Statement of Environmental Effects

Re-Use Goulburn
Goulburn Waste Management Facility
100 Sinclair Street, Goulburn

8201825301

Prepared for
Goulburn Mulwaree Council

10 January 2020

Goulburn Mulwaree Council

Cardno
Shaping the Future

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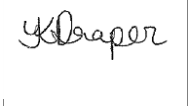

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Version	Effective Date	Description of Revision	Prepared by:	Reviewed by:
01-00	21/12/2018	Updated draft for review as part of Phase 2 deliverables	KD	RK
02-00	23/1/2019	Updated draft for review by GMC project team	KD/HM	RK
03-00	21/08/2019	Updated draft for adequacy review	KD/HM	RK
04-00	6/12/2019	Updated for DA submission	KD/DF/TR	RK
05-00	10/1/2020	Updated to include Resource Recovery Management Plan	TR/DF/SP	RK

Executive Summary

This Statement of Environmental Effects (SEE) describes the proposed new Reuse Goulburn (RUG) facilities at the Goulburn Waste Management Centre (GWMC) located at 100 Sinclair Street, Goulburn (Lot 256 DP 750050). The proposed new facilities are modern, efficient and community focused, enabling greater segregation, recovery and recycling of materials. A new recyclables resale shop (Re Use Hub) and supporting educational activities will be provided to complement the new site facilities and enhance community engagement and awareness in waste reduction.

Development consent is requested from Goulburn Mulwaree Council (Council) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the proposed additions to the existing GWMC. Specifically, this DA seeks approval for:

- Initial demolition of existing recycling sheds, truck wash bay, decommissioned water tanks and waste oil tank
- Removal and upgrade of existing pavements
- Upgrade of existing site stormwater management systems
- Construction of new facilities including a Re-Use Hub, office building incorporating a new gatehouse, site amenities and education centre, Community Recycling Centre (CRC) and Resource Recovery Shed and Wash Bay

This SEE has considered the various characteristics of the site and provides an assessment of the proposed development in accordance with the matters for consideration under Section 4.15 of the EP&A Act. The proposed development has considered, and is consistent with, the *Goulburn Mulwaree Local Environmental Plan 2009* (LEP) and the *Goulburn Mulwaree Development Control Plan 2009* (DCP).

Construction of the proposal is anticipated to have minimal environmental impacts as the site is predominately cleared and currently used for waste management purposes. The operation of the facility is not anticipated to produce significant additional traffic, nor additional noise or odour beyond what is currently experienced on the site. Additionally, the new facility will reduce traffic movements on site through streamlining of operations with associated reductions in congestion, noise and air quality, and enhanced community safety.

The GWMC operates under an existing Environmental Protection Licence (EPL), licence number 6780. This licence permits an unlimited capacity of waste disposal. The proposal will not require an amendment to the existing EPL as the volume and type of waste to be disposed at the site will remain unchanged.

The subject land is identified on the Goulburn Mulwaree Council Bushfire Prone Land Map as Bushfire Prone Category 2 vegetation with buffer. A Bushfire Impact Assessment accompanies this development application, and demonstrates that the proposed development is considered appropriate for the site subject to the implementation of mitigation measures detailed in **Section 7.7**.

The land in which the site is located is within the Sydney Drinking Water Catchment and according to the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (SEPP SDWC), the development must comply with practices and standards of Water NSW and must have a neutral or beneficial effect on water quality. A Water Cycle Management Study has been prepared to assess the impacts of the proposed development, and includes a Neutral or Beneficial Effect on Water Quality Assessment (NorBE), Conceptual Erosion and Sediment Control Plan and a Stormwater Site Management Plan.

Traffic impacts were assessed within a Traffic Impact Assessment (TIA), and it was found that the effected intersections will continue to operate acceptably with the proposed development.

A Flora and Fauna Assessment has been prepared in support of this development application, which determined that the proposed development will not result in a significant impact on the ecological values of the site. In addition, the submitted Heritage Impact Assessment found that the site has low potential to contain Aboriginal heritage items.

On balance, the proposed development has no significant impacts, while allowing Council to provide a high quality service for the residents of the Goulburn Mulwaree Local Government Area (LGA). This development is considered to be appropriate in its location and when assessed on its merits the proposal is suitable for support by Council.

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1 Introduction

1.1 Background

The Goulburn Waste Management Centre (GWMC) is located at 100 Sinclair Street, Goulburn. The GWMC has been officially in operation since the 29th September 1900, commencing as a site for the disposal of night soil and solid waste. Whilst the disposal of sanitary waste concluded in 1950, the site has continued to receive solid wastes until the present day. Today, operations at the GWMC include the collection and recycling of bulky goods, comingled recyclables, batteries and oils, general landfill and organics composting.

