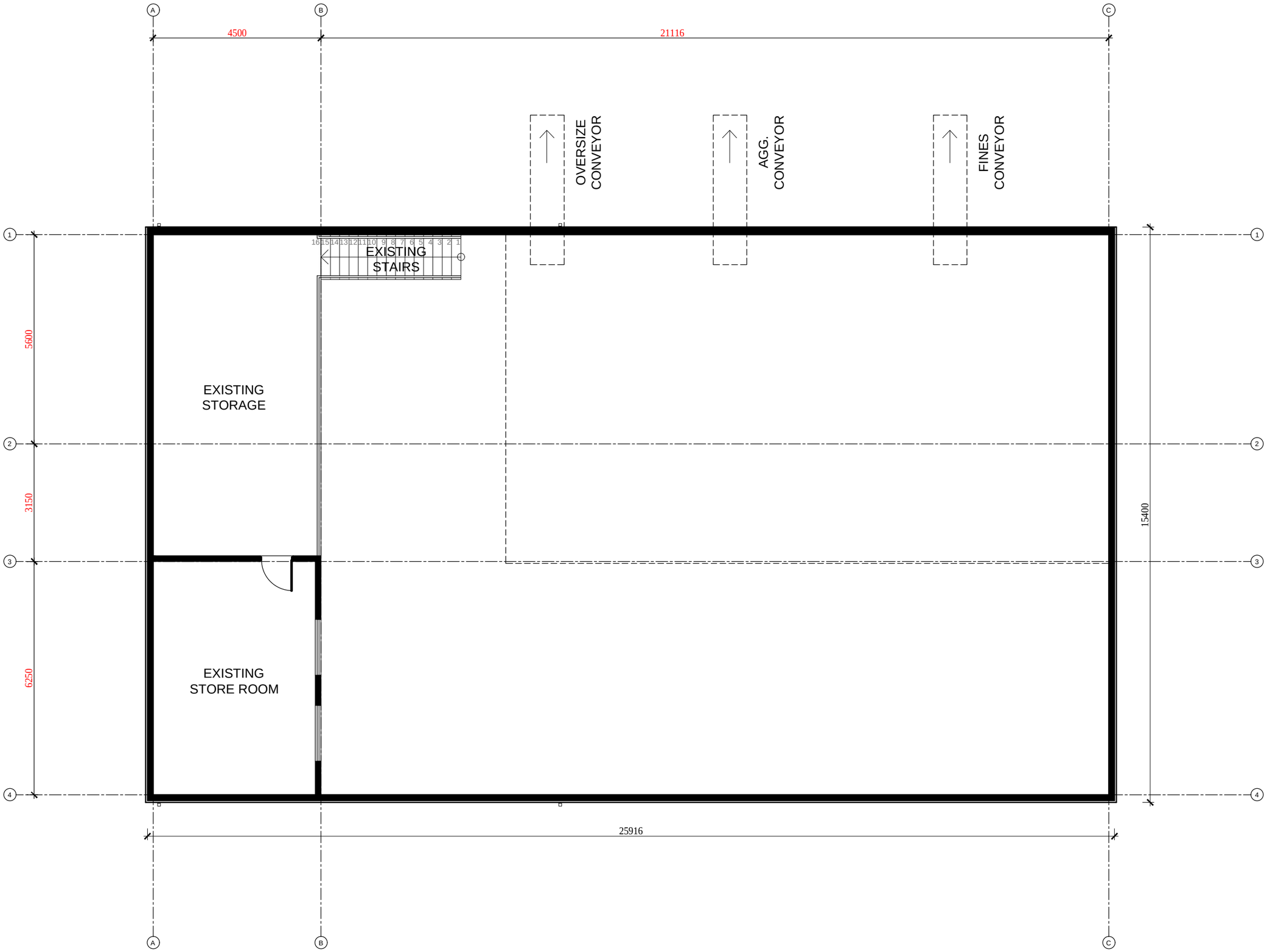
Drawing Title
SHED FLOOR PLAN

Job no.	Drawing no.	Rev.
J17401D	A201	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 SHED MEZZANINE PLAN
SCALE 1:100

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CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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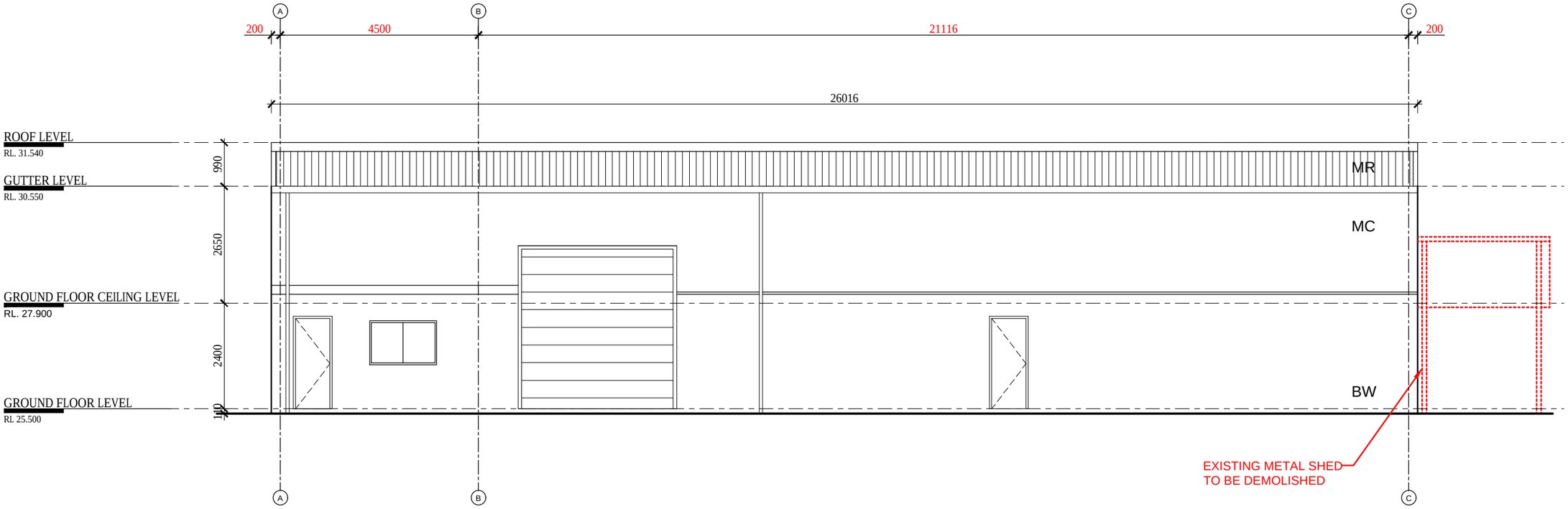
Drawing Title
SHED MEZZANINE PLAN

Job no.	Drawing no.	Rev.
J17401D	A202	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



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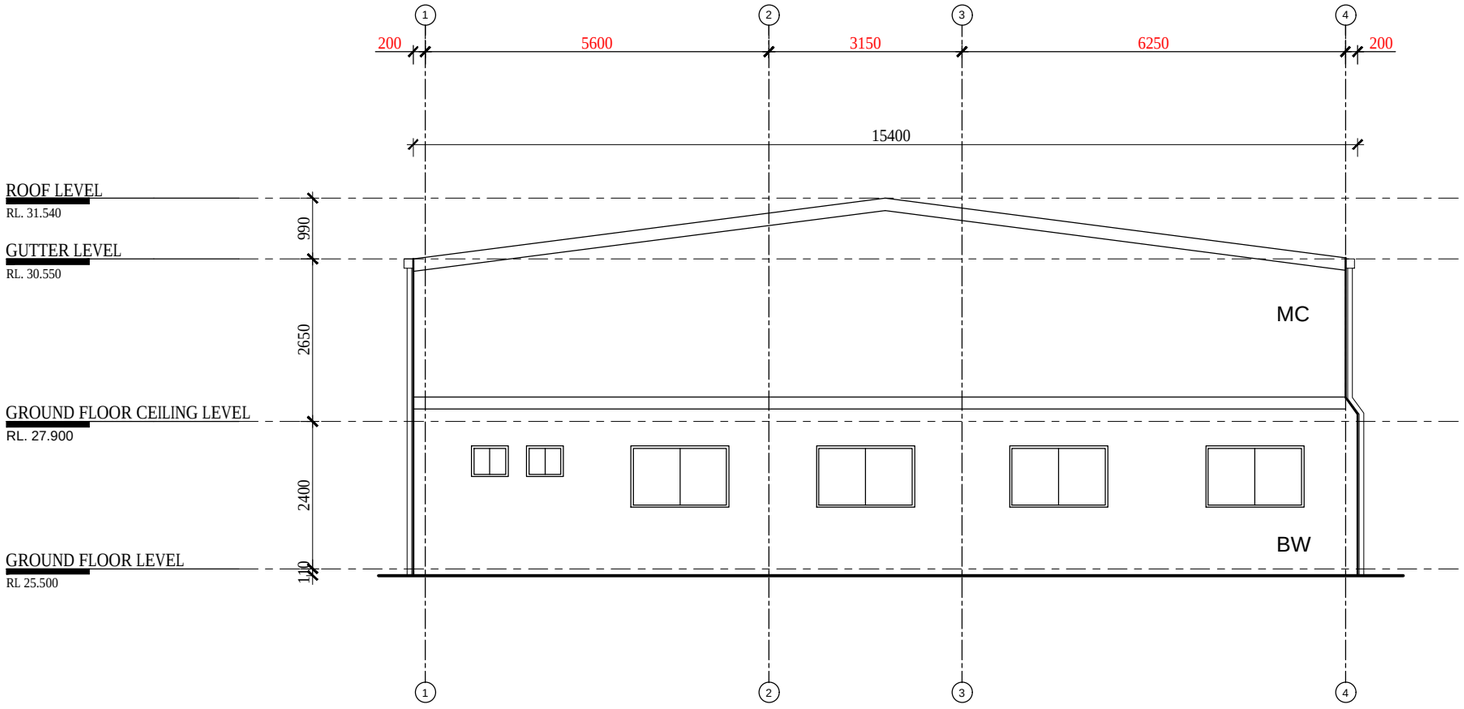

02 SOUTH ELEVATION
SCALE 1:100

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Project Architect
CDARCHITECTS
LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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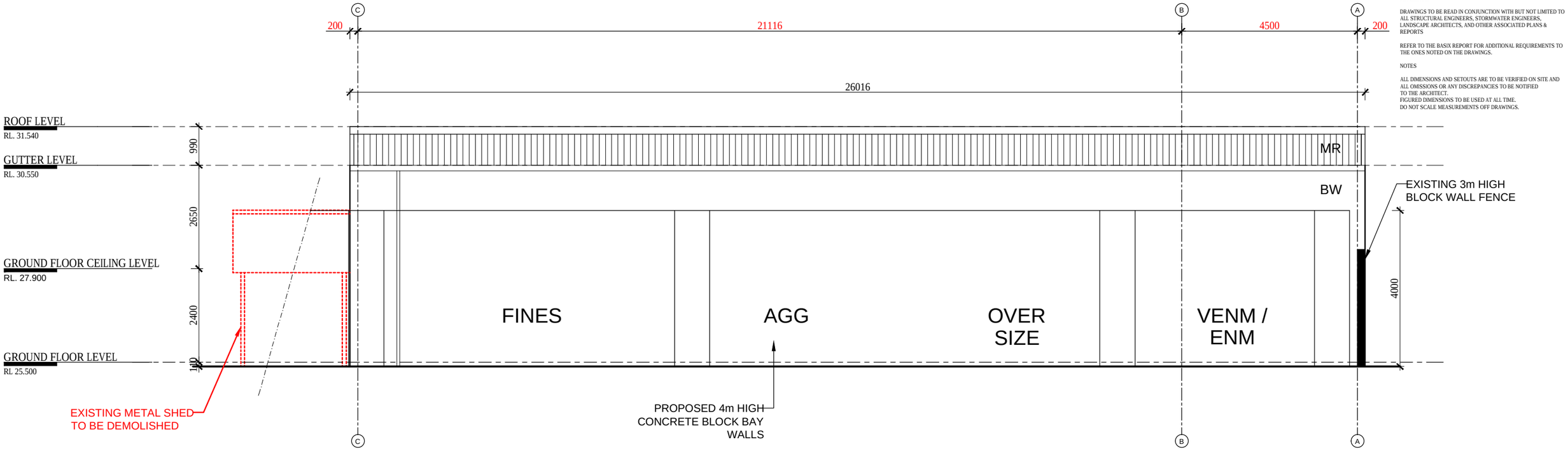
Drawing Title
EXISTING SHED ELEVATION SHEET 1
SOUTH & EAST ELEVATION

Job no.	Drawing no.	Rev.
J17401D	A203	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



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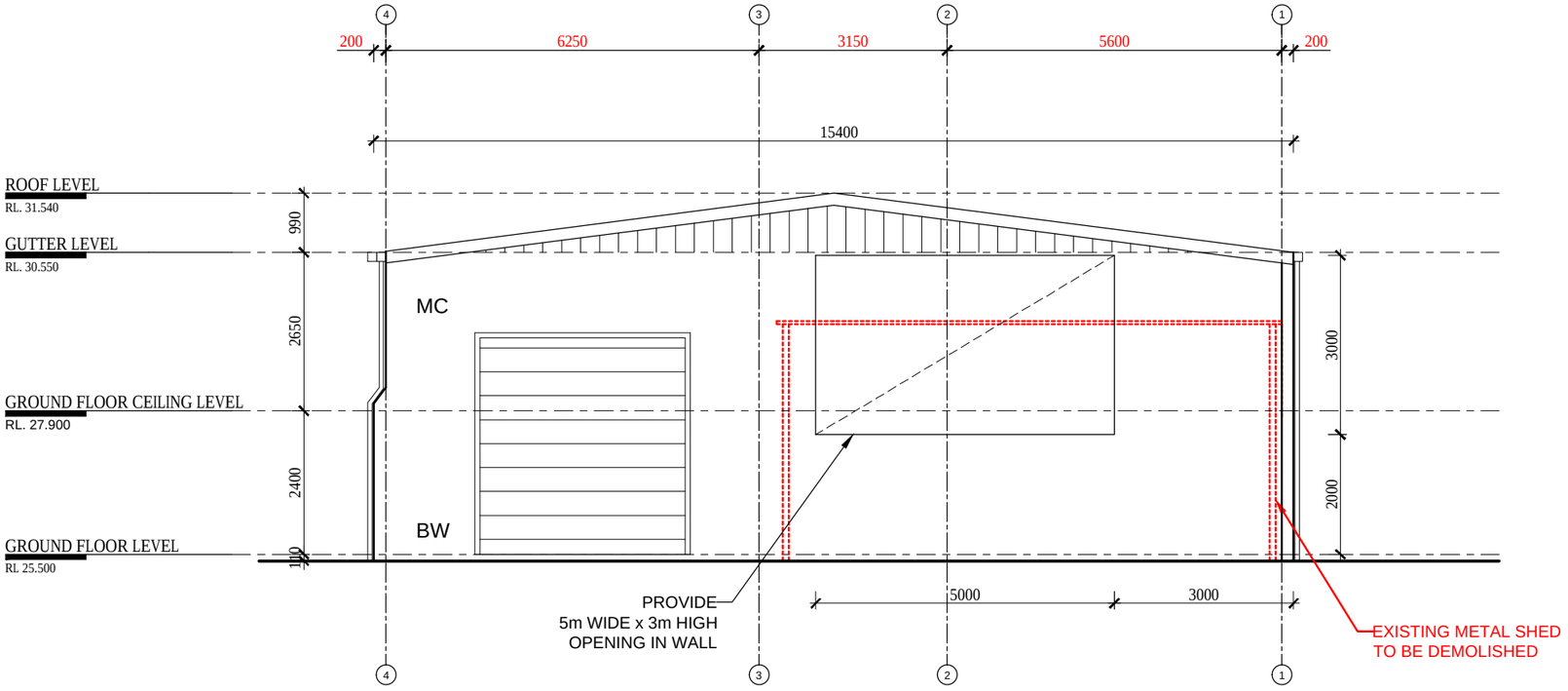

02 NORTH ELEVATION
SCALE 1:100

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LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
P: 02 9267 2000
W: www.cdarchitects.com.au

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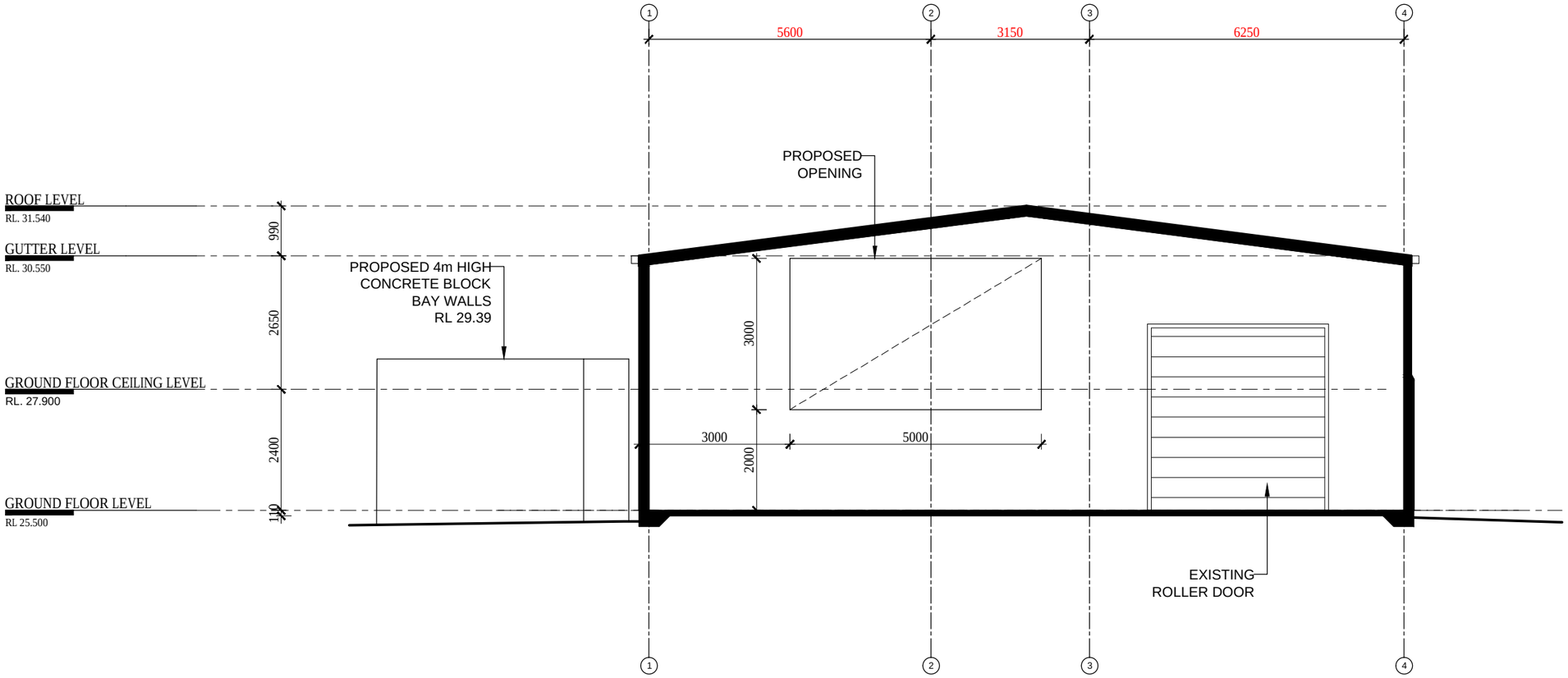
Drawing Title
EXISTING SHED ELEVATION SHEET 2
NORTH & WEST ELEVATION

Job no.	Drawing no.	Rev.
J17401D	A204	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 SITE SECTION
SCALE 1:100

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LEVEL 2, 60 PARK STREET
SYDNEY NSW 2000
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W: www.cdarchitects.com.au

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46 PEACHTREE ROAD, PENRITH
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Drawing Title
SHED SECTION

Job no.	Drawing no.	Rev.
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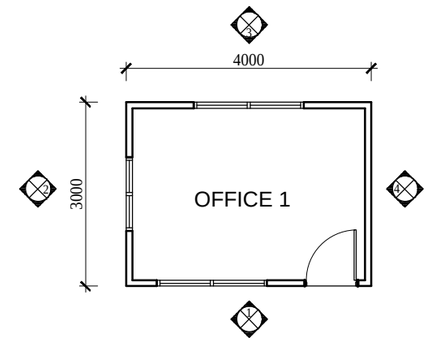
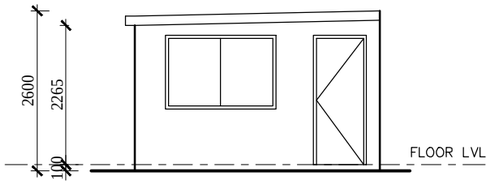
Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017



01 OFFICE 1 PLAN
SCALE 1:100



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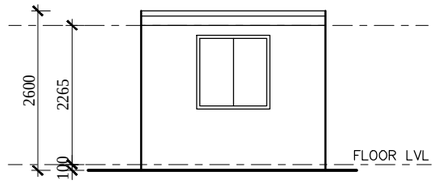