Goulburn Mulwaree Council (Council) has engaged Cardno (NSW/ACT) Pty Ltd (Cardno) to undertake the detailed design and construction/commissioning support for its new Re-Use Goulburn (RUG) facilities at the GWMC. This DA is seeking approval for the following additions to the existing facility under Part 4 of the EP&A Act:

- Initial demolition of existing recycling sheds, truck wash bay, decommissioned water tanks and waste oil tank
- Removal and upgrade of existing pavements
- Upgrade of existing site stormwater management systems
- Construction of new facilities including a Re-Use Hub, office building incorporating a new gatehouse, site amenities and education centre, Community Recycling Centre (CRC) and Resource Recovery Shed and Wash Bay

This SEE describes the site and its surrounds, defines the proposal and assesses the potential environmental impacts of the proposed works to satisfy the assessment requirements under Part 4 of the EP&A Act.

1.2 Consultation

1.2.1 Goulburn Mulwaree Council

A pre-lodgement meeting was held with Council staff on 16 August 2018 (Council Reference #1060432). **Table 1-1** provides a summary of the key comments from Council's correspondence, demonstrating how this proposal addresses Council's requirements. A subsequent adequacy review was held with Council staff on 28 August 2019 (Council Reference #1172307) to discuss the draft SEE and any further comments from Council to be addressed in this document. The complete pre-lodgement notes are found within **Appendix A**.

Table 1-1 Pre-Lodgement Meeting Comments

Item Discussed	Proposed Resolution
Utilities - Water *Services are located at the proposed location for development, Water meter may require relocation to allow for new construction.* *Back flow preventions will be required in the form of an RPZD downstream of the meter set.*	These requirements will be incorporated in the upgrades to the site water supply network.
Utilities - Sewer *Sewer connection is currently located at the front of the current facility and will be the point of discharge.*	Noted.
Contributions *A S305 will be required and contributions will depend on plans submitted.*	Noted.

The Waste Management Facility land is located outside the traffic zone for Common Street Section 94 Contributions Plan area, (now Section 7.11 Contributions), however the traffic route generated is within the Section 94 Contributions Plan area. *Council will need to review the Contributions Plan to determine whether the Section 94 Plan applies or whether the Section 94A Contribution Plan (Section 7.12 Contributions) applies.* *If Section 94A (7.12) contributions apply payment at 1% of cost of development applies.*	
Truck Wash *Existing concrete truck wash structure to be demolished. Two concepts proposed for truck wash replacement in the planning stages.* *Leachate system is proposed to deal with wastewater and disposal, discharge from the leachate system to sewer will not be permitted. If the truck wash waste is to be discharged to sewer the truck wash area will need to be bunded and covered with an appropriate roof to prevent the ingress of stormwater. Application needs to clearly define how the wastewater will be treated. If disposed via sewer, a Liquid Trade Waste and additional documents will be required.*	Leachate from the new wash bay will be captured in a sump within a bunded area and undergo primary trash and oil removal prior to being pumped to the site leachate pond for containment and evaporation, along with other leachate sources from the new facilities. Stormwater within the wash bay will be contained, and once inspected and confirmed clean, allowed to gravity drain into the site dirty stormwater system that flows into the existing sediment dam.
BCA Requirement *Buildings with a floor area > 2000m^2 are deemed Large Isolated Buildings.* *Preliminary BCA reporting required at DA stage to support design at CC stage.*	The Resource Recovery Shed is predominantly a Class 8 Building, with a small office and educational centre within it totalling 171.5m^2 & open shed portion of 1914m^2 in accordance with Table C1.1. The building will be Type B construction. The building is approximately 2010m^2, which will make the building Type B construction that has a floor area maximum of 3500m^2 and maximum volume of 21000m^3. As such, the building is within these allowed maximums in accordance with Table C2.2 Maximum size of fire compartments for Type B construction. Further details on this BCA assessment for the Resource Recovery Shed are provided in **Appendix N**.
Traffic and Parking *Common Street identified as a roundabout - just outside of the contribution area for Common Street.* *Internal roads, car parking and manoeuvring areas shall be sealed and designed in accordance with Council's Engineering Standards.* *Traffic Assessment required. Refer to Infrastructure SEPP Traffic Generating Development requirements.*	A Traffic Impact Assessment is provided at **Appendix C**.
Planning - Development Description	Refer to **Section 6.3**.