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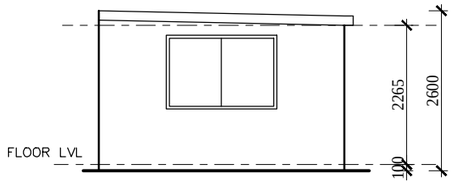

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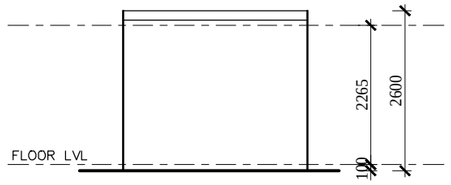

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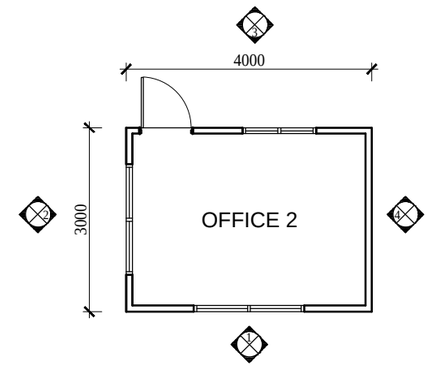

06 OFFICE 2 PLAN
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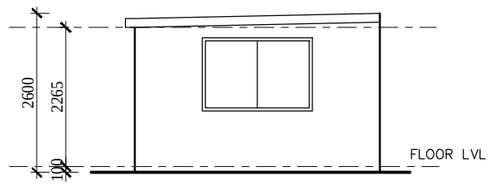

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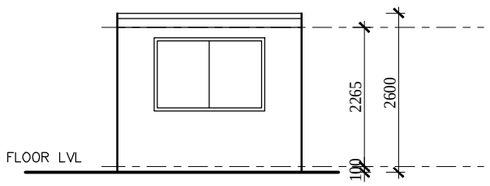

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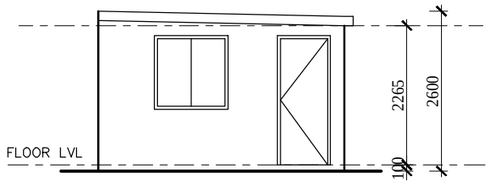
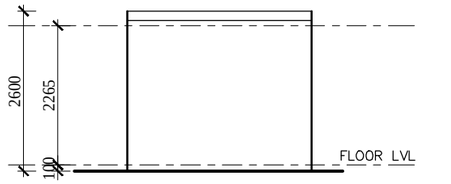
SCALE 1:100



09 ELEVATION 3
SCALE 1:100



10 ELEVATION 4
SCALE 1:100

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46 PEACHTREE ROAD, PENRITH
NSW 2750

Drawing Title
PROPOSED OFFICES 1 & 2

Job no.	Drawing no.	Rev.
J17401D	A206	A

Drawn by	Checked by	Approved by	Date
LW	JY	JY	APR 2017

Appendix B

Secretary's Environmental Assessment Requirements (26 July 2016)

Contact: Kate Masters
Phone: (02) 9228 6321
Fax: (02) 9228 6466
Email: kate.masters@planning.nsw.gov.au

Mr Ernest Dupere
Benedict Recycling Pty Ltd
PO Box 431
Frenchs Forest NSW 1640

Dear Mr Dupere

State Significant Development – Secretary's Environmental Assessment Requirements
Penrith Waste Recycling and Transfer Facility, Benedict Recycling – 46-48 Peachtree Road, Penrith (SSD 7733)

Please find attached the Secretary's Environmental Assessment Requirements (SEARs) for the proposed waste recycling and transfer facility for Benedict Recycling Pty Ltd at 46-48 Peachtree Road, Penrith in the Penrith LGA.

The SEARs have been prepared in consultation with the relevant government agencies as well as Penrith City Council (see **Attachment 2**), and are based on the information you have provided to date. Please note that the Department may alter the SEARs at any time. You must consult further with the Department if you do not lodge a development application and Environmental Impact Statement (EIS) for the development within two years of the date of issue of these SEARs.

I wish to emphasise the importance of effective and genuine community consultation and the need for the proposal to proactively respond to the community's concerns. Accordingly, you must undertake a comprehensive, detailed and genuine community consultation and engagement process during the preparation of the EIS. This process must ensure that the community is informed of the development and engaged with issues of concern to them. Sufficient information must be provided to the community to enable a good understanding of the development and any potential impacts.

Your development may require separate approval under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). If an EPBC Act approval is required, please advise the Department accordingly, as the Commonwealth assessment process may be integrated into the NSW assessment process, and supplementary SEARs may need to be issued.

Please contact the Department at least two weeks before you intend lodge the EIS and any associated documentation for the development. This will enable the Department to determine the:

- applicable fee (under Division 1AA, Part 15 of the Environmental Planning and Assessment Regulation 2000); and
- consultation and public exhibition arrangements, including copies and format requirements of the EIS.

If you have any enquiries about these SEARs, please contact Kate Masters on the above details.

Yours sincerely

C. Ritchie 26/7/16.

Chris Ritchie
Director
Industry Assessments
as delegate of the Secretary

Secretary's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act* Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

Application Number	SSD 7733
Development	Construction and operation of a waste recycling and transfer facility that will accept 180,000 tonnes per annum (tpa) of comingled and segregated pre-classified general solid waste (non-putrescible).
Location	46-48 Peachtree Road, Penrith NSW 2750
Applicant	Benedict Recycling Pty Ltd
Date of Issue	July 2016
General Requirements	The Environmental Impact Statement (EIS) for the development must meet the form and content requirements in clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*. In addition, the EIS must include a: • detailed description of the development, including: – existing operations carried out on the site and how the site operates lawfully under the *Environmental Planning and Assessment Act 1979* (EP&A Act) including any reliance on existing use rights and/or planning approvals and how these will be consolidated; – need for the proposed development; – justification for the proposed development; – likely staging of the development - including demolition, construction, and operational stage/s; – likely interactions between the development and existing, approved and proposed operations in the vicinity of the site; – plans of any proposed building works; and – contributions required to offset the proposal. • demonstrate that the site is suitable for the proposed use in accordance with *State Environmental Planning Policy No 55 – Remediation of Land*; • consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments; • consideration of issues discussed in **Attachment 2** (public authority responses to key issues); • risk assessment of the potential environmental impacts of the development, identifying the key issues for further assessment; • detailed assessment of the key issues specified below, and any other significant issues identified in this risk assessment, which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of all stages of the development, including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and statutes; – a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the development, including proposals for adaptive management and/or contingency plans to manage any significant risks to the environment; and • a consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS. The EIS must also be accompanied by a report from a qualified quantity surveyor providing: • a detailed calculation of the capital investment value (as defined

	in clause 3 of the *Environmental Planning and Assessment Regulation 2000*) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; • a close estimate of the jobs that will be created by the development during the construction and operational phases of the development; and • certification that the information provided is accurate at the date of preparation.
Key issues	The EIS must address the following specific matters: • **Waste Management** – including: – a description of the waste streams that would be accepted at the site including the maximum daily, weekly and annual throughputs and the maximum size and heights for stockpiles; – a description of waste processing operations, including a description of the technology to be installed, resource outputs, and the quality control measures that would be implemented; – details of how 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; and – 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*. • **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 – plans of any proposed road upgrades, infrastructure works or new roads required for the development. • **Air Quality and Odour** – including: – a quantitative assessment of the potential air quality, dust and odour impacts of the development in accordance with relevant Environment Protection Authority guidelines; – the details of buildings and air handling systems and strong justification for any material handling, processing or stockpiling external to a building; – a greenhouse gas assessment; and – details of proposed mitigation, management and monitoring measures. • **Noise and Vibration** – including: – a quantitative assessment of potential construction, operational and transport noise and vibration impacts in accordance with relevant Environment Protection Authority guidelines; and – details and justification of the proposed noise mitigation and monitoring measures. • **Soil & Water** – including: – a description of water and soil resources, topography, hydrology, watercourses and riparian lands on or nearby to the site; – 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; – a description of how the project is consistent with all relevant Water Sharing Plans and Draft Water Sharing Plans; – details of stormwater/wastewater/leachate management systems including the capacity of onsite detention systems, and measures to

	treat, reuse or dispose of water; – a description of erosion and sediment controls; – an assessment of potential impacts to soil and water resources, topography, drainage lines, watercourses and riparian lands on or nearby to the site; – consideration of salinity, flooding and acid sulfate soil impacts; – consideration of Penrith City Council's Water Sensitive Urban Design Strategy; – characterisation of the nature and extent of any contamination on the site and surrounding area; and – details of any remediation that has occurred to date and associated management measures and plans. • **Hazards** – including: – a preliminary risk screening completed in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33 (DoP, 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the development; and – should preliminary screening indicate that the project is "potentially hazardous" a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). • **Fire and Incident Management** – including technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill and clean-up equipment and fire management and containment measures (particularly, in the event of a fire). • **Visual** – including: – an assessment of the potential visual impacts of the project; and – details of proposed measures to minimize visual impact on the scenic character and landscape values of the surrounding area.
Plans and Documents	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*. These documents should be included as part of the EIS rather than as separate documents.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and potentially affected landowners. In particular you must consult with: • Penrith City Council; • Environment Protection Authority; • Department of Primary Industries; • Office of Environment and Heritage; • Roads and Maritime Services; and • nearby land owners and occupiers that may be affected by the proposal. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.
Further consultation after 2 years	If you do not lodge an EIS for the development within 2 years of the issue date of these SEAR's, you must consult with the Secretary in relation to the requirements for lodgement.
References	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this development.

ATTACHMENT 1
Technical and Policy Guidelines

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:
http://www.planning.nsw.gov.au
http://www.bookshop.nsw.gov.au
http://www.publications.gov.au

Policies, Guidelines & Plans	
Plans and Documents	
	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: 1. An existing site survey plan drawn at an appropriate scale illustrating: • the location of the land, boundary measurements, area (sq. m) and north point; • the existing levels of the land in relation to buildings and roads; • location and height of existing structures on the site; • location and height of adjacent buildings and private open space; and • all levels to be to Australian Height Datum (AHD). 2. A locality/context plan drawn at an appropriate scale should be submitted indicating: • watercourses including nearby rivers and creeks, and dams; • significant local features such as heritage items; • the location and uses of nearby buildings, shopping and employment areas, hospitals and schools; and • traffic and road patterns, pedestrian routes and public transport nodes. 3. An indication of the location of the site with respect to the relevant Land Zoning Map within the *Shoalhaven Local Environment Plan 2014*. 4. Drawings at an appropriate scale illustrating: • detailed plans, sections and elevations of the existing building, which clearly show all proposed internal and external alterations and additions.
Documents to be submitted	
	Documents to submit include: • 1 electronic copy of all the documents and plans for review prior to exhibition; and • other copies as determined by the Department once the development application is lodged.

Technical and Policy Guidelines

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:
http://www.planning.nsw.gov.au
http://www.bookshop.nsw.gov.au
http://www.publications.gov.au

Policies, Guidelines & Plans

Aspect	Policy /Methodology
Waste	
	Waste Avoidance and Resource Recovery Strategy 2010-2021 (EPA)
	The National Waste Policy: Less Waste More Resources 2009
	Waste Classification Guidelines (DECC)
	Environmental guidelines: Composting and Related Organics Processing Facilities (DEC)
	Environmental guidelines: Use and Disposal of Biosolid Products (NSW EPA)
	Composts, soil conditioners and mulches (Standards Australia, AS 4454)
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2010
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
Odour	
	Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
Noise	
	NSW Industrial Noise Policy (DECC)
	NSW Road Noise Policy (EPA, 2011)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Interim Construction Noise Guideline (2009)
Soil and Water	
Soil	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC)
	Draft Guidelines for the Assessment & Management of Groundwater Contamination (DECC)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (DOP)
	Acid Sulfate Soils Manual (Stone et al. 1998)
Surface Water	National Water Quality Management Strategy: Water quality management - an outline of the policies (ANZECC/ARMCANZ)
	NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
	National Water Quality Management Strategy: Policies and principles - a reference document (ANZECC/ARMCANZ)

	National Water Quality Management Strategy: Implementation guidelines (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
	NSW State Rivers and Estuaries Policy(1993)
	State Water Management Outcomes Plan
	NSW Government Water Quality and River Flow Environmental Objectives (DECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Managing Urban Stormwater: Soils & Construction (Landcom)
	Managing Urban Stormwater: Treatment Techniques (DECC)
	Managing Urban Stormwater: Source Control (DECC)
	Technical Guidelines: Bunding & Spill Management (DECC)
	NSW Floodplain Development Manual 2005
Groundwater	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Australian Groundwater Modelling Guidelines (NWC, 2012)
	NSW State Groundwater Policy Framework Document (DLWC)
	NSW State Groundwater Quality Protection Policy (DLWC)
	NSW State Groundwater Dependent Ecosystems Policy (2002)
	NSW State Groundwater Quantity Management Policy (DLWC) Draft
	Guidelines for the Assessment and Management of Groundwater Contamination (DEC, 2007)
Hazards	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines (DUAP)
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Greenhouse Gas	
	The National Greenhouse and Energy Reporting (Measurement) Technical Guidelines (NGER Technical Guidelines)
	Guidelines for Energy Savings Action Plans (DEUS, 2005)
Visual	
	Control of Obtrusive Effects of Outdoor Lighting (Standards Australia, AS 4282)
	State Environmental Planning Policy No 64 - Advertising and Signage
Heritage	
	Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011)
	Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)
	Draft Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation (Department of Planning, 2005)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)

ATTACHMENT 2

Public Authority Responses to Request for Key Issues

Bianca Thornton

From: Andrew Helman <andrew.helman@industry.nsw.gov.au>
Sent: Monday, 11 July 2016 2:26 PM
To: Bianca Thornton
Cc: Landuse Minerals
Subject: SEARs request - SSD7733 - Benedict Recycling, Penrith - NSW Geological Survey

Good afternoon Bianca,

Thankyou for the opportunity to provide SEARs for SSD7733 - Penrith Waste (Benedict) Recycling.

NSW Department of Industry - Geological Survey of NSW does not have SEARs to issue as there are no identified mineral resources, coal, petroleum or extractive industries of State or regional significance in the vicinity of the proposal.

Kind regards,
Andrew

Andrew Helman | Geoscientist | Minerals and Land Use Assessment | Geological Survey of NSW

NSW Department of Industry | Division of Resources and Energy

516 High Street | Maitland NSW 2320 | PO Box 344 | Hunter Region Mail Centre NSW 2310

T: 02 49 31 6572 | E: andrew.helman@industry.nsw.gov.au
W: www.resourcesandenergy.nsw.gov.au

Bianca Thornton

From: Dana Alderson
Sent: Tuesday, 12 July 2016 11:30 AM
To: Bianca Thornton
Subject: RE: Request for Secretary's Environmental Assessment Requirements (SEARs) Benedict Recycling Pty Ltd SSD 7733

Hi Bianca,

Thank you for forwarding the above proposal to the Office of Environment and Heritage (OEH) for consideration.

After reviewing the relevant documents, OEH's Greater Sydney Planning Team has concluded that the matter does not contain biodiversity, natural hazards or Aboriginal cultural heritage issues that require a formal OEH response. We have no further need to be involved in the assessment of this project.

Please note that the Heritage Division in the Office of Environment and Heritage may wish to provide separate comments. The Heritage Division can be contacted at heritage@heritage.nsw.gov.au

Kind regards,
Dana

Dana Alderson
Planning Team
Regional Operations Group
Office of Environment and Heritage
T: 02 8837 6304
F: 02 9995 6900
W: www.environment.nsw.gov.au

Please note my work days are Mon-Thurs

Please consider the environment before printing this e-mail

From: Bianca Thornton
Sent: Monday, 4 July 2016 9:54 AM
To: development.hunter@rms.nsw.gov.au; EPA WARR Waste Operations Mailbox <waste.operations@epa.nsw.gov.au>; EPA Planning Matters Mailbox <planning.matters@epa.nsw.gov.au>; OEH Planning Matters Mailbox <PlanningMatters@environment.nsw.gov.au>; landuse.enquiries@dpi.nsw.gov.au; landuse.enquiries@industry.nsw.gov.au; water.referrals@dpi.nsw.gov.au; landuse.minerals@trade.nsw.gov.au; council@penrithcity.nsw.gov.au
Cc: Kate Masters <Kate.Masters@planning.nsw.gov.au>
Subject: Request for Secretary's Environmental Assessment Requirements (SEARs) Benedict Recycling Pty Ltd SSD 7733

Dear All,

The Department has received a request for Secretary's environmental assessment requirements (SEARs) from EMM Consulting Pty Ltd on behalf of Benedict Recycling Pty Ltd (the Applicant) for the proposed Penrith Waste Recycling and Transfer Facility at 46-48 Peachtree Road, Penrith. The proposed facility will accept 180,000 tonnes per annum (tpa) of comingled and segregated pre-classified general solid waste (non-putrescible).

The proposal is State significant development under *State Environmental Planning Policy (State and Regional Development) 2011* as the relevant threshold for resource recovery is 100,000 tpa. As such, the Minister for Planning is the consent authority.

I have attached a copy of the Preliminary Environmental Assessment to assist with issuing your comments. I would appreciate it if you could review the documentation and send me your Agency's requirements for the preparation of the Environmental Impact Statement by close of business **Monday, 18 July 2016.**

Once the SEARs request has been allocated to the relevant officer could you please let me know who from your Agency will be the contact for the project.

Please contact either myself (see details below) or Kate Masters (9228 6321) if you have any enquiries about the proposal.

Regards,

Bianca Thornton
Student Planner
Industry Assessments | Department of Planning & Environment
23-33 Bridge Street SYDNEY 2000 | GPO Box 39 SYDNEY 2001
E bianca.thornton@planning.nsw.gov.au
T 02 9228 2040

NSW | Planning & Environment

Transport
Roads & Maritime
Services

12 July 2016

Our Reference: SYD16/00846
Council Ref: SSD 7733

Student Planner
Industry Assessments
Department of Planning & Environment
GPO Box 39 SYDNEY NSW 2001

Attention: Bianca Thornton

Dear Sir/Madam,

SEARS FOR PENRITH WASTE RECYCLING AND TRANSFER FACILITY
46-48 PEACHTREE ROAD, PENRITH

Reference is made to your email dated 5 July 2016 requesting Roads and Maritime Services (Roads and Maritime) to provide details of key issues and assessment requirements regarding the abovementioned development for inclusion in the Secretary's Environmental Assessment Requirements (SEARs).

Roads and Maritime require the following issues to be included in the transport and traffic impact assessment of the proposed development:

1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required).

   The key intersections to be examined / modelled include:

   - Castlereagh Road/Peachtree Road

2. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).

3. Proposed number of car parking spaces and compliance with the appropriate parking codes.

4. Details of service vehicle movements (including vehicle type and likely arrival and departure times).

5. Roads and Maritime requires the Environmental Assessment report to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling); the potential for implementing a location-specific sustainable travel plan (eg 'Travelsmart' or other travel behaviour change initiative); and the provision of facilities to increase the non-car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site by public transport.

6. Roads and Maritime will require in due course the provision of a traffic management plan for all demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

Should you have any further inquiries in relation to this matter, please do not hesitate to contact Hans Pilly Mootanah on telephone 8849 2076 or by email at development.sydney@rms.nsw.gov.au

Yours sincerely,

Pahee Rathan
Senior Land Use Planner
Network and Safety Section

NSW GOVERNMENT | Department of Primary Industries

OUT16/26864

Ms Bianca Thornton
Industry Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

bianca.thornton@planning.nsw.gov.au

Dear Ms Thornton

Benedict Recycling Facility, Penrith (*SSD 7733*)
Request for Secretary's Environmental Assessment Requirements

I refer to your email dated 4 July 2016 to the Department of Primary Industries in respect to the above matter. Comment has been sought from relevant divisions of DPI. Any further referrals to DPI can be sent by email to landuse.enquiries@dpi.nsw.gov.au.

The Department has reviewed the supporting documentation accompanying the request for SEARs and recommends the EIS be required to include:

- Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Full technical details and data of all surface and groundwater modelling.
- Proposed surface and groundwater monitoring activities and methodologies.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Consideration of relevant policies and guidelines.
- A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table).

Further detailed generic assessment requirements from DPI Water that may assist the proponent are included at **Attachment A**.

Yours sincerely

Graeme White
A/Director, Planning Policy & Assessment Advice
18 July 2016

Attachment A

Benedict Recycling Facility, Penrith (*SSD 7733*)
Request for Secretary's Environmental Assessment Requirements
Detailed comments – DPI Water

DPI Water General Assessment Requirements for general projects

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the DPI Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (*WMA 2000*), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)
Key points:

- Volumetric licensing in areas covered by water sharing plans
- Works within 40m of waterfront land
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979 (EP&A Act).*
- No exemptions for volumetric licensing apply as a result of the *EP&A Act.*
- Basic landholder rights, including harvestable rights dams
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*
- Maximum penalties of $2.2 million plus $264,000 for each day an offence continues apply under the *WMA 2000*

Water Act 1912 (WA 1912)
Key points:

- Volumetric licensing in areas where no water sharing plan applies
- Monitoring bores
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000.*
- Flood management works
- No exemptions apply to licences or permits under the *WA 1912* as a result of the *EP&A Act.*
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011
Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Harvestable Rights Orders

Water Sharing Plans

It is important that the proponent understands and describes the ground and surface water sharing plans, water sources, and management zones that apply to the project. The relevant water sharing plans can be determined spatially at www.ourwater.nsw.gov.au. Multiple water sharing plans may apply and these must all be described.