The development is required to be categorised in accordance with the standard definitions.	
Designated Development *Is the proposal designated development under Clause 32 of Schedule 3 of the Environmental Planning and Assessment Regulation 2000?*	The proposal is not considered Designated Development. Refer to **Section 6.1.2**.
Owners Consent *Lot 265 DP 750050 is identified as Crown Land. Any proposed use must be consistent with current Plan of Management. Land owners consent documentation from the Department of Industry - Lands & Water is to accompany the DA.* *Any Native Title is to be extinguished. Further details may be obtained from Council's Manager - Land & Property Services.* *Lot 1 DP 1064 103 does not appear to be Crown Land but owned by Council.*	In accordance with Section 2.23 of the *Crown Land Management Act 2016*, Crown Lands have provided written consent for its Crown land manager (Council) to lodge the development application. Correspondence from Crown Lands is provided at **Appendix I**.
Design *Development cost is $4 million and will require a quantity cost summary report.* *Description of development and what is proposed to occur on site including processes (steps in receiving, processing and transporting) and volumes of different waste categories. Would be useful to show existing processes and proposed processes.* *Is any staging of development or construction proposed?* *Noise impact to be considered with the application with distance to nearest sensitive receivers, different types of machinery and any measures to minimise impact.*	An independent concept Quantity Surveyors (QS) estimate has been prepared for the project determining a total construction cost of $6.88M, excluding contingency, following a value engineering workshop for the project to refine the scope and design. A copy of the concept QS estimate is provided in **Appendix M** The development consists of two stages that may be undertaken concurrently or independently in any order depending on available funding. Stage A – Re-Use Hub Stage B – the Resource Recovery Shed, Community Recycling Centre, Education Centre, Offices and new Gatehouse and Weighbridge
Agencies > *Water NSW* > *NSW Health* > *Office of Environment and Heritage* > *Roads and Maritime Services* > *Rural Fire Services* > *Pejar Local Aboriginal Lands Council*	Noted.
Sydney Drinking Water Catchment SEPP *Commercial/Industrial will require NorBE Assessment and MUSIC modelling at time of DA lodgement for management of leachate and stormwater.* *Concurrence from Water NSW will also be required.*	A Water Cycle Management Study is provided at **Section 7.2**. The study includes NorBE Assessment and MUSIC modelling.
Infrastructure SEPP	A Traffic Impact Assessment is provided at **Appendix C**, detailing

Schedule 3 Traffic Generating Development will require RMS referral. Matters for consideration including existing traffic movements and likely traffic types and numbers.	traffic movements and likely traffic types and numbers.
State and Regional Development 2011 SEPP *Schedule 7, potential for JRPP as determining authority.*	In accordance with Schedule 7 (4) of the State and Regional Development 2011 SEPP, development carried out by or on behalf of the Crown (within the meaning of Division 4.6 of the Act) that has a capital value of more than $5 million is considered Regionally Significant Development. The proposed development has an estimated construction cost of $6.88M and therefore triggers the JRPP as determining authority.
Hazardous and Offensive Development SEPP 33 *Consideration must be given to current circulars or guidelines published by the Department of Planning relating to hazardous and offensive development. The Statement of Environmental Effects is required to assess the controls and advise how they are or are not applicable.*	Refer to **Section 6.2.1**.
Vegetation in Non-Rural Areas SEPP and Biodiversity Conservation Act *Flora and Fauna Assessment required at time of lodgement. The land is not mapped on Biodiversity Value Map and there is no minimum lot size for the land under the LEP.* *Where there is no minimum lot size, the calculation is based on the actual lot size in question to be cleared. Lot 1 DP 1064103 has an area of 7.2ha - 0.5 hectares clearing triggers requirement for Biodiversity Development Assessment Report.* *Where the clearing of native vegetation areas are exceeded then applicants must seek the services of an accredited assessor to prepare a Biodiversity Development Assessment Report using the Biodiversity Assessment Method (BAM) and the development application must be submitted with the BDAR.* *The development application is to include a statement as to whether the proposal is likely to significantly affect threatened species, populations or their habitats (test of significance) and whether the Biodiversity Offsets Scheme has been triggered.*	A Flora and Fauna Assessment is provided at **Appendix E.** The proposal requires the removal of 0.36 ha of Western Tablelands Dry Forest in a modified condition, which is less than the threshold value of 0.5ha that would trigger the requirement to prepare a Biodiversity Development Assessment Report (BDAR).
Scheduled Activity *Does the proposed development fall within "Scheduled Activity" under Protection of the Environment Operations Act and therefore a licence from EPA is required? Or does the current EPA licence requirement amendment?*	The proposal will not require an amendment to the existing EPL (No. 6870) as the volume and type of waste to be disposed at the site will remain unchanged. As such, the proposal is not considered a Scheduled Activity. Refer to **Section 6.1.3**.
Goulburn Development Control Plan *Clause 3.2 - Land is identified as potential for Aboriginal Cultural Heritage on the DCP map. Consultation with Pejar Local Land Council is recommended.* *Clause 3.3 - Landscape Plans required to be provided on lodgement of the DA.*	Refer to **Section 6.4**.