The *Water Act 1912* applies to all water sources not yet covered by a commenced water sharing plan.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
    - Sufficient market depth to acquire the necessary entitlements for each water source.
    - Ability to carry out a "dealing" to transfer the water to relevant location under the rules of the WSP.
    - Daily and long-term access rules.
    - Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
- NSW Aquifer Interference Policy (NOW, 2012)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW Wetlands Policy (2010)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

DPI Water policies can be accessed at the following links:
http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx
http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx

An assessment framework for the NSW Aquifer Interference Policy can be found online at: http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc.).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:
http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.
- Identification of all surface water sources as described by the relevant water sharing plan.

- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
    - flow of surface water, sediment movement, channel stability, and hydraulic regime,
    - water quality,
    - flood regime,
    - dependent ecosystems,
    - existing surface water users, and
    - planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- The known or predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to DPI Water by submitting a "Form A" template. DPI Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.
- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).

- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
  - the effect of the proposal on the recharge to groundwater systems;
  - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
  - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
  - wetlands/swamps, watercourses and top of bank;
  - riparian corridor widths to be established along the creeks;
  - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);
  - the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
  - proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.
- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.

- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation

Where significant modification to landform is proposed, the EIS must include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project; and
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation.

Consultation and general enquiries
General licensing enquiries can be made to Advisory Services: water.enquiries@dpi.nsw.gov.au, 1800 353 104.

Assessment or state significant development enquiries, or requests for review or consultation should be directed to the Strategic Stakeholder Liaison Unit, water.referrals@dpi.nsw.gov.au.

A consultation guideline and further information is available online at:
www.water.nsw.gov.au/water-management/law-and-policy/planning-and-assessment

End Attachment A

Bianca Thornton

From: Belinda Borg <Belinda.Borg@penrith.city>
Sent: Monday, 18 July 2016 4:52 PM
To: Bianca Thornton
Subject: Response to Request for Secretary's Environmental Assessment Requirements Benedict Recycling Pty Ltd 46-48 Peachtree Road Penrith

Dear Bianca,

Reference is made to your email dated July 2016 regarding the request for Secretary's environmental assessment requirements (SEARs) from EMM Consulting Pty Ltd on behalf of Benedict Recycling Pty Ltd (the Applicant) for the proposed Penrith Waste Recycling and Transfer Facility at 46-48 Peachtree Road, Penrith.

In preparation of the Environmental Impact Statement (EIS) the applicant should address the following:

Penrith Local Environmental Plan 2010
The State Significant Development will need to address Penrith Local Environment Plan 2010. In particular, consideration will need to be given to Clause 7.5 Protection of Scenic Character and Landscape Values which applies to the site.

Appropriateness of the site/ Sensitive Receivers
The immediate locality has a number of surrounding land uses that are considered to be of greater sensitivity that general industrial uses. This includes, but is not limited to, McDonalds North Penrith and Peachtree Hotel.
Consideration should also be given to the existing recreational spaces along the eastern bank of the Nepean River (Weir Reserve & Nepean Rowing Club) to ensure to ensure that the amenity of these spaces is maintained as well as residential receivers.

Traffic Impacts
The traffic assessment report needs to consider the impacts on the Castlereagh Road/ Peachtree Road intersection as well as Castlereagh Road/ Mullins Road as an alternative access point to the development site (particularly given the local and regional road network & the provision of a roundabout at this intersection).

Environmental Impacts
The development is considered a 'scheduled activity' under the Protection of the Environment Operations Act, and, as such, the Environment Protection Authority will also be assessing the proposal and regulating the development once operational. Generally, Council's environmental requirements are consistent with those of the Environment Protection Authority. Further to this, the documentation does identify those areas that Council would usually request the applicant to consider for this type of development, including noise, air quality, water management, waste management, SEPP 33 and SEPP 55.
It is noted that the application has identified that assessments will be provided to address noise and air quality impacts.

Visual Impacts
Visual impacts when viewed from the adjoining properties. The EIS should detail the height of any stockpiles within the site and the visual impacts on the adjoining properties when considering the height of such stockpiles.

Stormwater
Details of the existing stormwater system within the site need to be provided within the documentation to ensure all stormwater from the site is appropriately captured and disposed of.

Water Sensitive Urban Design
The EIS is to consider and address Council's Water Sensitive Urban Design Strategy located within Penrith Development Control 2014.

Please ensure Council is notified upon receipt of the State Significant Application.

Regards,

Belinda Borg
Senior Environmental Planner

E bborg@penrithcity.nsw.gov.au
T (02) 4732 7505 | F (02) 4732 7958 |
PO Box 60, PENRITH NSW 2751
www.penrithishere.com.au
www.penrithcity.nsw.gov.au

#RESPOND 7229106
#ECMBODY

Industry Assessments
GPO Box 39
SYDNEY NSW 2001

Attention: Bianca Thornton

Notice Number	1542303
File Number	SF16/28920
Date	20-Jul-2016

RE: SSD 7733 - Proposed waste recycling and transfer facility - 46-48 Peachtree Rd, Penrith

I refer to your request for the Environment Protection Authority's (EPA) requirements for the environmental assessment (EA) in regard to the above proposal received by EPA on 4 July 2016.

The EPA has considered the details of the proposal as provided by EMM Consulting on behalf of Benedict Recycling Pty Ltd and has identified the information it requires to assess the proposal, as set out in Attachment A. In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

1. waste management;
2. noise impacts and mitigation;
3. air and odour impacts and mitigation.

In carrying out the assessment, the proponent should refer to the relevant guidelines as listed in Attachment B and any relevant industry codes of practice and best practice management guidelines.

Please note that this response does not cover biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

The Proponent should be made aware that any commitments made in the EA may be formalised as approval conditions and may also be placed as formal licence conditions.

The Proponent should be made aware that, consistent with provisions under Part 9.4 of the *Protection of the Environment Operations Act 1997* ("the Act") the EPA may require the provision of a financial assurance and/or assurances. The amount and form of the assurance(s) would be determined by the EPA and required as a condition of an Environment Protection Licence ("EPL").

In addition, as a requirement of an EPL, the EPA will require the Proponent to prepare, test and implement a Pollution Incident Response Management Plan and/or Plans in accordance with Section 153A of the Act.

Yours sincerely

Celeste Forestal
Unit Head
Waste & Resource Recovery
(by Delegation)

SEARS - Project specific

Benedict Recycling Pty Ltd proposes to construct and operate a recycling facility at 46-48 Peachtree Rd, Penrith. The proposed facility will receive up to 180,000 tonnes per year of waste for processing including construction and demolition waste; commercial and industrial waste; excavated natural material; garden and wood waste; metals; and railway ballast.

In addition to the requirements set out below in Attachment A, please ensure that any EIS submitted for the project addresses the following:

- details of ownership of the land and if not owned by Benedict Recycling, then copies of any lease agreement demonstrating permitted occupation of the proposed site;
- the EPA notes that a waste management plan will be prepared "prior to the start of operations". The EPA requires that the EIS includes a waste management plan for assessment and public exhibition;
- clarification regarding source separation and the types of waste to be received;
- quantities of each type of waste received;
- details of the maximum volume of each waste type to be stored onsite at any one time and the maximum annual throughput of each waste type;
- a description of waste processing procedures, for each type of waste;
- a detailed site plan identifying all waste storage and processing areas for each type of waste;
- type and quantities of materials produced and their intended fate;
- details of any materials that will be produced under a Resource Recovery Order, and the controls in place for meeting the conditions of that order;
- in addition to a project concept plan, the EIS must include a floor diagram that includes: areas for haulage, waste receival, processing, storage and quarantine; infrastructure for environmental controls including dust, noise, stormwater, wheelwash and weighbridge; and site boundaries, stormwater drainage areas and unused stabilised areas. Note that all external surfaces must be either sealed or vegetated;
- any external area where waste vehicles wait for loading/unloading must drain to a stormwater quality treatment device sufficient to remove any contaminants, both solid and dissolved prior to discharge to the offsite stormwater system;
- details of any workshop or garaging of waste vehicles. All vehicle repair or washing must be conducted in an area that excludes rainwater, is sufficiently bunded to contain all fluids within and is sealed to be impervious to those fluids;
- noise assessment for the site (as per Attachment A below) that also considers potential noise impacts from crushing/grinding activities proposed to be undertaken at the site and waste deliveries 24 hours per day;
- odour assessment for the site (as per Attachment A below) that also considers potential odour impacts from all wastes but ensure it includes acceptance, processing and stockpiling of gardenwaste and woodwaste; and glass waste. The EPA notes the storage of hazardous materials for welding - the EIS should elaborate on the reason for welding and consider any potential odours;
- details of the above-ground diesel tank and bunding - any diesel storage area must be undercover;
- the EPA notes the previous use of the site as a scrap metal/wrecking yard. In the EIS, the proponent should consider any previous contamination (soil or other) and existence of any underground storage tanks;
- the EPA notes the proposed facility is in a largely industrial area, but the EIS should consider all sensitive receivers including the nearby tennis courts.

The EPA advises that best practice is to ensure that all waste and materials are processed and stored inside a building. The EPA expects that all waste handling activities, inclusive of the receival, sorting, processing, sampling, quarantine and storage is conducted within an enclosed building. No waste, inclusive of finished products, may be stored outside.

ATTACHMENT A: EIS REQUIREMENTS FOR

BENEDICT RECYCLING PTY LTD - PENRITH

How to use these requirements

The EPA requirements have been structured in accordance with the DIPNR EIS Guidelines, as follows. It is suggested that the EIS follow the same structure:

A. Executive summary

B. The proposal

C. The location

D. Identification and prioritisation of issues

E. The environmental issues

F. List of approvals and licences

G. Compilation of mitigation measures

H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
  a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
  b) a life cycle approach to the production, use or disposal of products
  c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
  d) the staging and timing of the proposal and any plans for future expansion
  e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
  a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
  b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
  a) measures to minimise waste (typically through addressing source reduction)
  b) proposals for use or recycling of by-products
  c) proposed disposal methods for solid and liquid waste
  d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
  e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
  f) soil contamination treatment and prevention systems.
- Outline construction works including:
  a) actions to address any existing soil contamination
  b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)
  c) construction timetable and staging; hours of construction; proposed construction methods
  d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.

Air

- Identify all sources of air emissions from the development.
  Note: emissions can be classed as either:
  - *point (eg emissions from stack or vent) or*
  - *fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).*
- Provide details of the project that are essential for predicting and assessing air impacts including:
  a) the quantities and physio-chemical parameters (eg concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
  b) an outline of procedures for handling, transport, production and storage
  c) the management of solid, liquid and gaseous waste streams with potential for significant air impacts.

Noise and vibration

- Identify all noise sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters:
  a) including the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on http://www.environment.nsw.gov.au/ieo/index.htm, using technical criteria derived from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000)
  b) the management of discharges with potential for water impacts
  c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts eg effluent ponds) and showing potential areas of modification of contours, drainage etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Waste and chemicals

- Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-liquid Wastes* (NSW EPA, 1999).
- Provide details of liquid waste and non-liquid waste management at the facility, including:
  a) the transportation, assessment and handling of waste arriving at or generated at the site
  b) any stockpiling of wastes or recovered materials at the site
  c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
  d) the method for disposing of all wastes or recovered materials at the facility
  e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
  f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
  a) the quantity of spoil material likely to be generated
  b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
  c) the need to maximise reuse of spoil material in the construction industry
  d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
  e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the guidelines: *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (NSW EPA, 1999).

ESD

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:

an assessment of a range of options available for use of the resource, including the benefits of each option to future generations

proper valuation and pricing of environmental resources

  f) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

4. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
  a) sites and site layouts
  b) access modes and routes
  c) materials handling and production processes
  d) waste and water management
  e) impact mitigation measures
  f) energy sources
- Selection of the preferred option should be justified in terms of:
  a) ability to satisfy the objectives of the proposal
  b) relative environmental and other costs of each alternative
  c) acceptability of environmental impacts and contribution to identified environmental objectives
  d) acceptability of any environmental risks or uncertainties
  e) reliability of proposed environmental impact mitigation measures
  f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
  a) meteorological data (eg rainfall, temperature and evaporation, wind speed and direction)
  b) topography (landform element, slope type, gradient and length)
  c) surrounding land uses (potential synergies and conflicts)
  d) geomorphology (rates of landform change and current erosion and deposition processes)
  e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
  f) ecological information (water system habitat, vegetation, fauna)
  g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may effect plume dispersion. Provide and analyse site representative data on following meteorological parameters:
  a) temperature and humidity
  b) rainfall, evaporation and cloud cover
  c) wind speed and direction
  d) atmospheric stability class
  e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
  f) katabatic air drainage
  g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic

perspective. The Water Quality and River Flow Objectives on the website: http://www.environment.nsw.gov.au/ieo/index.htm should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
  a) relevant NSW government guidelines
  b) industry guidelines
  c) EISs for similar projects
  d) relevant research and reference material
  e) relevant preliminary studies or reports for the proposal
  f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
  a) all issues identified including local, regional and global impacts (eg increased/ decreased greenhouse emissions)
  b) key issues which will require a full analysis (including comprehensive baseline assessment)
  c) issues not needing full analysis though they may be addressed in the mitigation strategy
  d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.

- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:

  a) operational procedures to manage environmental impacts

  b) monitoring procedures

  c) training programs

  d) community consultation

  e) complaint mechanisms including site contacts

  f) strategies to use monitoring information to improve performance

  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

4. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data. This description should include the following parameters

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (eg potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the DECCW.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- For potentially odorous emissions provide the emission rates in terms of odour units (determined by techniques compatible with EPA / DECCW procedures). Use sampling and analysis techniques for individual or complex odours and for point or diffuse sources, as appropriate.

  Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.

- Reference should be made to Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC, 2001); Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC, 2007); Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006); Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006); Load Calculation Protocol for use by holders of NSW Environment Protection Licences when calculating Assessable Pollutant Loads (DECC, 2009)>.

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

5. Noise and vibration

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels in accordance with the *NSW Industrial Noise Policy*.
- Determine the existing road traffic noise levels in accordance with the *NSW Environmental Criteria for Road Traffic Noise*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
  a) details of equipment used for the measurements
  b) a brief description of where the equipment was positioned
  c) a statement justifying the choice of monitoring site, including the procedure used to choose the site, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*
  d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
  e) a description of the dominant and background noise sources at the site
  f) day, evening and night assessment background levels for each day of the monitoring period
  g) the final Rating Background Level (RBL) value
  h) graphs of the measured noise levels for each day should be provided
  i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*
  j) determination of LAeq noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:
  a) determination of the intrusive criterion for each identified potentially affected receiver
  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
  c) determination of the amenity criterion for each receiver

d) determination of the appropriate sleep disturbance limit.

- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Where LA1(1min) noise levels from the site are less than 15 dB above the background LA90 noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in Appendix B of the *NSW Environmental Criteria for Road Traffic Noise*.
- Determine expected noise level and noise character (eg tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:
  a) site establishment
  b) construction
  c) operational phases
  d) transport including traffic noise generated by the proposal
  e) other services.

  Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).
- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.
- The noise impact assessment report should include:
  a) a plan showing the assumed location of each noise source for each prediction scenario
  b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
  c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc
  d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated
  e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions
  f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate
  g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
  h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy*.
- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.

- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:
  a) locations where the noise level exceeds the criteria and extent of exceedence
  b) numbers of people (or areas) affected
  c) times when criteria will be exceeded
  d) likely impact on activities (speech, sleep, relaxation, listening, etc)
  e) change on ambient conditions
  f) the result of any community consultation or negotiated agreement.
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:
  a) bench height, burden spacing, spacing burden ratio
  b) blast hole diameter, inclination and spacing
  c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
  b) control of traffic (eg: limiting times of access or speed limitations)
  c) resurfacing of the road using a quiet surface
  d) use of (additional) noise barriers or bunds
  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
  f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension
  g) driver education
  h) appropriate truck routes
  i) limit usage of exhaust breaks
  j) use of premium muffles on trucks

k) reducing speed limits for trucks

l) ongoing community liaison and monitoring of complaints

m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

  Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) *or be approved and analyses undertaken by accredited laboratories).*

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: http://www.environment.nsw.gov.au/ieo/index.htm. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANCECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries or the NSW Salinity Strategy (DLWC, 2000) (http://www.environment.nsw.gov.au/salinity/government/nswstrategy.htm).
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:

  a) lake or estuary flushing characteristics

b) specific human uses (e.g. exact location of drinking water offtake)

c) sensitive ecosystems or species conservation values

d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc

e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment

f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with the technical guidelines section 'Bunding and Spill Management' of the *Authorised Officers Manual* (EPA, 1995) (http://www.epa.nsw.gov.au/mao/bundingspill.htm) and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:

  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and

  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.

- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to Managing Urban Stormwater: Soils and Construction (DECC, 2008), Guidelines for Fresh and Marine Water Quality ANZECC 2000), Environmental Guidelines: Use of effluent by Irrigation (DEC, 2004)>.

Describe management and mitigation measures

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (eg preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.
- Describe geomorphological impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising instream works

d) treating existing accelerated erosion and deposition

e) monitoring program.

- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites (OEH, 2011); Contaminated Sites – Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report (EPA, 2003)>.

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
  c) proposals for the management of these soils – see *Assessing and Managing Acid Sulfate Soils,* Environment Protection Authority, 1995 (note that this is the only methodology accepted by the EPA).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (eg water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (eg travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (eg outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT B: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+140+1997+cd+0+N
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.epa.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+428+2010+cd+0+N
Noise and Vibration	
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
Industrial Noise Policy Application Notes	http://www.epa.nsw.gov.au/noise/applicnotesindustnoise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.epa.nsw.gov.au/resources/noise/roadnoise.pdf
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.epa.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.epa.nsw.gov.au/noise/railnoise.htm

Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 1996)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/solidlandfill.pdf
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.epa.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf
Waste Classification Guidelines (DECC, 2009)	http://www.epa.nsw.gov.au/waste/envguidlns/index.htm
Resource recovery exemption	http://www.epa.nsw.gov.au/waste/RRecoveryExemptions.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	http://www.environment.nsw.gov.au/acidsulfatesoil/
Acid Sulfate Soils Planning Maps	http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm
Contaminated Sites Assessment and Remediation	
Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/assessingdev/pdf/gu_contam.pdf
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from EPA's Environment Line

National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.scew.gov.au/nepms/assessment-site-contamination
Soils – general	
Managing land and soil	http://www.environment.nsw.gov.au/soils/landandsoil.htm
Managing urban stormwater for the protection of soils	http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf

Appendix C

Consultation factsheet

PENRITH WASTE RECYCLING AND TRANSFER FACILITY FACTSHEET

46–48 Peachtree Road, Penrith

Project benefits

Benedict Recycling's products are turned into valuable, sustainable products and sold back into the industry for use in variety of applications including recycled soil, aggregate, recycled bedding sand for pipe laying, wood mulch and road base.

Benedict Recycling is proud of their high rates of resource recovery and delivery of quality recycled materials to the community. Benedict Recycling's products have been utilised in many major Sydney projects, including M5 widening, Barangaroo Development, WestConnex M4 widening, M2 upgrade, NorthConnex, Wet'n Wild, Sydney Olympic Park and thousands more.

The facility would also provide:

- local businesses with opportunities to recycle their waste locally
- an opportunity to divert tonnes of waste otherwise destined for lower order uses or landfill
- employment

Questions?

For any questions and comments that you might have, please ring Benedict Recycling's Ian Collier on **0431 379 669**.

The site

Benedict Recycling Pty Ltd (Benedict Recycling) proposes to construct and operate a waste recycling and transfer facility at 46–48 Peachtree Road, Penrith.

There are very few recycling facilities in Western Sydney accepting the types of wastes that that would be accepted by the proposed facility. The closest facilities are the St Marys Resource Recovery Facility, St Marys, which is close to capacity, and the Penrith Landfill, Mulgoa, which will soon close.

Benedict Recycling purchased the site in Penrith because it is in an industrial area and is readily accessible to light and heavy vehicles. The site is currently used by an autowreckers and there are a range of industrial and commercial businesses in the surrounding area. Many of these businesses generate the types of wastes that would be accepted by the facility although, as described below, some of their wastes will not be accepted.

Benedict Recycling will improve the appearance of the site as part of the development, including landscaping the street frontage, painting the building and installing modern signage.

The nearest residences are about 620 m to the south-west on the far side of the Main Western Railway and the Western Highway and approximately 620 m to the east on Combewood Avenue and activities at the facility will not be seen or be discernable at these residences.

Wastes accepted

The facility would only accept solid waste that is classified by the NSW Environment Protection Authority (EPA) as 'General Waste (Non-putrescible)'. This would be specified by the facility's development consent that would be enforced by the Department of Planning and Environment and by the site's Environment Protection Licence that would be enforced by the EPA.

Non-putrescible waste is waste that does not readily decay under standard conditions; does not emit offensive odours; and does not attract vermin or wildlife (such as flies, birds and rodents). Putrescible waste is solid waste that contains organic matter capable of being decomposed by microorganisms producing odours. **The facility would not accept putrescible or odorous waste.** The small quantities of vegetation waste that are expected to be contained in loads of mixed waste would be separated and managed so that it does not start composting or producing odours.

The facility would not accept special, liquid, hazardous, restricted solid waste or general solid waste (putrescible).

Accepted		Not Accepted
Excavated natural materials (eg sand and sandstone)	Rubber	General solid waste - putrescible
Uncontaminated soils	Timber	Odorous waste
Tiles, bricks, tiles, concrete and masonry	Vegetation waste	Hazardous waste
Glass	Metals	Clinical and related waste
Asphalt	Mixed loads of construction and demolition wastes, and selected commercial and industrial wastes, containing the materials listed above.	Asbestos waste
Gyprock	Segregated loads of construction and demolition wastes, and selected commercial and industrial wastes, containing the materials listed above.	Whole loads of waste tyres
Paper/cardboard		Liquid waste
Cloth		Restricted solid waste
Plastics		Other "Special" waste (as per EPA gazettal notice)

M: 0431 379 669 | E: benedict@benedict.com.au | W: www.benedict.com.au

Site layout and activities

Equipment used on site would include an excavator, front end loader, screens and a manual picking line. Waste processing on the site would include sorting, screening and picking. There would be no crushing or shredding at the facility. Waste screening will occur within the closed shed. The facility would have a processing capacity of 180,000 tonnes of material per annum.

Outgoing products would include ready-to-use soils and segregated recycled materials that would be sent to other facilities for further processing, eg ferrous and non-ferrous metals, dry paper/cardboard, timber, masonry and plastics, as well as non-recyclable materials sent to landfill.

Operating hours and workforce

Benedict Recycling is applying for the following operating hours:

Accept waste deliveries and dispatch materials	6 am and 10 pm Monday to Friday 6 am and 5 pm Saturday 8 am to 4 pm on Sunday
Waste processing	7 am to 6 pm Monday to Saturday when there is sufficient demand but normally 7 am to 4 pm No processing on Sundays or public holidays
Accept waste deliveries from night works	10 pm to 6 am on limited occasions through the year

Benedict Recycling is applying to open at 6 am to allow waste that has been stored in the back of a trucks overnight to be delivered to the facility after 6 am but before most building sites open at 7 am.

Public infrastructure projects such as road and rail construction and maintenance are generally scheduled to minimise delays to the public. As a result, the works often start in, or continue into, the evening and night. More rarely, large private civil project also have consent to undertake construction at night. These public and private projects generate large volumes of the types of wastes that would be accepted by the facility, particularly excavated materials. As well as minimising inconvenience to public infrastructure users, night works can allow the efficient transport of inert wastes generated by civil works on the less busy road network.

Notwithstanding the above, the facility would normally operate from 6 am to 4 pm Monday to Saturday. Benedict Recycling is applying for longer opening hours to allow it to accept waste from these civil construction and maintenance projects in the evening (6 pm to 10 pm) on occasions and more rarely between 10 pm to 6 am. Penrith City Council would be notified prior to occasions when the facility is accepting waste between 10 pm to 6 am.

The facility may also accept waste from 8 am to 4 pm on Sunday if there is sufficient demand from the public.

There will be no processing between 10 pm and 6 am, on Sundays, or on public holidays.

Environmental Impact Statement

An environmental impact statement (EIS) is being prepared to accompany a development application (DA) for the proposal under Part 4 of the NSW Environmental Planning and Assessment Act 1979. The EIS addresses the relevant environmental planning requirements and the requirements of relevant NSW government agencies, including the Secretary's Environmental Assessment Requirements issued by the Department of Planning and Environment for the project (available from majorprojects.planning.nsw.gov.au - search for the project by name). The EIS will be placed on public exhibition.

The consent authority for the DA will be the Minister for Planning and the determining authority will be the Secretary of the Department of Planning and Environment or the Planning Assessment Commission (PAC).

Odour

It is common for neighbours to any proposed waste facilities to raise concerns about odour from composting green waste and putrescibles.

Benedict Recycling's facilities typically only receive coarse vegetation mixed with waste from demolition sites in skip bins. Households generating green waste almost always dispose of this material in the free green bin provided by their council rather than placing a skip that they need to pay for. Businesses generating green wastes, such as landscaping businesses, generate green waste that it is cheaper to dispose of if it is not mixed with other wastes. It would be uneconomic for businesses to deliver this unmixed vegetation waste to the facility. Coarse vegetation and green waste received in mixed loads will be managed so that it does not compost or generate odours.

As there would be no composting on site and no odorous wastes would be accepted, very little, if any, odour would be detected outside of the site.

Dust

Site activities would not generate large amounts of dust. Notwithstanding, dust management measures will include the use of an irrigation water spray system. The EIS will include air quality modelling to determine whether air quality criteria would be met at surrounding receivers.

Noise

Some noise would be generated by activities on the site such as by vehicles delivering waste and by the excavator. The EIS will include noise modelling that will determine whether noise criteria would be met at surrounding receivers. This modelling will consider the daytime, evening and night periods under a range of weather conditions. It will also consider whether there would be any impacts from traffic noise.

Traffic

The number of vehicles accessing the site would vary through the day. During the morning peak hour (8.00 am to 9.00 pm), it is predicted that there would be about 10 cars and 8 trucks delivering waste or dispatching materials from the site. The additional traffic would be noticeable on Peachtree Road but would be well within the road's capacity. The project will not change the operational efficiency of Peachtree/Castlereagh Road intersection or noticeably change traffic volumes on Castlereagh Road.

Other impacts

The EIS will also address a range of other matters including water and visual impacts in accordance with the Secretary's Environmental Assessment Requirements.

Appendix D

Traffic impact assessment

Penrith Waste Recycling and Transfer Facility

46-48 Peachtree Road, Penrith | Traffic Impact Assessment

Prepared for Benedict Recycling Pty Ltd | 1p a l·è 2017

Penrith Waste Recycling and Transfer Facility

46-48 Peachtree Road, Penrith | Traffic Impact Assessment

Prepared for Benedict Recycling Pty Ltd | 15 May 2017

Ground Floor, Suite 01, 20 Chandos Street
St Leonards, NSW, 2065

T +61 2 9493 9500
F +61 2 9493 9599
E info@emmconsulting.com.au

www.emmconsulting.com.au

Penrith Waste Recycling and Transfer Facility

Final

Report J16099RP4 | Prepared for Benedict Recycling Pty Ltd | 1 February 2017

Prepared by	**Tim Brooker**	Approved by	**Philip Towler**
Position	Senior Transport Planner	Position	Associate Director
Signature		Signature	
Date	15 May 2017	Date	15 May 2017

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T +61 (0)2 9493 9500 | F +61 (0)2 9493 9599

Ground Floor | Suite 01 | 20 Chandos Street | St Leonards | New South Wales | 2065 | Australia

www.emmconsulting.com.au

1 Introduction

1.1 General

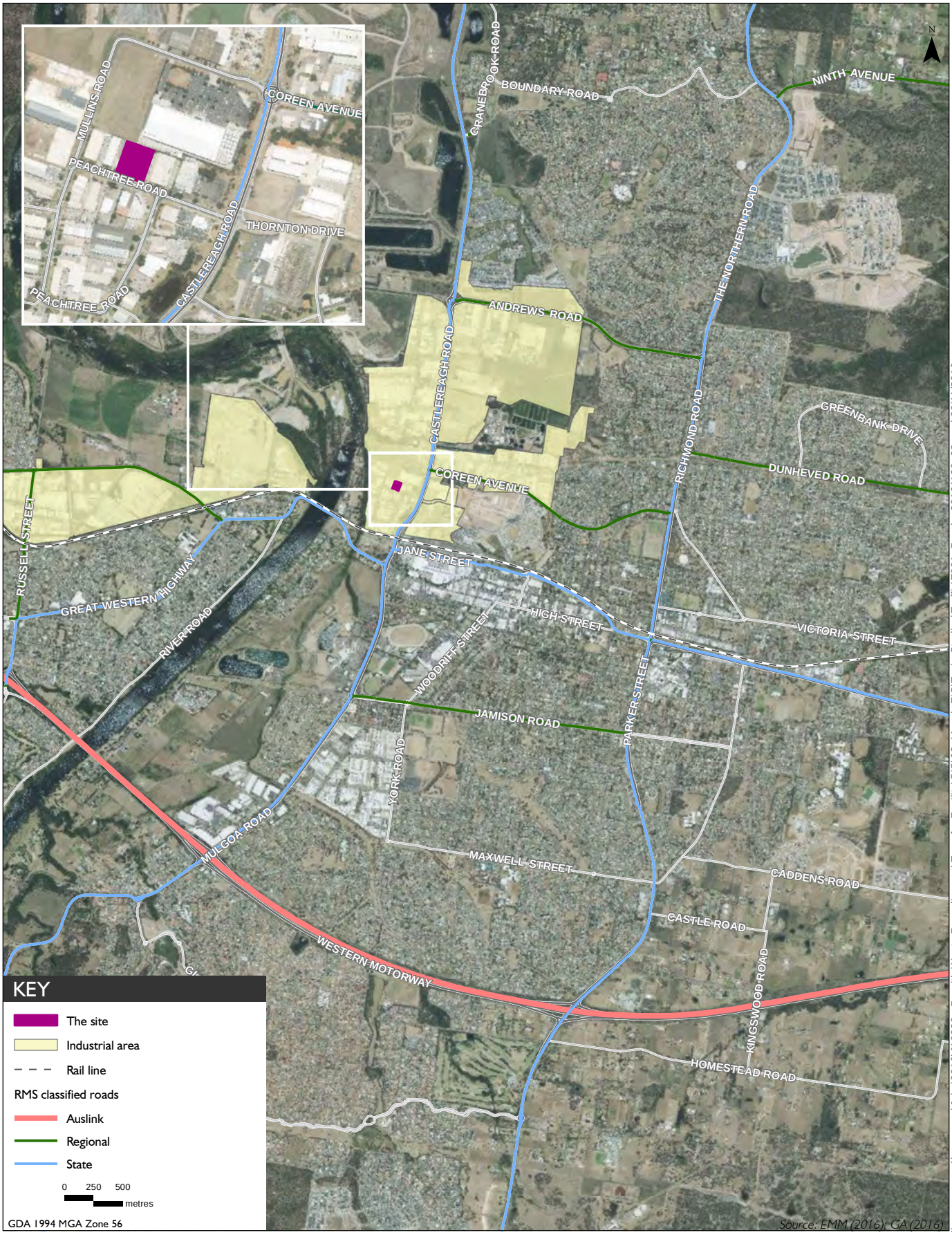
Benedict Recycling Pty Ltd (Benedict Recycling) propose to develop the Penrith Waste Recycling and Transfer Facility that will handle up to 180,000 tonnes per year of waste. The site is located at 46–48 Peachtree Road in Penrith, NSW, and is legally described as Lot 45 in DP 793931 (Figure 1.1). The site is within predominantly industrial surrounds. The site is currently used by an auto wrecking business.

A plan showing the proposed site layout and the location of the proposed buildings and car parking, is shown in Figure 1.2.

1.2 Site components

The development will include the installation and use of the following site components:

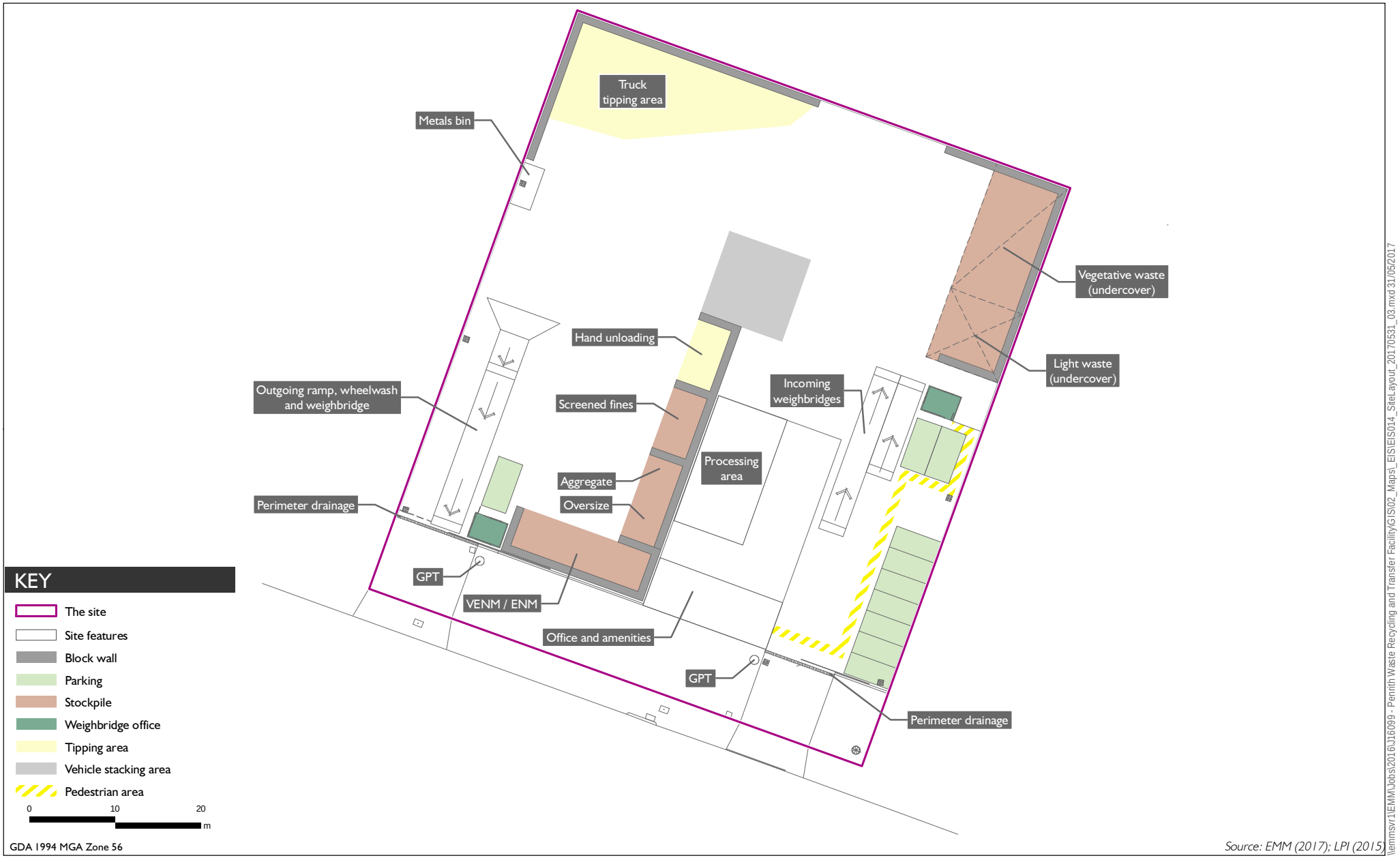
- repairs to the existing concrete surface of the site where required;
- upgrade of the entry driveway at the south-east boundary to Peachtree Road;
- relocation of awning the on eastern boundary to the north-east boundary and subsequent extension;
- construction of an exit driveway at the south-west boundary to Peachtree Road;
- a surface water management system;
- landscaping;
- ten on-site parking spaces with eight spaces for staff and two spaces for visitors;
- two weighbridges at the site entry and one weighbridge at the site exit;
- a wheel wash at the site exit;
- two demountable weighbridge offices;
- product bays (stockpiles) with 4 m high block walls;
- waste and product stockpiles within product bays;
- a manual hand unloading area for small vehicles;
- truck tipping area where wastes will be temporarily stored prior to processing;
- a sprinkling site irrigation system to minimise airborne dust;
- a flip-flow screen waste sorter housed in the processing shed;
- block walls at the north-east and north-west site boundaries;



Site location and RMS classified routes

Penrith Waste Recycling and Transfer Facility
Traffic Impact Assessment

Figure 1.1



Source: EMM (2017); LPI (2015)

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Site layout

Penrith Waste Recycling and Transfer Facility
Traffic Impact Assessment
Figure 1.2

- 3 m block walls with colorbond automatic gates at the ingress and egress points;
- extension of 3 m colorbond fence at south-east corner;
- out-of-hours truck parking; and
- updating the existing sign.

1.3 Scope of this report

This traffic impact assessment (TIA) report has been prepared in accordance with the general requirements of the Road and Maritime Services (RMS) *Guide to Traffic Generating Developments* (RMS 2002) and addresses.

- the existing site access and traffic arrangements;
- existing traffic flows on major roads and at intersections in the locality;
- the proposed internal site traffic circulation and car parking;
- the forecast traffic generation from the proposal;
- effects of the proposal on the external road network and intersections; and
- effects of the proposal on traffic safety, public transport, pedestrian and cycling facilities.

The Department of Planning and Environment (DPE) Secretary's Environmental Assessment Requirements (SEARs) for the project specifically request the consideration and assessment of:

- 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
- plans of any proposed road upgrades, infrastructure works or new roads required for the development.

The SEARs requirements have been addressed in this TIA report. There are no additional developments in the locality of Peachtree Road currently for which it is required to undertake cumulative traffic impacts assessment with the proposed facility.

2 Existing traffic conditions

The site is part of the Peachtree Road industrial estate which connects to the western side of Castlereagh Road, approximately 400 m north of the railway line underpass. It is approximately 1 km by road from the Penrith Railway Station.

The site is accessible from Peachtree Road via Castlereagh Road. Castlereagh Road is major heavy vehicle route and Peachtree Road is in the IN1 General Industrial zone and is suitable for heavy vehicles.

The industrial estate primarily contains industrial land uses. There is a McDonalds restaurant and drive through complex located on the south-west corner of the intersection of Peachtree Road and Castlereagh Road (Figure 2.1). The Peachtree Hotel is located on the north-west corner of this intersection. Both these sites have their driveway access from Peachtree Road. The two site entry and exit driveways are located approximately 80 metres back from the stop line at the intersection of Peachtree Road with Castlereagh Road to minimise any possible traffic queuing interactions between traffic using these sites and other traffic on Peachtree Road.

The industrial area road network also includes another intersection on Castlereagh Road at Mullins Road, which is approximately 250 m north of Peachtree Road. The Mullins Road intersection can also be used for vehicle access to industrial sites within the Peachtree Road industrial estate. However this access is not relied upon for the purposes of this TIA.

The facility access will have separate entry and exit driveways, leading directly off the northern kerbline of Peachtree Road approximately 200 and 240 m west of Castlereagh Road. Peachtree Road will not need to be modified for the proposal. Lockable gates will be installed at the two driveways.

2.1 Road network and traffic volumes

The major road network in the vicinity of the project is shown in Figure 1.1 and consists of the following roads:

- Castlereagh Road is a four to six lane dual carriageway with a wide median and additional turning lanes at most major intersections. It provides the main access to most residential and employment areas in the north western part of Penrith Local Government Area (LGA), and other areas north towards Richmond. To the south of the Penrith Town Centre, the route continues to the Western Motorway via Mulgoa Road, where the intersection is approximately 55 km west of the Sydney CBD. The route has some additional capacity currently to accommodate traffic growth from new developments in the locality and other areas north of Penrith.

- The Great Western Highway is a major arterial road which travels from east to west through the Penrith Town Centre where there is a bypass via Henry Street which passes around the main street section at the actual town centre. The route is generally a four lane dual carriageway with traffic signal controlled intersections and provides an alternative east to west traffic route to the Western Motorway. The route has some additional traffic capacity to accommodate traffic growth from new developments in the Penrith and Emu Plains areas.

- The Western Motorway is part of Sydney's extensive motorway network which provides higher speed access between most areas of the Sydney Metropolitan Region, in comparison to using arterial roads. The motorway carries significant heavy vehicle traffic from the Penrith and Blue Mountains areas to the Sydney Metropolitan region where it is distributed via other routes to and from other urban areas of Sydney, the Port of Botany and other regional destinations.

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Site location and assessed intersection

Penrith Waste Recycling and Transfer Facility
Traffic Impact Assessment

Figure 2.1

- Peachtree Road is a local industrial area road which varies in width, having four lanes with no car parking on the section closer to Castlereagh Road and two lanes with car parking on other sections. Peachtree Road is the main access route to the facility from Castlereagh Road, where there are traffic signals controlling the four way intersection with Thornton Drive.

Views of Peachtree Road in the vicinity of the site and Castlereagh Road are shown in Photographs 2.1 to 2.4. The peak period traffic movements at the traffic signal controlled intersection were surveyed on Monday 25 July 2016. The raw traffic count data is included in Appendix A.

Historic tube traffic count data from the Roads and Maritime Services (RMS), formerly the Roads and Traffic Authority (RTA), was also reviewed for the available survey locations in the area which are primarily on the Great Western Highway and Western Motorway. These counts show the recent growth in the average annual daily traffic (AADT) volumes in the Penrith area (Table 2.1).

Table 2.1 Summary of AADT traffic volumes on major roads from RMS traffic surveys

RMS location reference	Road and nearest cross street	2011	2012	2013	2014	2015	2016	% per annum traffic growth rate[1]
87.001	Great Western Highway at the Nepean Bridge	-	24,797	25,352	-	-	-	-
87.006	Western Motorway west of Mulgoa Road	55,524	53,511	-	61,553	59,587	59,267	+1.3%

Note: 1.The annual traffic growth rate is calculated for the period from 2011 to the most recent survey in 2016.

The current peak hourly traffic volumes on the road network and the proportions of heavy vehicle traffic flow recorded in the 25 July 2016 intersection traffic survey are summarised in Table 2.2.