Clause 3.7.1.2 - Native Vegetation Act is now replaced by Biodiversity Conservation Act 2016 reforms and a Test of Significance as detailed in Section 7.3 of the Biodiversity Conservation Act 2016 must be used to determine whether a local development is likely affect threatened species or endangered ecological communities. *Clause 3.4 - Vehicular Access and Parking including disability standards for access.* *Clause 3.5 - Crime Prevention Through Environmental Design.* *Clause 3.7 - Tree and Vegetation Preservation - see Biodiversity response for further information.* *Clause 3.9 - Waterbody and wetland protection - biodiversity management.* *Clause 3.13 - Stormwater pollution prevention.* *Clause 3.14 - Bushfire Risk Management, assessment required.* *Clause 4.2 - Non-residential Development - Industrial.* *Clause 6.4 - Signage provides guidance for advertising signage.*	
<u>Post Meeting Advice</u> *The application will be accompanied by the following documentation, and will included three copies of each and one electronic copy:* > *Statement of Environmental Effects detailing the characteristics of the site and providing an assessment of the proposed development in accordance with the matters for consideration under Section 4.15 of the EP&A Act* > *Site Analysis Plan including existing buildings, trees and contours, neighbouring properties and location of nearest dwellings (sensitive receivers)* > *Site Plan including any tree/vegetation removal* > *Area of clearing of native vegetation (including access, services, APZs etc)* > *Demolition Plan* > *Cut and Fill Plan with existing and finished ground levels* > *Floor Plan with different uses of rooms identified* > *Elevations Plan including colours and materials* > *Trade Waste details and truck wash plans* > *Sections Plan* > *Landscape and Fencing Plan (and lighting when proposed)* > *Concept Stormwater Plan including details to satisfy NorBE and the requirements of Water NSW including a Water Cycle Management Study* > *Internal roads, loading and unloading areas, car parking and manoeuvring areas* > *Details of proposed signage with dimensions, wording, colours and materials and compliance with SEPP No. 64* > *Details of proposed site operations, including machinery and equipment and number of staff (both existing and additional)* > *Hazardous materials (including quantities) and measures to mitigate any potential impacts of delivery of these materials*	This SEE and associated appendices address each of the requirements as specified by Council.

- *Aboriginal Cultural Heritage Assessment*
- *Bushfire Assessment Report*
- *Traffic Assessment*
- *Will the proposed clearing of native vegetation trigger the NSW Biodiversity Offset Scheme and require the preparation of a Biodiversity Development Assessment Report prepared by an accredited person under the Biodiversity Conservation Act 2016? If not, will the proposal require the removal of native vegetation? If so, a Flora and Fauna Test of Significance as detailed in Section 7.3 of the Biodiversity Conservation Act 2016 is required to determine whether a local development is likely to significantly affect threatened species or endangered ecological communities.*
- *Noise Assessment or details of likely noise and measures to mitigate any impacts*
- *Referral - Water NSW, EPA, NSW Health, OEH, RMS and RFS*

1.3 Purpose

Cardno has prepared this SEE to assess the likely environmental impacts of the proposed development having regard to the heads of consideration under Section 4.15 of the EP&A Act. Section 4.15 of the EP&A Act specifies the matters that a consent authority must consider when determining a DA.

Section 4.15 – Matters for Consideration

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development subject of the development application:

a) The provision of:

(i) Any environmental planning instrument, and

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

(iii) Any development control plan, and

(iii) (a) Any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

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

(v) (repealed)

b) The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

c) The suitable of the site for the development,

d) Any submissions made in accordance with this Act or the regulations.

e) *The public interest.*

This SEE presents the proposed development scheme and assesses the proposal against the current planning policies and legislation. It also considers any potential environmental impacts as a result of the proposal in accordance with the requirements of Section 4.15 of the EP&A Act.

1.4 Structure of the Report

The structure of the report is as follows:

- **Section 2 –** Describes the proposed development
- **Section 3 –** Assesses the proposed development in relation to relevant planning policies
- **Section 4 –** Assesses the potential environmental impacts from the proposal
- **Section 5 –** Summarises the report findings.

2 Site Location and Analysis

2.1 Site Location

Council governs the Local Government Area (LGA) located in the southern tablelands, NSW, servicing approximately 29,550 residents (*Profile ID, 2015*). The LGA comprises the former Mulwaree and all of the former Goulburn LGAs, encompassing an area of 3,222km^2.

The site is located within the GWMC at 100 Sinclair Street, Goulburn. The site is legally described as Lot 265 DP 750050. The site is situated to the east of the wider Goulburn Town Centre. The property frontage and vehicular access is currently via an existing access road to the GWMC from Sinclair Street.

Figure 2.1 below shows the site within its regional context.

2.2 Site Analysis

The subject site is approximately 2.65ha in size located fully within the site of the existing GWMC boundaries. The proposed site has previously been cleared and has historically been used for various activities including agriculture in the form of grazing.

The following facilities are currently provided within the GWMC site:

- Weighbridge and gatehouse
- Previously used recycle shed (drop off area for mattresses, metal and E-waste)
- Carpark
- Wash bay
- Sheds for batteries
- General waste drop off bays
- Office and amenities
- Truck parking and workshop
- Current recycle shed

The site is zoned *SP2 – Infrastructure* under the *Goulburn Mulwaree Local Environmental Plan 2009* (LEP).

The subject land is identified on the Goulburn Mulwaree Council Bushfire Prone Land Map as Bushfire Prone Category 2 vegetation with buffer. The site is also located within the Sydney Drinking Water Catchment area. The Mulwaree River, that joins the Wollondilly River, supplies water to the Warragamba catchment which is the largest of the five Sydney Drinking Catchments and according to *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (SEPP SWDC), the consent authority needs to consider whether the proposal would have a neutral or beneficial effect on water quality.