Table 2.2 Summary of July 2016 surveyed peak hour and heavy vehicle traffic volumes

Road	Direction	am peak hour 8.00 to 9.00 am typically			pm peak hour 3.30 to 4.30 pm typically		
		All traffic	Heavy vehicles	% Heavy	All traffic	Heavy vehicles	% Heavy
Castlereagh Road (north of Peachtree Road)	N'bound	1,272	61	4.8%	1,539	50	3.2%
	S'bound	1,548	56	3.6%	1,516	51	3.4%
Castlereagh Road (south of Peachtree Road)	N'bound	1,406	73	5.2%	1,628	61	3.7%
	S'bound	1,632	65	4.0%	1,670	53	3.2%
Peachtree Road (west of Castlereagh Road)	E'bound	180	15	8.3%	294	3	1.0%
	W'bound	193	15	7.8%	176	11	6.3%
Thornton Drive (east of Castlereagh Road)	E'bound	119	3	2.5%	151	2	1.3%
	W'bound	82	0	0.0%	98	1	1.0%

From Table 2.2, the proportions of heavy vehicle traffic using Castlereagh Road were generally around 4-5% in the morning peak hour and 3–4% in the afternoon peak hour. At other times of day, when there is less commuter traffic, the heavy vehicle traffic percentages are higher.

Photograph 2.1 View of Peachtree Road at the site looking east towards Castlereagh Road

Photograph 2.2 View of Peachtree Road at the site looking west

Photograph 2.3 View of Castlereagh Road looking north towards Peachtree Road

Photograph 2.4 View of Peachtree Road looking east towards Castlereagh Road

On Peachtree Road, the peak hour heavy vehicle traffic proportions were generally higher during the morning peak hour at around 8% and lower, around 3% on average, during the afternoon peak hour.

On Thornton Drive, which is the fourth leg of the intersection, there were consistently lower proportions of heavy vehicle traffic at all times of the day. The peak hourly heavy vehicle traffic proportion was generally in the range 0–2%.

2.2 Intersections

The current RMS 'intersection level of service' standards are summarised in Table 2.3.

Table 2.3 Intersection level of service standards

Level of Service	Average delay (seconds per vehicle)	Traffic signals, roundabout	Priority intersection ('Stop' and 'Give Way')
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity. At traffic signals, incidents will cause extensive delays. Roundabouts require other control mode	At capacity; requires other control mode
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: (RTA 2002).

The details of the Peachtree Road and Castlereagh Road intersection, including the length of additional left and right turning traffic lanes, are shown in Appendix B.

The detailed SIDRA intersection analysis results are also included in Appendix B. The existing base traffic analysis shows the following intersection performance:

- morning peak hour (8.00 to 9.00 am):
  - degree of saturation: 0.73;
  - average vehicle delay: 30.0 seconds; and
  - level of service: C.
- afternoon peak hour (3.30 to 4.30 pm):
  - degree of saturation: 0.89;
  - average vehicle delay: 39.9 seconds; and
  - level of service: C.

The intersection is currently operating well. The intersection traffic volumes and the traffic delays are generally higher during the afternoon peak hour.

2.3 Existing local traffic including industrial traffic

Peachtree Road and Castlereagh Road, south of Peachtree Road, are used to access the industrial precinct. The individual peak directional traffic volumes using these roads are provided in Table 2.2. The combined (two-way) traffic movements using each route are:

- Peachtree Road morning peak hour (8.00 to 9.00 am): 373 vehicle movements;
- Peachtree Road afternoon peak hour (3.30 to 4.30 pm): 470 vehicle movements;
- Castlereagh Road morning peak hour (8.00 to 9.00 am): 3,038 vehicle movements; and
- Castlereagh Road afternoon peak hour (3.30 to 4.30 pm): 3,298 vehicle movements.

The peak hourly traffic volumes which are using Castlereagh Road are a combination of industrial precinct traffic and traffic from the rural and residential areas north of Penrith.

The daily traffic volumes using these roads are approximately eleven times the peak hourly traffic and there are approximately 4,500 daily vehicle movements using Peachtree Road at Castlereagh Road and between 32,000 to 35,000 daily vehicle movements using Castlereagh Road, to the north or south of Peachtree Road.

2.4 Road safety and accident history

The recent accident history for the major roads in the locality (Castlereagh Road and the main industrial area access roads - Peachtree Road and Mullins Road) is believed to be good. Castlereagh Road is straight and level at the Castlereagh Road, Peachtree Road and Thornton Drive intersection. The intersection capacity has recently been improved by widening on the fourth leg approach (via Thornton Drive to the east) where additional access has been provided to improve access to the new residential development precinct (via Empire Drive) and the commuter car parking on the northern side of Penrith Railway Station.

The recent Thornton Drive intersection capacity upgrade will have included road safety auditing at all stages of the design and construction process. This will have addressed traffic safety issues for the intersection, including for traffic travelling via Castlereagh Road and/or Peachtree Road through the intersection.

2.5 Car parking

The roads within the Peachtree Road industrial precinct have generally been designed to permit on-street car parking, except for the busier sections of the two roads (Peachtree Road and Mullins Road) on the 80–90 metre approaches to the major road intersections at Castlereagh Road.

There is currently some daytime usage of the existing on-street parking on the public roads within the industrial precinct, which is shown for Peachtree Road in the vicinity of the site in Photographs 2.1 and 2.2. Future developments within the industrial precinct will be expected to provide sufficient on-site car parking for their site employees and visitors.

2.6 Walking and cycling

The site is located within reasonable walking and/or cycling distance (about 1–5 km respectively) from residential areas including Cranebrook, Cambridge Park, Kingswood, South Penrith, Jamison Town and Emu Plains. A proportion of the future site employees and visitors could potentially either walk or cycle to and from at the site if they lived within reasonable proximity in these areas of Penrith.

2.7 Public transport access

The primary local public bus services which operate via Castlereagh Road north of Penrith are routes 783 and 784, which are operated by Busways. These routes are shown in Figure 2.2.

Some additional bus services are operated on inter town bus route 673 between Windsor and Penrith, which also travels via Castlereagh Road.

There are approximately 30 bus trips daily in each direction on routes 783/784 and six bus trips daily in each direction on route 673 which operate via Castlereagh Road in the vicinity of Peachtree Road.

The closest bus stops for these routes are located on Castlereagh Road near Mullins Road and are between 100 m to 200 m north of Peachtree Road. These bus stops are within approximately 400 m walking distance of the site on Peachtree Road.

The site is within approximately 1 km walking distance of the Penrith Railway Station, which has in new passenger access facilities on the northern side of the station, in conjunction with the development of the former Defence industry land for residences and commuter car parking.

Figure 2.2 **Bus routes map for the Castlereagh Road area north of Penrith**

3 The proposal

3.1 Site layout and operations

The site layout plan showing the locations of the site weighbridges, offices, footpaths, car parking and truck circulation areas is shown in Figure 1.2. The swept paths for a semi trailer vehicle operating on the site access driveways and various drive through paths within the site, are shown in Appendix C. It is noted that the swept path analysis has been undertaken on an earlier proposed site plan. The changes to the site layout move possible obstructions (eg block walls and driveway edges) in order to better accommodate the swept path. For instance, the driveways have been widened to ensure exiting vehicles will not have to drive on grassed areas.

The waste recycling and transfer facility will accept 'Pre-classified' general solid waste (non-putrescible) as defined by EPA. No special hazardous restricted solid waste (including asbestos) will be accepted at the site. The site will accept inert waste from councils, contractors and businesses and the general public. Accordingly, waste will be delivered to site by a variety of vehicles including:

- light vehicles such as cars with box trailers and utilities;
- single or dual axle heavy vehicles such as skip-bin trucks; and
- multiple axle combination heavy vehicles.

All incoming waste will be inspected according to the incoming waste quality management plan prior to being accepted. All vehicles delivering waste will be directed to the weighbridge where the load will be inspected for potential contaminants and classified. A ticket will be issued and the driver will be instructed where to deliver the waste within the site. All trucks will deliver waste to the large truck tipping area where it will be closely inspected prior to the vehicle being directed to the site exit weighbridge area.

Light vehicles will proceed to the designated 'hand unloading area' so that they can be manually unloaded safely in a location that is away from trucks and heavy machinery. Any rejected loads will be immediately reloaded for removal from the site and recorded in a 'rejected load' register. Vehicles will be re-weighed as they leave the site to determine the mass of the load delivered.

Vehicles removing processed waste from the material stockpile areas will generally operate during the early morning periods when there would be no conflicts with customer vehicles making waste deliveries to the site.

Pedestrian movement within the site would be restricted to the designated footpath routes which are in the vicinity of the site office car parking area shown in Figure 1.2, which will improve the safety of workers and visitors at the site.

3.2 Site traffic generation

The proposed facility operations will generate the following combinations of light and heavy vehicle traffic movements. Light vehicles are generally vehicles less than three tonnes and heavy vehicles are vehicles between 3 and 42 tonnes.

An estimated 36,600 incoming waste deliveries are expected annually when the facility is operating at maximum capacity of 180,000 tonnes of material processed annually. Variations may occur in the amounts of waste received on any given day. However, there will be a daily average of 87 light vehicle loads and 45 heavy vehicle loads (132 vehicle loads in total) bringing waste material to the site. Consequently there will be on average 264 daily vehicle movements to and from the facility.

Recycled products will be sold to customers throughout the Western Sydney region or will be transported to other Benedict Recycling sites for further processing.

Some waste (10– 20% of the total amount received) which is not able to be recycled, would be stockpiled prior to be being sent to an EPA licensed facility for disposal. The dispatch of the site products and non-recyclable residues will generate about 6,000 truck loads annually by 33 tonne capacity truck and dog trailer vehicles. This will generate 22 truck loads daily (44 daily vehicle movements) when the facility is operating at maximum capacity.

The facility will include off-street parking for trucks, employee cars and the occasional commercial visitor light vehicle. The facility will normally be operated by a single shift of eight employees operating from 6 am to 4 pm. On the days when after hours deliveries may be received until 10 pm in the evening, the site would be operated by about 15 employees in total, operating in two shifts of eight and seven persons respectively from 6 am to 2 pm for the morning shift and from 2 pm to 10 pm for the afternoon/evening shift.

Under the normal single shift site operations, with eight employees, the site employee and commercial visitor car traffic will generate approximately 15 light vehicle visits (30 vehicle movements) daily. Under two shift site operations, with fifteen employees, the site employee and commercial visitor car traffic will generate approximately 22 light vehicle visits (44 vehicle movements) daily.

For all waste receival, products/rejects dispatch, site employees, site visitors and maintenance vehicle traffic, there will be an overall total of 352 daily vehicle movements generated, comprising 218 light vehicle movements and 134 heavy vehicle movements.

The total daily and peak hourly traffic movements generated by the maximum site activity with two shift operation are summarised in Table 3.1 and Table 3.2.

Table 3.1 Summary of site generated daily traffic movements

Activity	Total daily traffic movements	Daily car and other light vehicle movements	Daily truck traffic movements
Site employees and visitors	44	44	0
Waste receivals	264	174	90
Recycled product and rejects	44	0	44
All site traffic	**352**	**218**	**134**

Note: 1. The site car and truck traffic movements will both be distributed approximately 50%/50% to and from the north or the south on Castlereagh Road.

Table 3.2 Summary of site generated peak hourly traffic movements

Peak Hour	Inbound site hourly traffic movements[1]		Outbound site hourly traffic movements[1]		All site hourly traffic movements[1]	
(time of day)	Cars/other light vehicles	Trucks	Cars/other light vehicles	Trucks	Cars/other light vehicles	Trucks
Morning peak hour (8.00 to 9.00 am)	2 site visitors +9 waste receivals	8 waste and product	9 waste receivals	8 waste and product	20	16
Afternoon peak hour (3.30 to 4.30 pm) with single shift	2 waste receivals	2 waste and product	8 employees and 2 site visitors +2 waste receivals	2 waste and product	14	4
Afternoon peak hour (3.30 to 4.30 pm) with double shift	4 waste receivals	4 waste and product	2 site visitors +4 waste receivals	4 waste and product	10	8

Under the normal site operations with single shift operation, site employee car traffic movements would occur during the afternoon traffic peak hour. However, with the two shift site operations, there would be no site employee car traffic movements during either the morning or afternoon traffic peak hours in the locality as the site employee car traffic movements would generally travel in to the site at either 6 am or 2 pm and out from the site at either 2 pm or 10 pm.

The site incoming and outgoing waste and product transfer traffic movements will be relatively uniformly distributed over a normal working day, with a maximum potentially of approximately 10% of all the daily inbound and outbound site waste and recycled product traffic (18 light vehicle and 16 heavy vehicle traffic movements) occurring during the morning peak hour (8.00 to 9.00 am), and approximately 5% (8 light vehicle and 8 heavy vehicle traffic movements) occurring during the afternoon peak hour (3.30 to 4.30 pm) or less (4 light vehicle and 4 heavy vehicle traffic movements) when the site closes at 4.00 pm.

The morning peak hour site traffic (20 light + 16 heavy vehicle movements) is higher because the daily demand for site waste receival and delivery traffic on weekdays is normally busiest during the mornings and activity declines towards the end of each working day.

3.3 Proposed hours of operation

The facility would normally operate from 6 am to 4 pm Monday to Saturday. It may also accept waste from 8 am to 4 pm on Sunday if there is sufficient demand from the public, providing an additional day on which the public could deliver recyclable waste to the facility. Benedict Recycling is applying for longer opening hours to allow it to accept waste from civil construction and maintenance projects in the evening (6 pm to 10 pm) on occasions and more rarely between 10 pm to 6 am (see Table 3.3). Penrith City Council would be notified prior to occasions when it is accepting waste between 10 pm to 6 am.

There will be no processing between 10 pm and 6 am, on Sundays, or on public holidays.

Table 3.3 Operating hours

Accept waste deliveries and dispatch materials	6 am and 10 pm Monday to Friday 6 am and 5 pm Saturday 8 am to 4 pm on Sunday
Waste processing	7 am to 6 pm Monday to Saturday when there is sufficient demand but normally 7 am to 4 pm No processing on Sundays or public holidays
Accept waste deliveries from night works	10 pm to 6 am on limited occasions through the year

The waste recycling and transfer facility will be operated by a maximum of eight employees during the morning shift. There would be no contractors generally working onsite except for maintenance and repair works.

3.4 Haulage routes

For the combined waste received and products dispatched traffic movements, the distribution to and from the site would normally be:

- Approximately 50% to and from Castlereagh Road, north of the Peachtree Road intersection; and
- Approximately 50% to and from Castlereagh Road, south of the Peachtree Road intersection.

Waste material will not normally be brought to the site or products dispatched via Thornton Drive which connects to local areas to the east of Castlereagh Road from the Peachtree Road intersection.

3.5 Construction traffic generation

Project construction will require:

- installing gates and fencing as required;
- refurbishing the waste processing shed;
- constructing waste and product bays;
- installing weighbridges and demountable offices/amenities;
- constructing an additional 7 m wide exit driveway;
- marking traffic circulation and parking bays; and
- landscaping.

The site is already connected to reticulated water, sewer, electricity and telecommunications.

No significant ground excavation is anticipated other than excavations for stormwater pits. Additionally, there may be minor ground disturbance such as installing anchors for the demountable office as well as installation of footings for weighbridges.

The construction timeframe would be approximately eight weeks.

Construction light vehicle traffic will potentially generate up to 5 light vehicles arriving at the site during any one-hour morning peak period (eg 8.00 to 9.00 am) and a similar number departing from the site during any one hour afternoon peak period (eg 3.30 to 4.30 pm).

Construction heavy vehicle traffic will be potentially up to 2 trucks per hour arriving at and departing from the site during a one hour morning peak period (eg 8.00 am to 9.00 am). The remainder of the site construction related heavy vehicle traffic movements will generally be evenly distributed over the remainder of the working day, generating 1 truck per hour typically arriving at and departing from the site during most other periods of the working day (10 trucks in total arriving at and departing from the site each day).

4 Traffic impacts and mitigation measures

4.1 Traffic increases on the road network

4.1.1 Site construction traffic

The predicted site construction daily and peak hourly traffic movements which are summarised in Section 3.5 are approximately 7 to 9 vehicles movements hourly, which will be significantly lower than the corresponding future site operations traffic movements which will be 18 to 36 vehicle movements hourly, see Table 3.2.

Detailed assessment of the peak site construction traffic movements is not required as the potential site construction traffic impacts would be clearly lower than during the subsequent site operations.

4.1.2 Site operations traffic

The predicted daily traffic increases due to site operations traffic movements (which are 352 daily vehicle movements including 134 heavy vehicle movements, see Table 3.1) are shown in Table 4.1, when this traffic is distributed onto the surrounding road network.

Table 4.1 Summary of daily traffic volumes and increases with the facility traffic

Road	Existing daily traffic (heavy vehicles)	Additional daily traffic (heavy vehicles)	Increase (%)	Existing daily traffic (all vehicles)	Additional daily traffic (all vehicles)	Increase (%)
Castlereagh Road (north of Peachtree Road)	1,340*	67	5.0%	32,000	176	0.6%
Castlereagh Road (south of Peachtree Road)	1,610*	67	4.2%	35,000	176	0.5%
Peachtree Road west of Castlereagh Road	360*	134	37.2%	4,500	352	7.8%

Notes: **Existing daily heavy vehicle traffic movements are calculated using the upper limit of the range of surveyed am or pm peak hour proportions of heavy vehicle traffic listed in Table 2.2.*

The project-generated traffic increases on Castlereagh Road for all vehicles will be of the order of 0.5% to 0.6% (Table 4.1). These traffic increases will not generally be noticeable to existing road users.

On the local industrial area access route via Peachtree Road, the project-generated increases in daily and heavy vehicle traffic movements will be more noticeable, being approximately 7.8% for all traffic and 37% for heavy vehicle traffic.

These traffic increases will generally be noticeable to the other traffic using Peachtree Road but would not significantly affect the future road capacity or general maintenance requirements for the road which has been designed to carry industrial traffic, including heavy vehicle traffic.

4.2 Traffic impacts at intersections

4.2.1 Site construction traffic

The additional construction-generated peak hourly construction traffic movements at the Castlereagh Road access intersection has not been assessed in detail as the potential traffic impacts would be for a short time and would be significantly lower than during the subsequent facility operations.

4.2.2 Site operations traffic

The additional operations-generated peak hour traffic at the Peachtree Road/Castlereagh Road/Thornton Drive intersection has been assessed using SIDRA based on traffic volumes surveyed in July 2016.

The impacts of the additional site traffic (+36 vehicle movements during the morning peak hour and +18 vehicle movements during the afternoon peak hour), when distributed onto the relevant traffic movements at the intersection turning either north or south in a 50%/50% travelling ratio, are summarised in Table 4.2. Detailed results are provided in Appendix B.

Table 4.2 Summary of existing and proposed intersection operations

Intersection	Peak hour	Existing 2016 base traffic			With project operations traffic		
		LoS	DOS	AVD	LoS	DOS	AVD
Peachtree Road/ Castlereagh Road/Thornton Drive	Morning peak hour (8.00 to 9.00 am)	C	0.73	30.0	C	0.79	31.6
	Afternoon peak hour (3.30 to 4.30 pm) with site single shift operations	C	0.89	39.9	C	0.90	39.9
	Afternoon peak hour (3.30 to 4.30 pm) with site double shift operations	C	0.89	39.9	C	0.90	40.1

Notes: LoS – Level of Service, DOS – Degree of Saturation, AVD – Average Vehicle Delay.

The SIDRA intersection results (Table 4.2) show that during the morning or afternoon peak hours there will be only minor changes to the existing intersection operations.

The average vehicle delays for all traffic at the intersection will increase from 30.0 seconds currently to 31.6 seconds in the morning peak hour but will remain at approximately 40 seconds during the afternoon peak hour. The intersection levels of service will remain at 'C' for the existing and proposed traffic during both the morning and afternoon peak hours.

This conservatively assumes that all site traffic will leave the area via the traffic signal controlled Castlereagh Road/Peachtree Road/Thornton Road intersection 230 m east of the site.

The local road network includes a roundabout at the Castlereagh Road/Mullins Road intersection, approximately 250 m north of the Castlereagh Road/Peachtree Road/Thornton Road intersection. The Mullins Road intersection can also be to access/leave the Peachtree Road industrial area.

The minor impacts on the Castlereagh Road/Peachtree Road/Thornton Road intersection would be marginally reduced if the Castlereagh Road/Mullins Road intersection is also used by facility traffic to access/leave the industrial area.

The traffic volumes on Castlereagh Road are similar at both intersections and the capacity of the roundabout at the Castlereagh Road/Mullins Road intersection for local traffic is expected to be greater than the capacity of traffic signal controlled Castlereagh Road/Peachtree Road/Thornton Road intersection. Far less facility traffic will access/leave the industrial area via the Castlereagh Road/Mullins Road intersection as the travel distances are greater. Given that minor impacts are predicted for the Castlereagh Road/Peachtree Road/Thornton Road intersection and impacts to the Castlereagh Road/Mullins Road intersection are predicted to less, the Castlereagh Road/Mullins Road intersection was not specifically modelled.

4.3 Car and truck parking

A total of ten car parking spaces will be provided at the site. All these car parking spaces will be available for use by either the site manager, site employees or commercial site visitors. There will be a loss of approximately four existing on-street car parking spaces from the northern kerb line of Peachtree Road with the new site exit driveway construction. The site operations will utilise the new on-site parking which is to be provided for all the site car parking needs and the site will not rely on the use of any existing on street car parking on Peachtree Road at the site frontage.

Visitor pedestrian movement within the site would be restricted to the designated footpath routes which are in the vicinity of the site office car parking area shown in Figure 1.2, which will improve the safety of workers and visitors at the site.