Figure 2-2 provides a visual analysis of the site.

2.3 Surrounding Areas

The site is located within a rural area of Goulburn characterised by a mix of general rural lands, low-density residential development and open space.

Specifically, the subject site is bound:

- To the *North* – by bushland, Sydney Road and a cemetery.
- To the *East* – by existing bushland, beyond which is cleared land and the Hume Highway.
- To the *South* – by existing bushland, beyond which is the Hume Highway.
- To the *West* – by cleared land interspersed with low-density housing and industry.

Figure 2-1 Location Plan

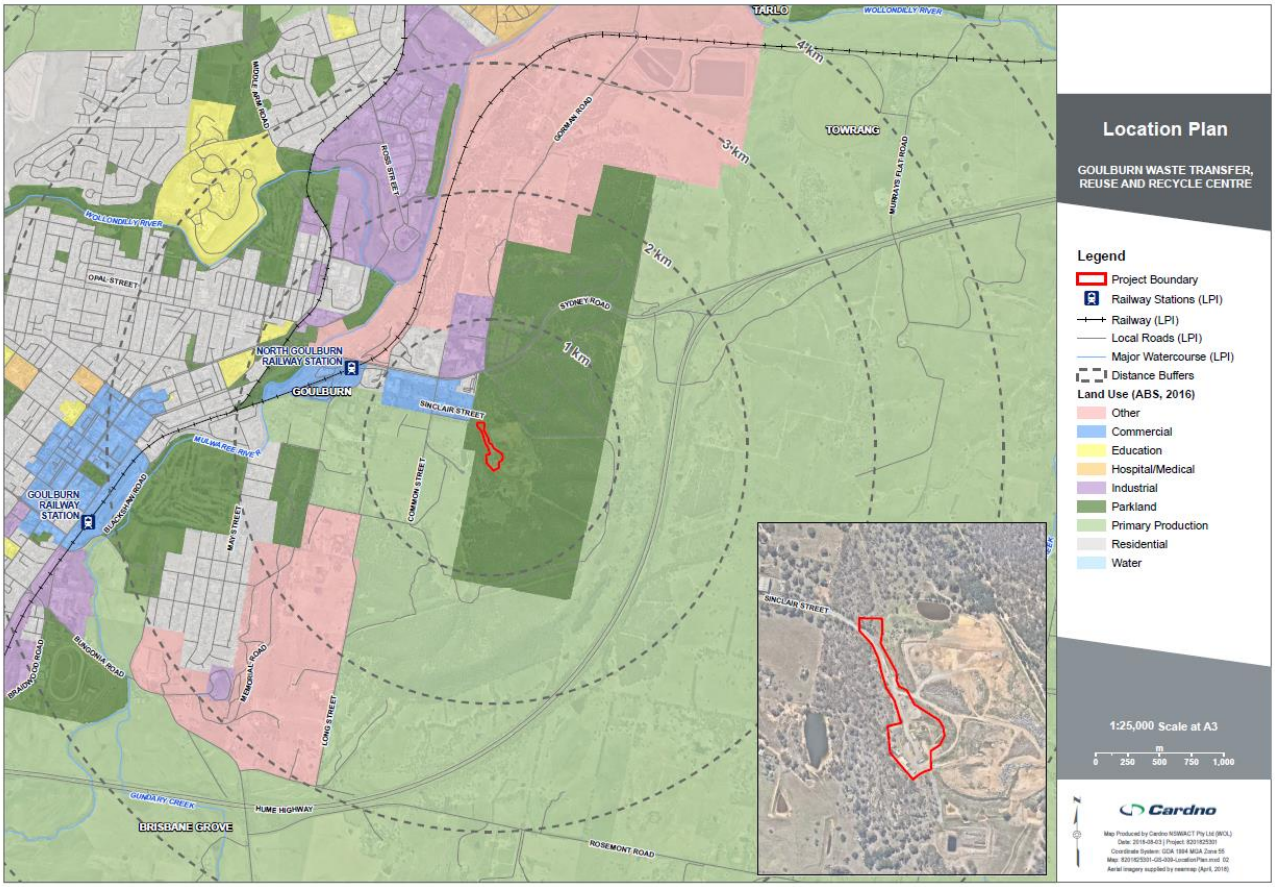
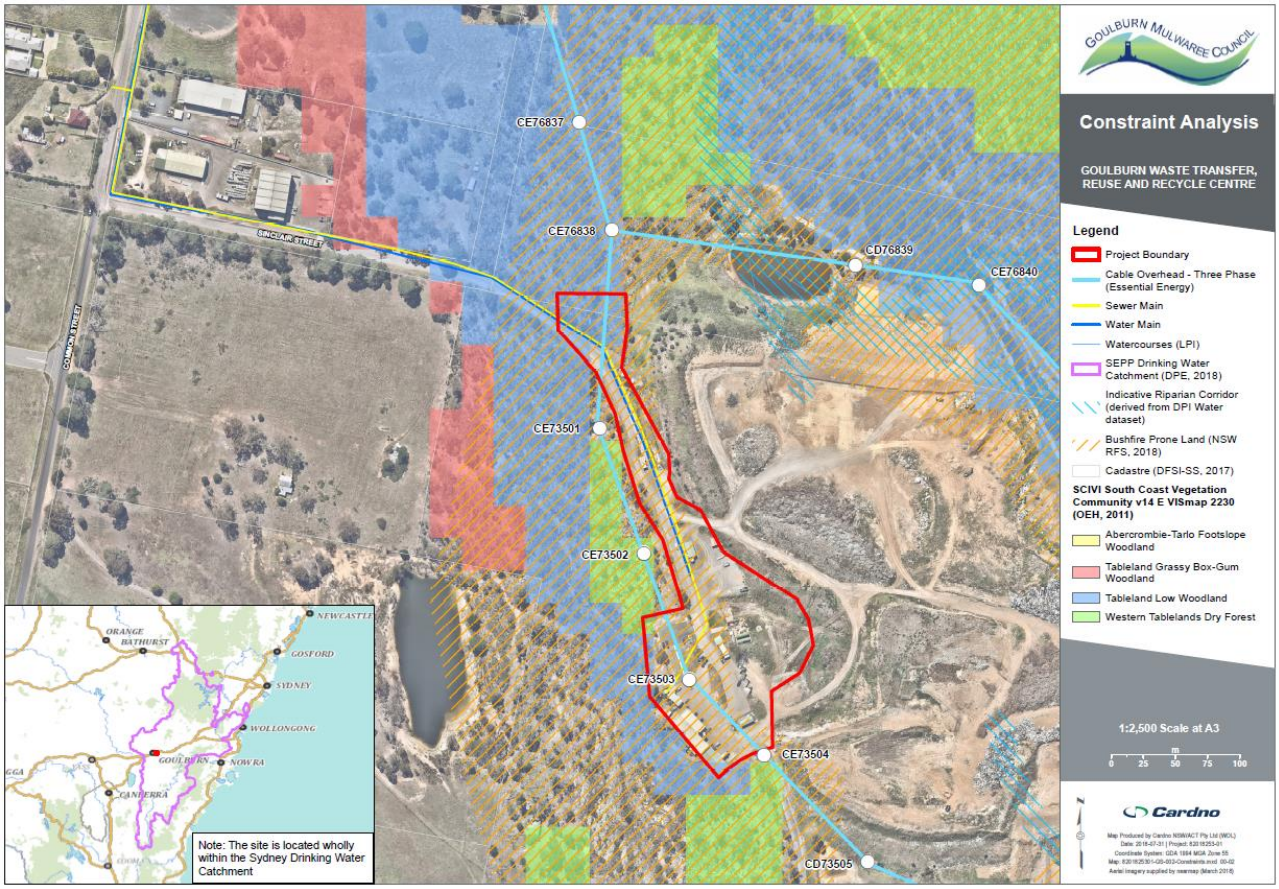


Figure 2-2 Site Analysis Plan



2.4 Site Photos

Figure 2-3 Existing Site Roadways

Figure 2-4 Existing Truck Wash and Battery Collection Shed

Figure 2-5 Existing Comingled Recycled Collection Facilities

Figure 2-6 Existing Collection Vehicle Parking and Maintenance Workshop

3 Existing Operations Review

3.1 Personnel

There are currently 14 staff in the landfill team at the GWMC. The team is comprised of a Coordinator, a Team Leader and 12 operational staff members. Of these 12, one is permanently stationed at the Marulan site, two are casual staff and one is assigned to work at the gatehouse.

The operational staff have three classifications:

- Operator – licensed to operate the heavy equipment and collection trucks
- Recycle Assistant (RA) – performs general duties on the site
- Gate Keeper

Normal work hours are 7:30am – 4:30pm.

The site is open seven days per week. The supervisor and coordinator work Monday to Friday. The roster for the operational staff is maintained by the supervisor and includes weekend coverage, with staff generally working alternate weekends.

On any given day, there are between five and seven operational staff rostered on. The minimum on-site team includes the following assignments:

- 1 x Gatehouse Assistant
- 2 x Operator (hook truck and Tana compactor)
- 1 x Recycle Assistant (primarily stationed at general waste drop off bays)
- 1 x Recycle Assistant stationed at Tarago (Sat, Sun, Mon only)
- 1 x Operator stationed at Marulan (permanent)

Ideally, the following roles are included to cover all operational requirements:

- 1 x Additional Recycle Assistant
- 1x Additional Operator

The additional Recycle Assistant escorts customers around site, covers lunch breaks and assists to clean up or with additional tasks as needed for daily operations. The additional Operator performs extra tasks and assists with any offsite waste pick up activities.

Additionally, the Landfill team attend Tarago twice a week to empty skip bins with the hook truck, and service any skip bins that have been hired out by the general public for special events.