In the Penrith Development Control Plan 2014 (Part C10), the car parking requirement for industrial sites is defined as 1 space per 75 m^2 of building gross floor area or one space per two employees whichever is the greater.

The proposed site total building floor area is between 300 and 400 m^2 and would require approximately five car parking spaces. The proposed site provision of eight car parking spaces is provided in relation to the proposed maximum future number of site employees (15) who will be divided between two morning and afternoon/evening shifts of eight and seven persons respectively working at the site.

The proposed site car parking will be adequate to accommodate the maximum likely number of site employees and occasional site commercial visitors who may be present at the site during normal weekday operations.

Vehicles removing processed waste from the material stockpile areas will generally operate during the early morning periods when there would be no conflicts with customer vehicles making waste deliveries to the site.

4.4 Impact on road safety and traffic management

The project will generate approximately 352 additional daily traffic movements, including 134 additional daily truck movements each day using Peachtree Road and Castlereagh Road in the North Penrith area.

There are already significant volumes of daily truck traffic using these routes and other industrial roads in the area. Castlereagh Road and the other industrial roads in the area have been adequately constructed to accommodate heavy vehicle traffic.

There would be no additional locality traffic safety concerns for these roads as a result of the additional truck traffic movements generated by the proposed facility in the area.

4.5 Impact on public transport services, pedestrians and cyclists

The proposed site workforce is not anticipated to create a high demand for either pedestrian or cyclist access or public transport services within the North Penrith area.

The existing public transport services which are operating in the area via Castlereagh Road include a combined total of 36 daily bus services in each direction on weekdays on bus routes 673, 783 and 784, and commuter rail services from the Penrith Railway Station. These services provide adequate public transport access for the site for workforce travel to and from nearby residential areas or other areas of Sydney via the Penrith Railway Station.

5 Summary and conclusion

The traffic impact assessment has assessed the transport impacts of the proposed facility at 46–48 Peachtree Road, Penrith.

Facility operations will generate in approximately 134 additional daily truck movements and 218 additional daily car/other light vehicle movements on Peachtree Road and Castlereagh Road (352 additional daily traffic movements in total).

During construction, the proposal will potentially generate up to 10 daily car/other light vehicle visits and 10 daily truck deliveries on a typical weekday, resulting in up to 40 daily traffic movements in total.

The operational traffic impacts have been assessed for the maximum hourly traffic which will potentially occur during the morning (8.00 to 9.00 am) and afternoon (3.30 to 4.30 pm) peak traffic periods on the surrounding road network. During these times the peak site traffic will potentially be:

- +36 vehicle movements per hour (20 by cars and 16 by trucks) during the morning peak hour; and
- +18 additional vehicle movements (either 10 by cars and 8 by trucks or 14 by cars and 4 by trucks) during the afternoon peak hour.

Normally, the additional site operations traffic movements will be distributed, approximately 50% and 50% to and from the north or the south via Castlereagh Road from the Peachtree Road intersection. The site operations traffic movements would not generally use Thornton Drive which connects to other local areas on the eastern side of Castlereagh Road from the Peachtree Road intersection.

Beyond the immediate locality of North Penrith, the future site traffic will be further distributed onto other major roads such as The Great Western Highway and Western Motorway, east of west of Penrith, such that the future project generated daily or peak hourly traffic volumes would be relatively minor on any traffic routes other than Peachtree Road and Castlereagh Road.

The key findings of the project traffic impact assessment for the predicted additional daily and peak hour traffic movements are as follows:

- The additional traffic movements from the facility will generate minimal percentage daily traffic increases of between 0.5% to 0.6% for Castlereagh Road. On the local area access road, Peachtree Road, the additional traffic volumes will be more noticeable but will be accommodated with minimal changes to the existing traffic flows, traffic delays or road safety. The facility-generated traffic increases will not generate any additional road widening or reconstruction requirements for either the Peachtree Road or Castlereagh Road routes.
- The Peachtree Road/Castlereagh Road/Thornton Drive intersection is the main intersection providing access from the Peachtree Road industrial area to the major road network. It is operating at peak hour traffic conditions ‘level of service C’ during the both morning peak hour (8.00 to 9.00 am) and the afternoon peak hour (3.30 to 4.30 pm). These intersection levels of service will not change with the site traffic generated during the facility’s construction or operations stages.
- For the future project operations traffic under current (July 2016) traffic conditions, the maximum increases in the intersection average traffic delays will be relatively minor at between +1.6 and +0.2 seconds per vehicle for the two peak hourly traffic periods considered.

- The likely future car parking demand from all the site employees (a maximum of eight during a shift) and visitors (two) will be accommodated by the proposed ten car parking spaces. The proposed site car parking areas will comply with the Penrith DCP (Section C10).

- During the project construction phase, sufficient on site car parking will be provided for the anticipated peak project construction workforce and visitor car parking demand (10 vehicles).

- The proposed internal site access and truck circulation paths have been assessed using the 5–15 km/hr semi trailer truck access template (15 m turning radius) for the truck drive through paths within the site and the site (right turn) entry and (left turn) exit driveways at Peachtree Road.

- The project is not anticipated to create any significant additional demand for public transport services, pedestrian or cyclist access in the locality, as the services which are provided currently are adequate and there will be relatively low future site employee or visitor numbers each day.

Based on the results of this TIA report, there will be no significant traffic impacts anticipated from proposal on either traffic capacity, traffic delays or road safety on Peachtree Road or any other routes on the surrounding major road network.

References

Roads and Maritime Services (RMS) 2002, *Guide to Traffic Generating Developments.*

Penrith Development Control Plan 2014, *Part C10, Transport Access and Parking*

Appendix A

Intersection traffic survey data

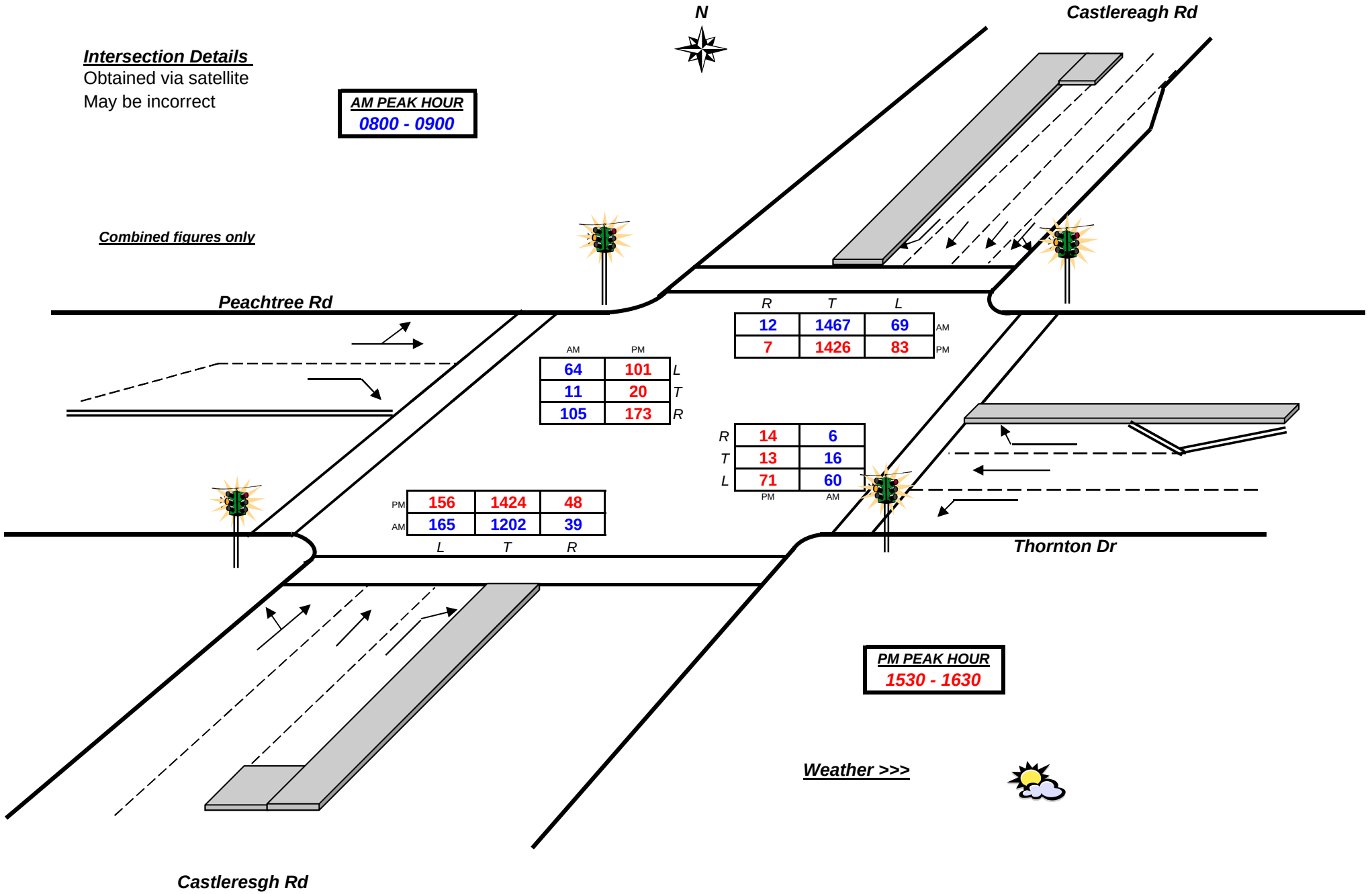
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : EMM
Job No/Name : 6141 PENRITH Peachtree Rd
Day/Date : Monday 25th July 2016

Intersection Details
Obtained via satellite
May be incorrect

AM PEAK HOUR
0800 - 0900

Combined figures only



	AM	PM
L	64	101
T	11	20
R	105	173

	R	T	L	
AM	12	1467	69	AM
PM	7	1426	83	PM

	R	T	L
PM	156	1424	48
AM	165	1202	39

	PM	AM
R	14	6
T	13	16
L	71	60

PM PEAK HOUR
1530 - 1630

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : EMM
Job No/Name : 6141 PENRITH Peachtree Rd
Day/Date : Monday 25th July 2016

Lights

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0615	6	87	4	3	1	3	23	147	7	0	0	0	**281**
0615 - 0630	22	141	2	6	1	11	26	150	13	4	1	0	**377**
0630 - 0645	18	195	1	22	4	16	32	188	24	7	1	0	**508**
0645 - 0700	7	233	5	12	3	13	36	229	32	5	1	3	**579**
0700 - 0715	13	205	3	17	4	11	29	184	28	9	0	1	**504**
0715 - 0730	15	240	3	8	1	13	33	215	39	13	3	0	**583**
0730 - 0745	18	246	1	16	3	11	32	307	31	10	1	0	**676**
0745 - 0800	10	293	2	21	0	17	42	295	17	15	2	2	**716**
0800 - 0815	10	300	4	19	4	19	30	278	19	16	6	1	**706**
0815 - 0830	22	357	3	12	1	22	46	305	6	16	1	3	**794**
0830 - 0845	18	393	4	15	3	28	25	290	9	17	4	0	**806**
0845 - 0900	17	366	1	15	3	22	52	269	4	11	5	2	**767**
Period End	**176**	**3056**	**33**	**166**	**28**	**186**	**406**	**2857**	**229**	**123**	**25**	**12**	**7297**

Lights

Peak Time	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0700	53	656	12	43	9	43	117	714	76	16	3	3	**1745**
0615 - 0715	60	774	11	57	12	51	123	751	97	25	3	4	**1968**
0630 - 0730	53	873	12	59	12	53	130	816	123	34	5	4	**2174**
0645 - 0745	53	924	12	53	11	48	130	935	130	37	5	4	**2342**
0700 - 0800	56	984	9	62	8	52	136	1001	115	47	6	3	**2479**
0715 - 0815	53	1079	10	64	8	60	137	1095	106	54	12	3	**2681**
0730 - 0830	60	1196	10	68	8	69	150	1185	73	57	10	6	**2892**
0745 - 0845	60	1343	13	67	8	86	143	1168	51	64	13	6	**3022**
0800 - 0900	67	1416	12	61	11	91	153	1142	38	60	16	6	**3073**
PEAK HOUR	**67**	**1416**	**12**	**61**	**11**	**91**	**153**	**1142**	**38**	**60**	**16**	**6**	**3073**

Heavies

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0615	0	22	0	0	0	0	0	5	0	0	0	0	**27**
0615 - 0630	1	31	0	0	0	0	1	11	0	0	0	0	**44**
0630 - 0645	0	28	0	1	0	0	0	8	0	0	0	0	**37**
0645 - 0700	0	33	0	1	0	0	3	5	0	0	0	0	**42**
0700 - 0715	1	19	0	1	0	2	1	12	0	0	0	0	**36**
0715 - 0730	0	23	0	0	0	1	1	8	0	0	0	0	**33**
0730 - 0745	0	14	0	1	0	2	3	11	0	0	0	0	**31**
0745 - 0800	0	10	0	0	0	2	0	15	0	0	0	0	**27**
0800 - 0815	0	10	0	0	0	6	2	9	1	0	0	0	**28**
0815 - 0830	0	17	0	0	0	1	2	10	0	0	0	0	**30**
0830 - 0845	2	8	0	0	0	3	4	16	0	0	0	0	**33**
0845 - 0900	0	16	0	3	0	4	4	25	0	0	0	0	**52**
Period End	**4**	**231**	**0**	**7**	**0**	**21**	**21**	**135**	**1**	**0**	**0**	**0**	**420**

Heavies

Peak Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0700	1	114	0	2	0	0	4	29	0	0	0	0	**150**
0615 - 0715	2	111	0	3	0	2	5	36	0	0	0	0	**159**
0630 - 0730	1	103	0	3	0	3	5	33	0	0	0	0	**148**
0645 - 0745	1	89	0	3	0	5	8	36	0	0	0	0	**142**
0700 - 0800	1	66	0	2	0	7	5	46	0	0	0	0	**127**
0715 - 0815	0	57	0	1	0	11	6	43	1	0	0	0	**119**
0730 - 0830	0	51	0	1	0	11	7	45	1	0	0	0	**116**
0745 - 0845	2	45	0	0	0	12	8	50	1	0	0	0	**118**
0800 - 0900	2	51	0	3	0	14	12	60	1	0	0	0	**143**
PEAK HOUR	**2**	**51**	**3**	**1**	**0**	**14**	**12**	**60**	**1**	**0**	**0**	**0**	**143**

Combined

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0615	6	109	4	3	1	3	23	152	7	0	0	0	**308**
0615 - 0630	23	172	2	6	1	11	27	161	13	4	1	0	**421**
0630 - 0645	18	223	1	23	4	16	32	196	24	7	1	0	**545**
0645 - 0700	7	266	5	13	3	13	39	234	32	5	1	3	**621**
0700 - 0715	14	224	3	18	4	13	30	196	28	9	0	1	**540**
0715 - 0730	15	263	3	8	1	14	34	223	39	13	3	0	**616**
0730 - 0745	18	260	1	17	3	13	35	318	31	10	1	0	**707**
0745 - 0800	10	303	2	21	0	19	42	310	17	15	2	2	**743**
0800 - 0815	10	310	4	19	4	25	32	287	20	16	6	1	**734**
0815 - 0830	22	374	3	12	1	23	48	315	6	16	1	3	**824**
0830 - 0845	20	401	4	15	3	31	29	306	9	17	4	0	**839**
0845 - 0900	17	382	1	18	3	26	56	294	4	11	5	2	**819**
Period End	**180**	**3287**	**33**	**173**	**28**	**207**	**427**	**2992**	**230**	**123**	**25**	**12**	**7717**

Combined

Peak Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0600 - 0700	54	770	12	45	9	43	121	743	76	16	3	3	**1895**
0615 - 0715	62	885	11	60	12	53	128	787	97	25	3	4	**2127**
0630 - 0730	54	976	12	62	12	56	135	849	123	34	5	4	**2322**
0645 - 0745	54	1013	12	56	11	53	138	971	130	37	5	4	**2484**
0700 - 0800	57	1050	9	64	8	59	141	1047	115	47	6	3	**2606**
0715 - 0815	53	1136	10	65	8	71	143	1138	107	54	12	3	**2800**
0730 - 0830	60	1247	10	69	8	80	157	1230	74	57	10	6	**3008**
0745 - 0845	62	1388	13	67	8	98	151	1218	52	64	13	6	**3140**
0800 - 0900	69	1467	12	64	11	105	165	1202	39	60	16	6	**3216**
PEAK HOUR	**69**	**1467**	**12**	**64**	**11**	**105**	**165**	**1202**	**39**	**60**	**16**	**6**	**3216**

R.O.A.R DATA

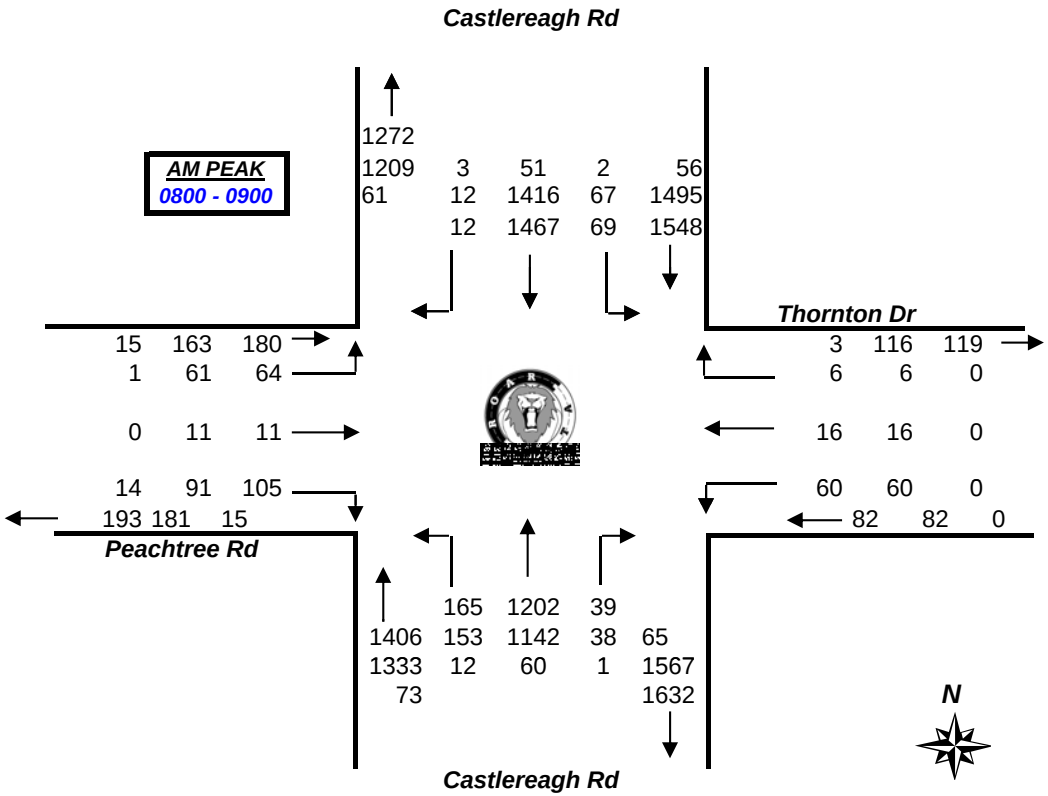
Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

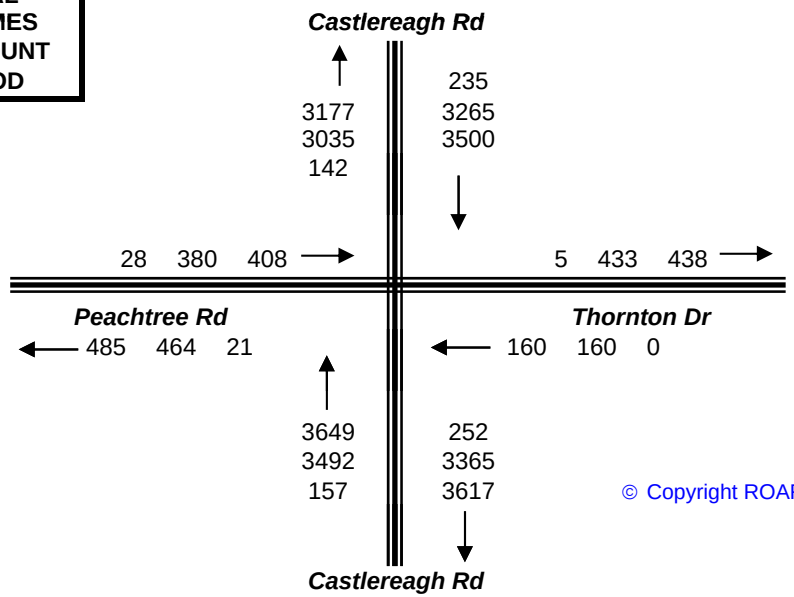
Client : EMM
Job No/Name : 6141 PENRITH Peachtree Rd
Day/Date : Monday 25th July 2016

Peds	NORTH	WEST	SOUTH	EAST	
	Castlereagh Rd	*Peachtree Rd*	*Castlereagh Rd*	*Thornton Dr*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0600 - 0615	1	0	1	0	**2**
0615 - 0630	1	0	0	0	**1**
0630 - 0645	0	0	1	0	**1**
0645 - 0700	0	0	0	0	**0**
0700 - 0715	0	0	1	0	**1**
0715 - 0730	1	2	0	1	**4**
0730 - 0745	0	1	0	2	**3**
0745 - 0800	1	0	0	1	**2**
0800 - 0815	0	0	1	0	**1**
0815 - 0830	0	1	1	0	**2**
0830 - 0845	0	0	0	0	**0**
0845 - 0900	0	0	1	0	**1**
Period End	**4**	**4**	**6**	**4**	**18**