3.2 Current Site Arrangement and Practices

All traffic (light and heavy vehicles) enter site and proceed over the weighbridge, stopping at the gatehouse. The attendant directs the vehicle to the appropriate location on site depending on the items they have to drop off. Most customers proceed to the general waste bays at the southern end of the transfer area, and a small proportion of customers go up to the landfill area located in the eastern part of the site for asbestos, green waste, timber or large scrap metal deliveries.

In order to maintain the flow of customers through the site, facilities have been arranged for customers to drop off items in the following order:

1. Scrap metal, mattresses, appliances
2. General waste
3. Recyclables

3.3 Waste Streams and Throughput Values

The main waste streams currently accepted at the GWMC include general waste, green waste, comingled recycling, scrap metal, concrete, asbestos, gas cylinders and timber. A number of items currently not recycled by Council, such as paint and smoke alarms, will be accepted for recycling under the CRC scheme. As a result of the RUG Project, a number of operational changes will be required to manage the separation of these waste streams.

3.4 Vehicles

There is a wide range of vehicles that access the GWMC as part of the daily operations. Access to the various areas of site will need to accommodate the turning circles of the range of vehicle types to provide for efficient operations and maintain a safe traffic management standard. Analysis of the various waste streams and associated vehicle movements provides the required information to determine the flow of materials through the site. Together these have provided key inputs into the design process. **Table 3-1** lists the various heavy vehicles that enter the GWMC site.

Table 3-1 Vehicle Access

Vehicle Type	Waste Stream / Material	Site Access Requirements	Operator
B-Double Trucks	Bin Deliveries Scrap Metal	Landfill Back of House	External
Semi-trailers	Palletised goods Various waste streams Bin Deliveries	CRC Resource Recover Shed Back of House	External
Rigids and Pantech's	Palletised goods Various waste streams	CRC Resource Recover Shed Back of House	External
Truck and Dog	Landfill Cover Concrete Scrap Metal		External
Low Loaders	Equipment transport (Tana, D8 bulldozer)	Landfill area	External
Hook Lift Truck	RORO bins	Whole site	Council
Collection Vehicles	General Rubbish Green Waste	Landfill	Council

3.4.1 Operating Procedures

There are three critical procedures that apply across Council and all waste management facilities:

- Gatehouse Operations
- Isolated or Lone Worker
- Working in Extreme Weather

These procedures are all applicable at GWMC and have been accommodated in the design. The gatehouse operations focus on identification of waste materials, cash handling and weighbridge operations, which will change as a result of the RUG project. The lone worker and weather condition procedures will not be impacted as a result of the RUG project, though the new CRC and Resource Recovery Shed will enable the landfill team to perform more tasks in adverse weather than the current situation.

The Landfill team at GWMC have developed a set of operating procedures that covers all tasks conducted at the GWMC the site. The procedures provided include:

- Standard Operating Procedure – overview of duties on site
- 23 x Safe Operating Procedures – for specific areas and equipment

- Traffic Management Plan

Approximately half of the existing procedures remain unchanged with the new RUG facilities, a quarter will require minor changes, and the remaining quarter will require major changes as a result of the new facilities that will enhance and improve current operational practices.

New procedures will also be required to cater for the new facilities and equipment being installed, enhanced waste separation, and new community education activities, with approximately 12 new procedures having been identified for development.

4 Existing Infrastructure Review

4.1 Site Layout

The existing site layout is shown in **Figure 4.1**. The operational area of the site subject to this development application is a narrow section arranged on a north south axis. The main landfill area is currently to the east and further facilities (i.e. Organics, drill mud ponds, and future land fill cells) are further south. Driving in the gate at the north end, the following facilities are encountered within the project area:

- Weighbridge and gatehouse - on the main road
- Unused recycle shed - drop off area for mattresses, metal, E-waste; east side of road
- Carpark - west side of road
- Wash bay - east side of road
- Sheds for batteries, gas bottles and waste oil - east side of road
- General waste drop off bays - east side of road
- Office and amenities - west side of road
- Truck parking & workshop, carport - west side of road
- Current recycle shed - south end of road

The main landfill area is to the east, containing the drop off locations for bulk green waste, timber, asbestos and scrap steel.

Currently there are only two buildings with facilities and amenities for personnel: The gatehouse and the office/crib room. The remaining buildings are all storage sheds of some description.