Peds	NORTH	WEST	SOUTH	EAST	
	Castlereagh Rd	*Peachtree Rd*	*Castlereagh Rd*	*Thornton Dr*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0600 - 0700	2	0	2	0	**4**
0615 - 0715	1	0	2	0	**3**
0630 - 0730	1	2	2	1	**6**
0645 - 0745	1	3	1	3	**8**
0700 - 0800	2	3	1	4	**10**
0715 - 0815	2	3	1	4	**10**
0730 - 0830	1	2	2	3	**8**
0745 - 0845	1	1	2	1	**5**
0800 - 0900	0	1	3	0	**4**
PEAK HR	**0**	**1**	**3**	**0**	**4**



TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : EMM
Job No/Name : 6141 PENRITH Peachtree Rd
Day/Date : Monday 25th July 2016

Lights

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1515	19	308	1	30	1	28	48	359	10	18	6	0	**828**
1515 - 1530	20	318	1	27	0	43	37	353	7	28	2	0	**836**
1530 - 1545	21	379	1	30	7	44	38	322	11	15	1	0	**869**
1545 - 1600	16	317	4	21	5	42	41	363	16	25	5	2	**857**
1600 - 1615	25	336	0	21	5	48	33	333	8	13	1	2	**825**
1615 - 1630	20	344	2	29	3	36	33	357	12	18	6	9	**869**
1630 - 1645	21	300	2	25	4	33	23	324	23	20	3	3	**781**
1645 - 1700	19	281	0	15	7	48	36	342	6	17	3	4	**778**
1700 - 1715	12	307	1	29	11	38	38	381	9	32	3	5	**866**
1715 - 1730	14	231	3	20	3	43	24	372	13	27	1	11	**762**
1730 - 1745	12	259	8	17	9	39	23	309	9	19	3	10	**717**
1745 - 1800	11	217	1	21	6	22	19	322	10	34	5	9	**677**
Period End	**210**	**3597**	**24**	**285**	**61**	**464**	**393**	**4137**	**134**	**266**	**39**	**55**	**9665**

Lights

Peak Time	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1600	76	1322	7	108	13	157	164	1397	44	86	14	2	**3390**
1515 - 1615	82	1350	6	99	17	177	149	1371	42	81	9	4	**3387**
1530 - 1630	82	1376	7	101	20	170	145	1375	47	71	13	13	**3420**
1545 - 1645	82	1297	8	96	17	159	130	1377	59	76	15	16	**3332**
1600 - 1700	85	1261	4	90	19	165	125	1356	49	68	13	18	**3253**
1615 - 1715	72	1232	5	98	25	155	130	1404	50	87	15	21	**3294**
1630 - 1730	66	1119	6	89	25	162	121	1419	51	96	10	23	**3187**
1645 - 1745	57	1078	12	81	30	168	121	1404	37	95	10	30	**3123**
1700 - 1800	49	1014	13	87	29	142	104	1384	41	112	12	35	**3022**
PEAK HOUR	**82**	**1376**	**7**	**101**	**20**	**170**	**145**	**1375**	**47**	**71**	**13**	**13**	**3420**

Heavies

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1515	1	9	0	2	0	5	4	8	0	1	0	0	**30**
1515 - 1530	1	12	0	0	1	0	3	13	0	1	1	0	**32**
1530 - 1545	0	20	0	0	0	1	4	8	0	0	0	0	**33**
1545 - 1600	0	9	0	0	0	2	0	11	0	0	0	0	**22**
1600 - 1615	0	8	0	0	0	0	5	15	0	0	0	0	**28**
1615 - 1630	1	13	0	0	0	0	2	15	1	0	0	1	**33**
1630 - 1645	0	10	0	0	0	1	1	14	0	0	0	0	**26**
1645 - 1700	0	5	0	1	0	0	0	8	0	0	0	0	**14**
1700 - 1715	0	6	0	0	0	1	1	10	0	0	0	0	**18**
1715 - 1730	1	4	0	0	0	0	0	7	0	0	0	0	**12**
1730 - 1745	0	6	0	0	0	0	2	13	0	0	0	0	**21**
1745 - 1800	0	4	0	0	0	0	2	6	0	0	0	0	**12**
Period End	**4**	**106**	**0**	**3**	**1**	**10**	**24**	**128**	**1**	**2**	**1**	**1**	**281**

Heavies

Peak Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1600	2	50	0	2	1	8	11	40	0	2	1	0	**117**
1515 - 1615	1	49	0	0	1	3	12	47	0	1	1	0	**115**
1530 - 1630	1	50	0	0	0	3	11	49	1	0	0	1	**116**
1545 - 1645	1	40	0	0	0	3	8	55	1	0	0	1	**109**
1600 - 1700	1	36	0	1	0	1	8	52	1	0	0	1	**101**
1615 - 1715	1	34	0	1	0	2	4	47	1	0	0	1	**91**
1630 - 1730	1	25	0	1	0	2	2	39	0	0	0	0	**70**
1645 - 1745	1	21	0	1	0	1	3	38	0	0	0	0	**65**
1700 - 1800	1	20	0	0	0	1	5	36	0	0	0	0	**63**
PEAK HOUR	**1**	**50**	**0**	**0**	**0**	**3**	**11**	**49**	**1**	**0**	**0**	**1**	**116**

Combined

Time Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1515	20	317	1	32	1	33	52	367	10	19	6	0	**858**
1515 - 1530	21	330	1	27	1	43	40	366	7	29	3	0	**868**
1530 - 1545	21	399	1	30	7	45	42	330	11	15	1	0	**902**
1545 - 1600	16	326	4	21	5	44	41	374	16	25	5	2	**879**
1600 - 1615	25	344	0	21	5	48	38	348	8	13	1	2	**853**
1615 - 1630	21	357	2	29	3	36	35	372	13	18	6	10	**902**
1630 - 1645	21	310	2	25	4	34	24	338	23	20	3	3	**807**
1645 - 1700	19	286	0	16	7	48	36	350	6	17	3	4	**792**
1700 - 1715	12	313	1	29	11	39	39	391	9	32	3	5	**884**
1715 - 1730	15	235	3	20	3	43	24	379	13	27	1	11	**774**
1730 - 1745	12	265	8	17	9	39	25	322	9	19	3	10	**738**
1745 - 1800	11	221	1	21	6	22	21	328	10	34	5	9	**689**
Period End	**214**	**3703**	**24**	**288**	**62**	**474**	**417**	**4265**	**135**	**268**	**40**	**56**	**9946**

Combined

Peak Per	NORTH Castlereagh Rd			WEST Peachtree Rd			SOUTH Castlereagh Rd			EAST Thornton Dr			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
1500 - 1600	78	1372	7	110	14	165	175	1437	44	88	15	2	**3507**
1515 - 1615	83	1399	6	99	18	180	161	1418	42	82	10	4	**3502**
1530 - 1630	83	1426	7	101	20	173	156	1424	48	71	13	14	**3536**
1545 - 1645	83	1337	8	96	17	162	138	1432	60	76	15	17	**3441**
1600 - 1700	86	1297	4	91	19	166	133	1408	50	68	13	19	**3354**
1615 - 1715	73	1266	5	99	25	157	134	1451	51	87	15	22	**3385**
1630 - 1730	67	1144	6	90	25	164	123	1458	51	96	10	23	**3257**
1645 - 1745	58	1099	12	82	30	169	124	1442	37	95	10	30	**3188**
1700 - 1800	50	1034	13	87	29	143	109	1420	41	112	12	35	**3085**
PEAK HOUR	**83**	**1426**	**7**	**101**	**20**	**173**	**156**	**1424**	**48**	**71**	**13**	**14**	**3536**

R.O.A.R DATA

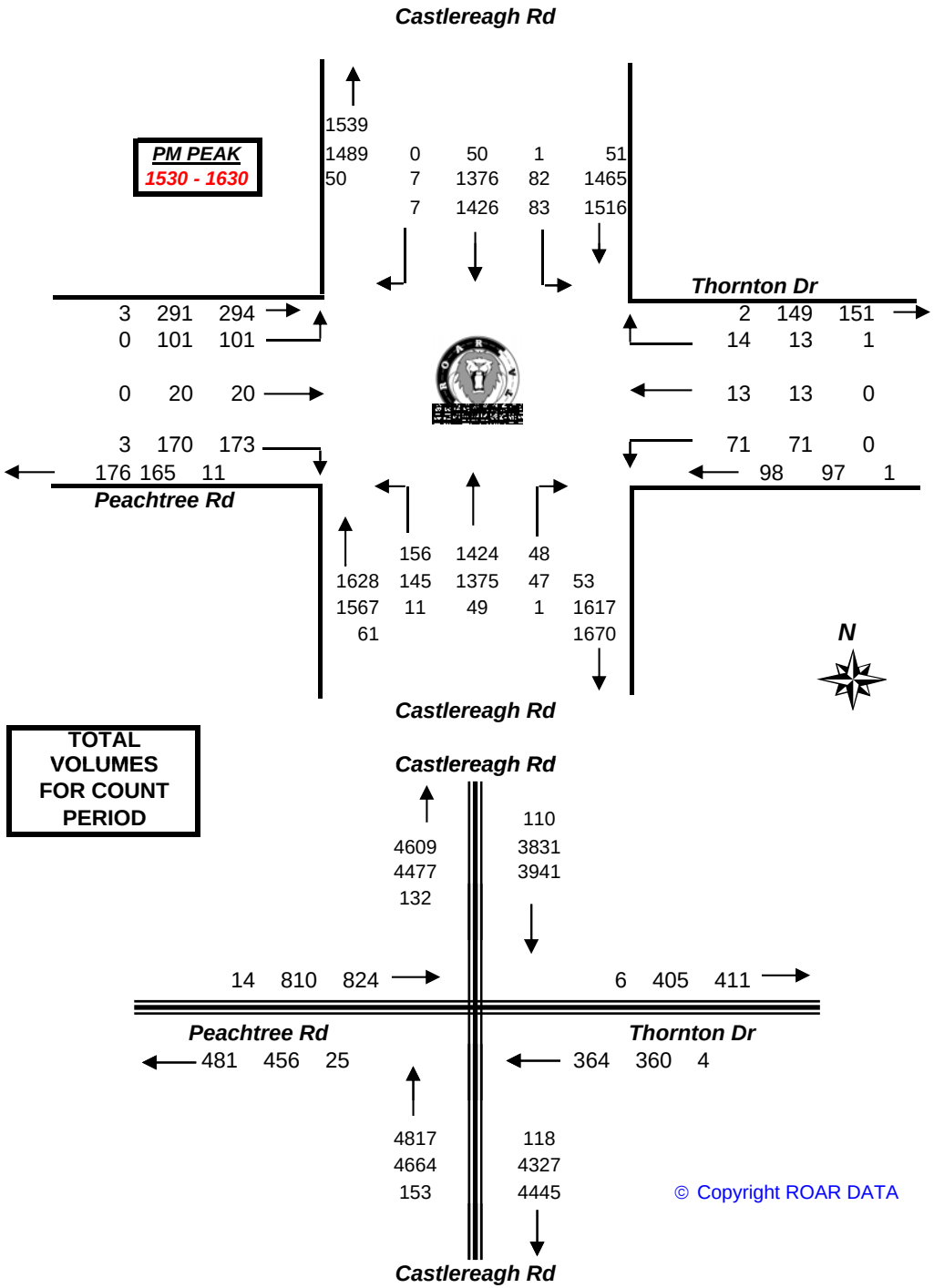
Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : EMM
Job No/Name : 6141 PENRITH Peachtree Rd
Day/Date : Monday 25th July 2016

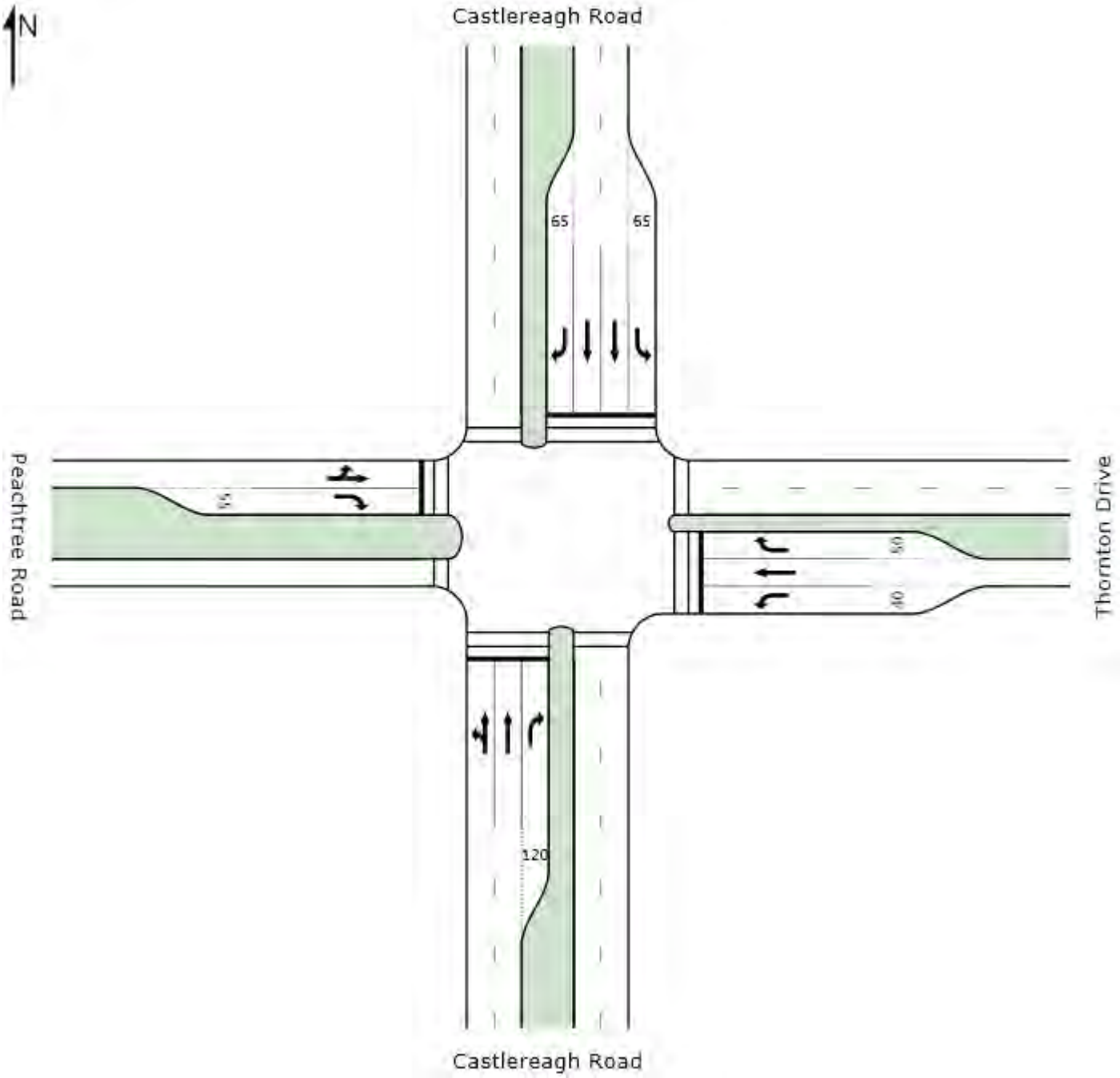
Peds	NORTH	WEST	SOUTH	EAST	
	Castlereagh Rd	*Peachtree Rd*	*Castlereagh Rd*	*Thornton Dr*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1500 - 1515	0	1	1	0	**2**
1515 - 1530	2	4	0	0	**6**
1530 - 1545	1	0	0	0	**1**
1545 - 1600	0	2	1	0	**3**
1600 - 1615	1	1	1	4	**7**
1615 - 1630	0	1	0	0	**1**
1630 - 1645	0	0	0	2	**2**
1645 - 1700	0	0	0	0	**0**
1700 - 1715	1	0	0	0	**1**
1715 - 1730	0	0	0	0	**0**
1730 - 1745	1	0	0	0	**1**
1745 - 1800	0	0	0	1	**1**
Period End	**6**	**9**	**3**	**7**	**25**

Peds	NORTH	WEST	SOUTH	EAST	
	Castlereagh Rd	*Peachtree Rd*	*Castlereagh Rd*	*Thornton Dr*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1500 - 1600	3	7	2	0	**12**
1515 - 1615	4	7	2	4	**17**
1530 - 1630	2	4	2	4	**12**
1545 - 1645	1	4	2	6	**13**
1600 - 1700	1	2	1	6	**10**
1615 - 1715	1	1	0	2	**4**
1630 - 1730	1	0	0	2	**3**
1645 - 1745	2	0	0	0	**2**
1700 - 1800	2	0	0	1	**3**
PEAK HR	**2**	**4**	**2**	**4**	**12**



Appendix B

SIDRA intersection analysis results


N
Castlereagh Road
65
65
Peachtree Road
Thornton Drive
50
40
120
Castlereagh Road

MOVEMENT SUMMARY

Site: Peach Tree Road and Castlereagh Road AM Peak

Four Way Traffic Signal Intersection
Signals - Fixed Time Cycle Time = 145 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh Road											
1	L	174	7.3	0.688	32.7	LOS C	35.5	260.3	0.78	0.92	32.9
2	T	1265	5.0	0.688	24.2	LOS B	36.1	263.4	0.78	0.71	34.2
3	R	41	2.6	0.544	87.0	LOS F	3.1	21.9	1.00	0.74	17.8
Approach		1480	5.2	0.688	27.0	LOS B	36.1	263.4	0.78	0.74	33.2
East: Thornton Drive											
4	L	63	0.0	0.448	67.8	LOS E	4.0	28.0	0.93	0.75	20.9
5	T	17	0.0	0.060	57.4	LOS E	1.0	7.2	0.89	0.63	22.5
6	R	6	0.0	0.049	77.1	LOS F	0.4	3.0	0.96	0.66	19.3
Approach		86	0.0	0.448	66.5	LOS E	4.0	28.0	0.92	0.72	21.1
North: Castlereagh Road											
7	L	73	2.9	0.189	23.7	LOS B	2.3	16.5	0.48	0.72	36.4
8	T	1544	3.5	0.725	25.1	LOS B	39.7	286.5	0.80	0.74	34.0
9	R	16	20.0	0.235	86.3	LOS F	1.2	9.5	1.00	0.70	17.9
Approach		1633	3.6	0.725	25.6	LOS B	39.7	286.5	0.79	0.74	33.8
West: Peachtree Road											
10	L	65	1.6	0.251	65.3	LOS E	4.8	33.7	0.91	0.78	21.6
11	T	12	0.0	0.251	57.0	LOS E	4.8	33.7	0.91	0.71	21.8
12	R	111	13.3	0.727	82.5	LOS F	8.1	63.3	1.00	0.85	18.5
Approach		187	8.4	0.727	74.9	LOS F	8.1	63.3	0.96	0.81	19.6
All Vehicles		3386	4.5	0.727	30.0	LOS C	39.7	286.5	0.80	0.74	31.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	3	66.6	LOS F	0.0	0.0	0.96	0.96
P3	Across E approach	1	21.5	LOS C	0.0	0.0	0.54	0.54
P5	Across N approach	1	66.6	LOS F	0.0	0.0	0.96	0.96
P7	Across W approach	1	17.9	LOS B	0.0	0.0	0.50	0.50
All Pedestrians		6	51.0	LOS E			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Peach Tree Road and Castlereagh Road AM Peak with proposal

Four Way Traffic Signal Intersection
Signals - Fixed Time Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh Road											
1	L	184	9.1	0.752	35.0	LOS C	35.5	261.6	0.86	0.92	31.9
2	T	1265	5.0	0.752	26.5	LOS B	36.3	264.7	0.86	0.78	32.9
3	R	41	2.6	0.488	78.0	LOS F	2.7	19.5	1.00	0.73	19.1
Approach		1491	5.4	0.752	28.9	LOS C	36.3	264.7	0.86	0.80	32.1
East: Thornton Drive											
4	L	63	0.0	0.398	59.6	LOS E	3.5	24.6	0.91	0.75	22.7
5	T	17	0.0	0.053	49.5	LOS D	0.9	6.3	0.87	0.62	24.5
6	R	6	0.0	0.049	70.2	LOS E	0.4	2.7	0.96	0.66	20.6
Approach		86	0.0	0.398	58.4	LOS E	3.5	24.6	0.90	0.72	22.9
North: Castlereagh Road											
7	L	73	2.9	0.187	25.0	LOS B	2.3	16.3	0.53	0.73	35.6
8	T	1544	3.5	0.786	27.2	LOS B	39.3	283.5	0.88	0.81	32.7
9	R	25	29.2	0.356	79.2	LOS F	1.7	14.7	1.00	0.72	19.1
Approach		1642	3.8	0.786	27.9	LOS B	39.3	283.5	0.87	0.80	32.5
West: Peachtree Road											
10	L	74	7.1	0.258	57.7	LOS E	4.7	34.4	0.90	0.78	23.3
11	T	12	0.0	0.258	49.3	LOS D	4.7	34.4	0.90	0.71	23.7
12	R	120	15.8	0.779	77.0	LOS F	8.1	64.4	1.00	0.88	19.4
Approach		205	11.8	0.779	68.5	LOS E	8.1	64.4	0.96	0.84	20.8
All Vehicles		3424	4.9	0.786	31.6	LOS C	39.3	283.5	0.87	0.80	31.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	3	59.1	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	1	23.4	LOS C	0.0	0.0	0.60	0.60
P5	Across N approach	1	59.1	LOS E	0.0	0.0	0.95	0.95
P7	Across W approach	1	19.4	LOS B	0.0	0.0	0.55	0.55
All Pedestrians		6	46.6	LOS E			0.83	0.83

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Peach Tree Road and Castlereagh Road PM Peak

Four Way Traffic Signal Intersection
Signals - Fixed Time Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh Road											
1	L	164	7.1	0.892	49.7	LOS D	53.2	385.9	0.98	0.99	26.4
2	T	1499	3.4	0.892	41.1	LOS C	53.9	388.2	0.98	0.98	26.8
3	R	51	2.1	0.598	78.9	LOS F	3.4	24.3	1.00	0.77	19.0
Approach		1714	3.7	0.892	43.0	LOS D	53.9	388.2	0.98	0.97	26.5
East: Thornton Drive											
4	L	75	0.0	0.471	60.0	LOS E	4.2	29.3	0.91	0.76	22.6
5	T	14	0.0	0.043	49.3	LOS D	0.7	5.1	0.87	0.61	24.6
6	R	15	7.1	0.090	67.5	LOS E	0.9	6.5	0.94	0.70	21.2
Approach		103	1.0	0.471	59.7	LOS E	4.2	29.3	0.91	0.73	22.6
North: Castlereagh Road											
7	L	87	1.2	0.231	26.7	LOS B	2.9	20.4	0.56	0.74	34.6
8	T	1501	3.5	0.800	29.4	LOS C	39.4	283.7	0.91	0.83	31.7
9	R	7	0.0	0.086	75.2	LOS F	0.5	3.3	0.98	0.66	19.6
Approach		1596	3.4	0.800	29.4	LOS C	39.4	283.7	0.89	0.82	31.7
West: Peachtree Road											
10	L	106	0.0	0.369	58.6	LOS E	7.1	49.9	0.92	0.80	23.1
11	T	21	0.0	0.369	50.4	LOS D	7.1	49.9	0.92	0.74	23.4
12	R	182	1.7	0.860	77.9	LOS F	12.6	89.8	1.00	0.93	19.1
Approach		309	1.0	0.860	69.4	LOS E	12.6	89.8	0.97	0.87	20.6
All Vehicles		3722	3.3	0.892	39.9	LOS C	53.9	388.2	0.94	0.89	27.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	4	25.2	LOS C	0.0	0.0	0.62	0.62
P5	Across N approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P7	Across W approach	4	21.1	LOS C	0.0	0.0	0.57	0.57
All Pedestrians		12	35.1	LOS D			0.72	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Peach Tree Road and Castlereagh Road PM Peak with proposal

Four Way Traffic Signal Intersection
Signals - Fixed Time Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh Road											
1	L	168	8.1	0.896	50.5	LOS D	53.8	390.9	0.98	1.00	26.2
2	T	1499	3.4	0.896	41.8	LOS C	54.5	393.0	0.98	0.98	26.6
3	R	51	2.1	0.598	78.9	LOS F	3.4	24.3	1.00	0.77	19.0
Approach		1718	3.9	0.896	43.7	LOS D	54.5	393.0	0.99	0.98	26.2
East: Thornton Drive											
4	L	75	0.0	0.471	60.0	LOS E	4.2	29.3	0.91	0.76	22.6
5	T	14	0.0	0.043	49.3	LOS D	0.7	5.1	0.87	0.61	24.6
6	R	15	7.1	0.090	67.5	LOS E	0.9	6.5	0.94	0.70	21.2
Approach		103	1.0	0.471	59.7	LOS E	4.2	29.3	0.91	0.73	22.6
North: Castlereagh Road											
7	L	87	1.2	0.231	26.7	LOS B	2.9	20.4	0.56	0.74	34.6
8	T	1501	3.5	0.800	29.4	LOS C	39.4	283.7	0.91	0.83	31.7
9	R	12	18.2	0.153	77.0	LOS F	0.8	6.1	0.99	0.68	19.4
Approach		1600	3.5	0.800	29.6	LOS C	39.4	283.7	0.89	0.82	31.7
West: Peachtree Road											
10	L	112	1.9	0.388	58.9	LOS E	7.5	53.0	0.93	0.80	23.0
11	T	21	0.0	0.388	50.6	LOS D	7.5	53.0	0.93	0.75	23.3
12	R	187	2.8	0.892	74.3	LOS F	12.5	89.8	1.00	0.86	19.7
Approach		320	2.3	0.892	67.4	LOS E	12.5	89.8	0.97	0.83	21.0
All Vehicles		3741	3.5	0.896	40.1	LOS C	54.5	393.0	0.94	0.89	27.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	4	25.2	LOS C	0.0	0.0	0.62	0.62
P5	Across N approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P7	Across W approach	4	21.1	LOS C	0.0	0.0	0.57	0.57
All Pedestrians		12	35.1	LOS D			0.72	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Peach Tree Road and Castlereagh Road PM Peak proposal with single shift operation

Four Way Traffic Signal Intersection
Signals - Fixed Time Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh Road											
1	L	166	7.6	0.894	50.1	LOS D	53.5	388.4	0.98	0.99	26.3
2	T	1499	3.4	0.894	41.4	LOS C	54.2	390.6	0.98	0.98	26.7
3	R	51	2.1	0.598	78.9	LOS F	3.4	24.3	1.00	0.77	19.0
Approach		1716	3.8	0.894	43.4	LOS D	54.2	390.6	0.98	0.98	26.3
East: Thornton Drive											
4	L	75	0.0	0.471	60.0	LOS E	4.2	29.3	0.91	0.76	22.6
5	T	14	0.0	0.043	49.3	LOS D	0.7	5.1	0.87	0.61	24.6
6	R	15	7.1	0.090	67.5	LOS E	0.9	6.5	0.94	0.70	21.2
Approach		103	1.0	0.471	59.7	LOS E	4.2	29.3	0.91	0.73	22.6
North: Castlereagh Road											
7	L	87	1.2	0.231	26.7	LOS B	2.9	20.4	0.56	0.74	34.6
8	T	1501	3.5	0.800	29.4	LOS C	39.4	283.7	0.91	0.83	31.7
9	R	9	11.1	0.119	76.3	LOS F	0.6	4.7	0.99	0.67	19.4
Approach		1598	3.4	0.800	29.5	LOS C	39.4	283.7	0.89	0.82	31.7
West: Peachtree Road											
10	L	114	0.9	0.392	58.9	LOS E	7.6	53.5	0.93	0.80	23.0
11	T	21	0.0	0.392	50.7	LOS D	7.6	53.5	0.93	0.75	23.3
12	R	189	2.2	0.898	73.7	LOS F	12.6	89.8	1.00	0.85	19.9
Approach		324	1.6	0.898	67.0	LOS E	12.6	89.8	0.97	0.83	21.1
All Vehicles		3741	3.4	0.898	39.9	LOS C	54.2	390.6	0.94	0.89	27.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

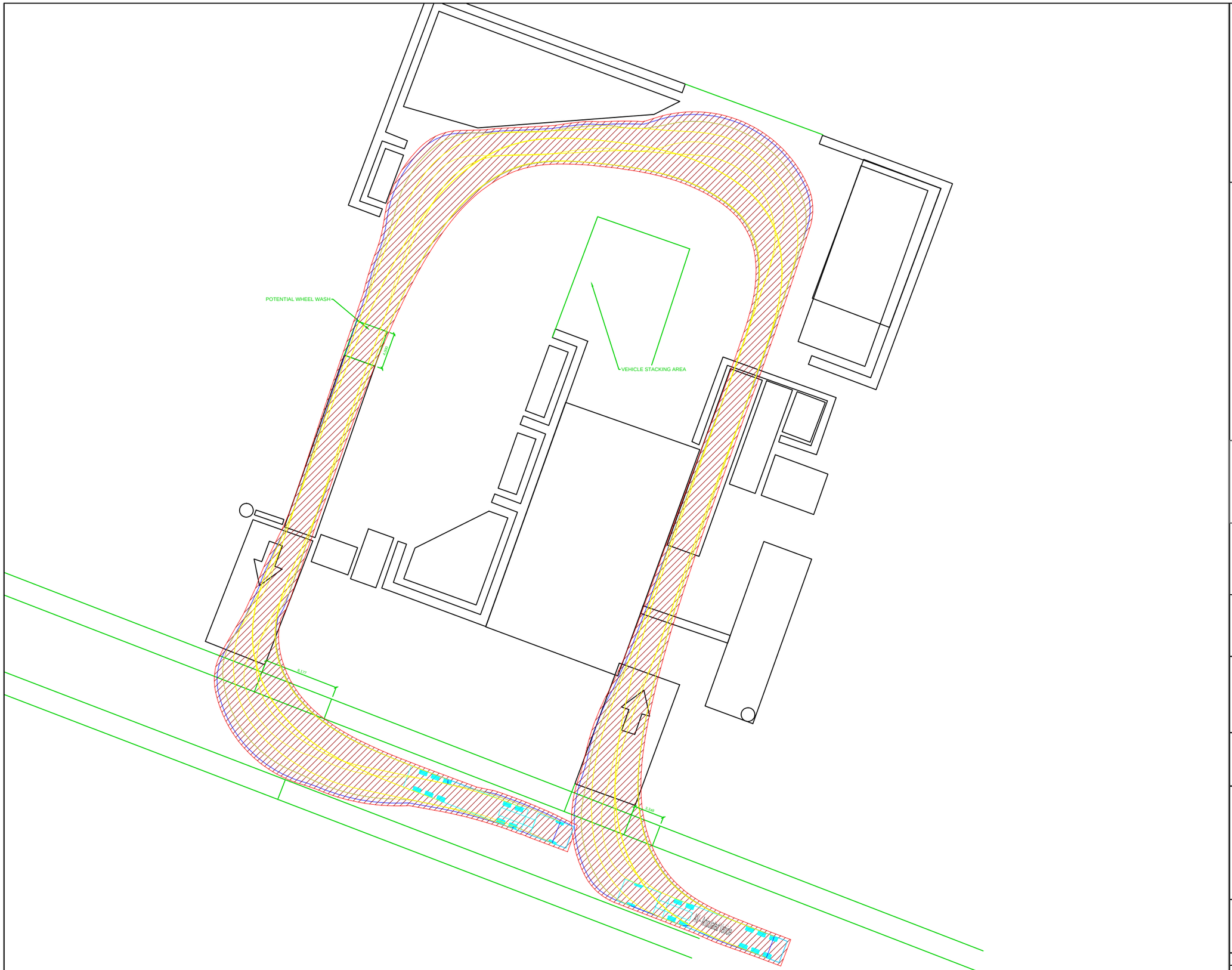
Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P3	Across E approach	4	25.2	LOS C	0.0	0.0	0.62	0.62
P5	Across N approach	2	59.1	LOS E	0.0	0.0	0.95	0.95
P7	Across W approach	4	21.1	LOS C	0.0	0.0	0.57	0.57
All Pedestrians		12	35.1	LOS D			0.72	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix C

Swept Paths for semi trailer access to the site



Notes

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TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

client

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

scale

1:400 @ A3

0m 4 8 12 16

project

Penrith Waste Recycling and Transfer Facility
46 Peachtree Road
Penrith NSW 2750

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

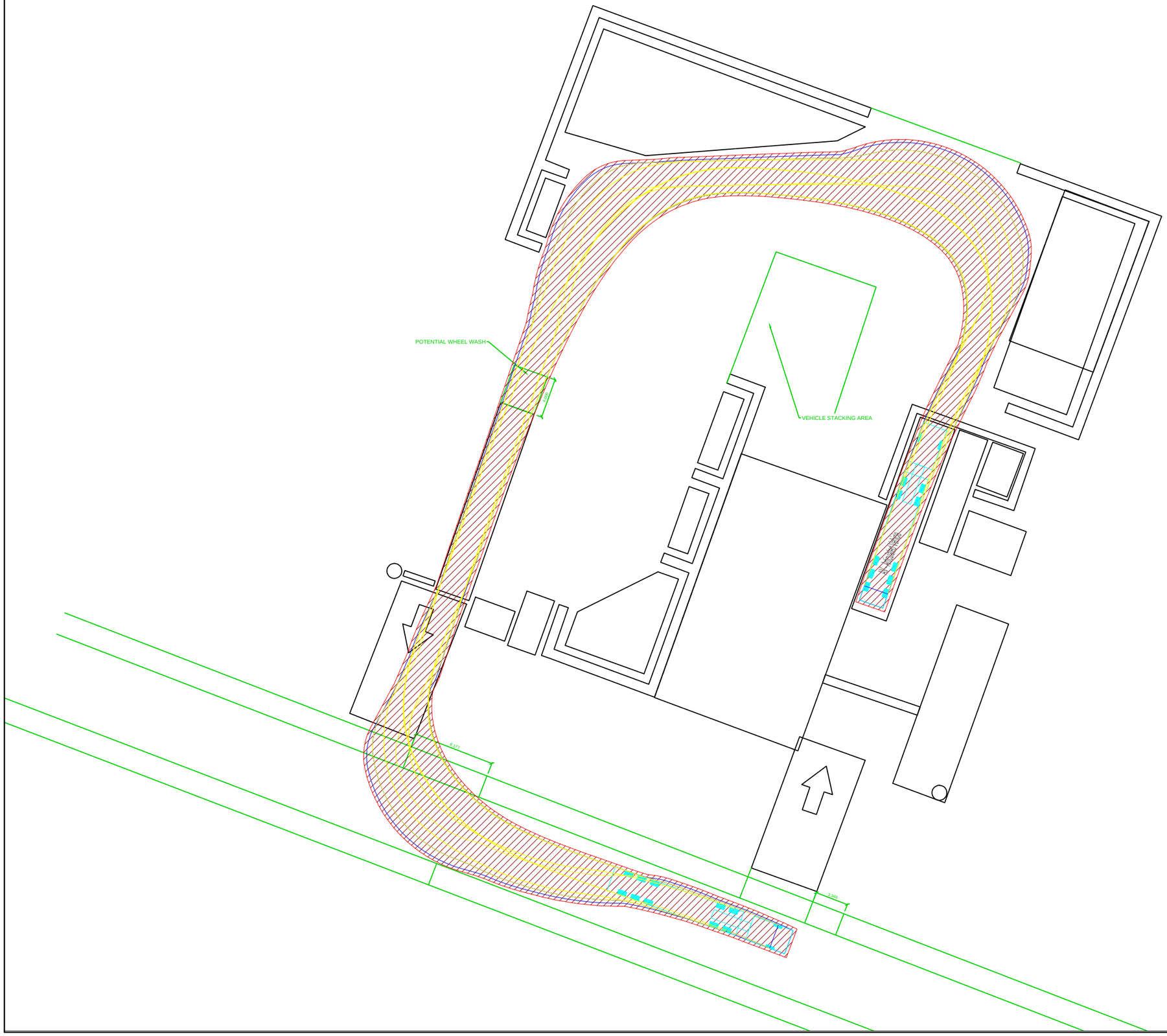
drawing title

Swept Paths - 19m AV approaching truck tipping area

drawn:	checked:	date:
HD	GH	27/01/2017

17.012d01v02 TRAFFIX [170113 Plans] Swept Paths.dwg

project no.	drawing phase.	drawing no.	rev
17.012	-	SK.01	B



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- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

client

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

scale

1:400 @ A3

0m 4 8 12 16

project

Penrith Waste Recycling and Transfer Facility
46 Peachtree Road
Penrith NSW 2750

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

drawing title

Swept Paths - 19m AV approaching waste area

drawn:	checked:	date:
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project no.	drawing phase.	drawing no.	rev
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Swept Path Legend:

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- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

client

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

scale

1:200 @ A3

0m 2 4 6 8

project

Penrith Waste Recycling and Transfer Facility
46 Peachtree Road
Penrith NSW 2750

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

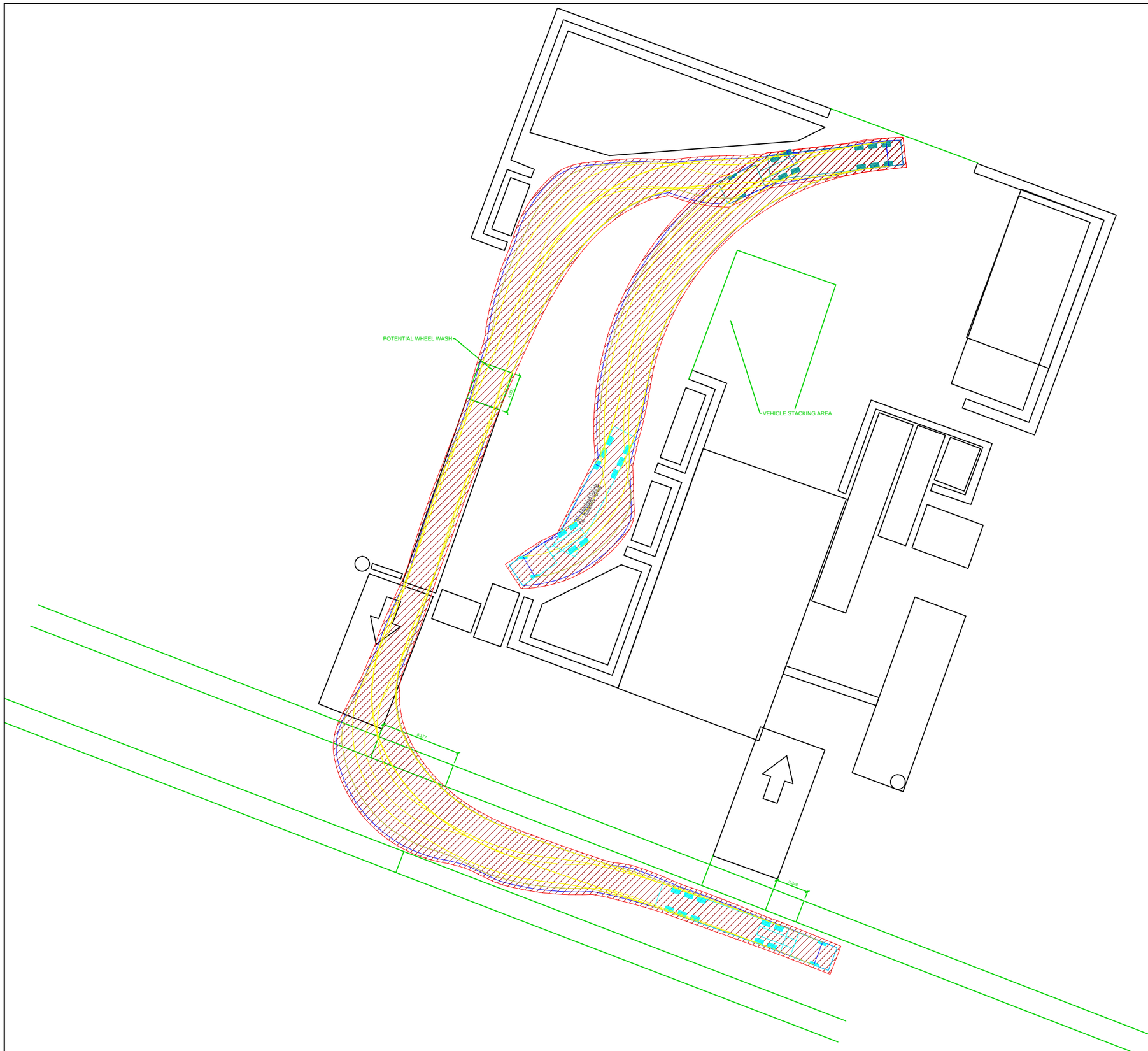
drawing title

Swept Paths - 19m AV approaching screen fines area

drawn:	checked:	date:
HD	GH	27/01/2017

17.012d01v02 TRAFFIX [170113 Plans] Swept Paths.dwg

project no.	drawing phase.	drawing no.	rev
17.012	-	SK.03	B



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- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

client

EMM Consulting
Ground Floor Suite 01
20 Chandos Street
St Leonards NSW 2065

scale

1:400 @ A3

0m 4 8 12 16

project

Penrith Waste Recycling and Transfer Facility
46 Peachtree Road
Penrith NSW 2750

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
Surry Hills NSW 2010

PO Box 1124
Strawberry Hills NSW 2012

t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

traffix
traffic & transport planners

drawing title

Swept Paths - 19m AV departing screen fines area

drawn:	checked:	date:
HD	GH	27/01/2017

17.012d01v02 TRAFFIX [170113 Plans] Swept Paths.dwg

project no.	drawing phase.	drawing no.	rev
17.012	-	SK.04	B

SYDNEY
Ground floor, Suite 01, 20 Chandos Street
St Leonards, New South Wales, 2065
T 02 9493 9500 F 02 9493 9599

NEWCASTLE
Level 1, Suite 6, 146 Hunter Street
Newcastle, New South Wales, 2300
T 02 4907 4800 F 02 4907 4899

BRISBANE
Level 4, Suite 01, 87 Wickham Terrace
Spring Hill, Queensland, 4000
T 07 3839 1800 F 07 3839 1866