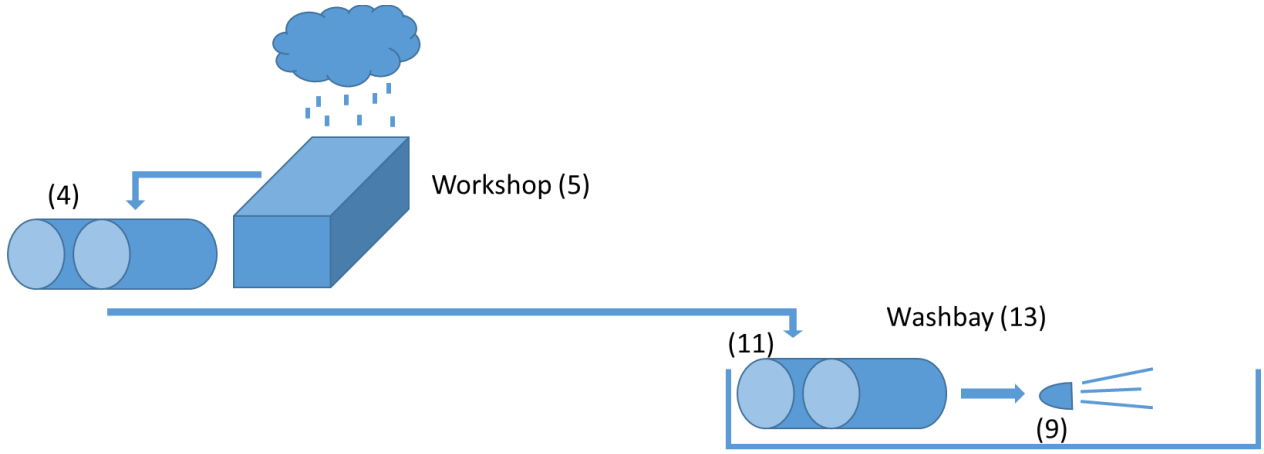
Figure 4-1 Proposed vs. Existing Site Layout

4.2 Water Tank Arrangements

There are a number of water tanks on the site that are to be reused. The existing truck wash bay is fed from a series of tanks that allow for the harvesting of rain water from Workshop roof to feed the high pressure washer. It is planned that the new wash bay will also be fed with rain water, this time from the new Resource

Recovery Shed building which is closer and has much greater surface area. The following figure shows the existing configuration for reference

Figure 4-2 Existing Rain Water Tanks Configuration



The potable water supply does not have sufficient pressure, so a header tank and booster pump arrangement is located near the site entrance to ensure sufficient supply pressure to the top of the site. This arrangement will continue in the new development, with upgrades made to the tank and pump capacity as necessary to service the new building requirements.

Additionally at the front of the site are two bore water tanks that are fed from a small pump to the north of the sediment dam (northern end of site) that pumps ground water from a bore on site. The water fill point near the existing gate house is fed from these bore water tanks and is used to fill the water cart and spray on the landfill cover for dust suppression.

5 The Proposal

5.1 Proposal Overview

This DA is for the proposed RUG Project facilities, specifically:

- New Re-Use Hub building (at entrance of site)
- New Community Recycling Centre (CRC) for free drop off of select toxic and hazardous waste materials, and a Resource Recovery Shed for paid drop off of bulky goods, e-waste, green waste, and general waste items (as per current site operations)
- New gatehouse, office, staff amenities and education centre (adjoining new CRC/Resource Recovery Shed along north-western wall)
- Support infrastructure for the existing weighbridge office structure

The proposed layout of the RUG facilities is depicted on the submitted drawings provided in **Appendix B.**

The new buildings are to share common design themes to provide an integrated feel to the development and achieve the overarching objectives of the proposal to provide modern, functional and sustainable facilities for the public to use.

Each of the proposed elements is described below and a detailed overview of the proposed operations is provided in **Section 5.5**.

5.1.1 Re-Use Hub

The Re-Use Hub building is to be located at the site entry, before the entrance to the main waste management site. The purpose of this building is to provide a community hub for sustainability, with a focus on re-use and re-purposing of materials. An interactive outdoor landscaped area is proposed to communicate and educate sustainability principles from the natural, Indigenous and modern built environments.

The public will be encouraged to drop off goods and materials that can be reused prior to entering the main waste management site. They will also be able to purchase, for a small cost, reusable goods and materials, rather than purchasing new items.

The Re-Use Hub is to consist of the following major elements:

- "Front of house" public accessible sales area that includes racking for the display and sale of goods that need to be kept within an indoor area, sales counter and accessible toilet
- "Back of house" staff area that includes a combined office and kitchenette area, two unisex bathrooms, storage cupboard and indoor workshop area
- Outdoor covered area for the storage, display and sale of goods that can be kept outside and undercover
- Outdoor covered work area and temporary storage area for goods that are being cleaned / refurbished
- Outdoor open area for the storage and sale of goods that can be kept in open conditions (such as building products)
- Access ways and walkways as denoted on the drawings in **Appendix B** and along the front of the building adjacent to the carpark

5.1.2 Community Recycling Centre and Resource Recovery Shed

The Community Recycling Centre (CRC) and Resource Recovery Shed is a new integrated building for the drop-off of unsaleable goods and materials for recycling or disposal by the public. The proposed building replaces and enhances a number of existing operational facilities, providing a central, safe and all weather facility for the public and site operations staff alike.

The proposed building is to consist of three main operational areas including:

- CRC area for the drop-off and collection of materials covered by the NSW EPA's CRC scheme and other small waste items that are to be collected free of charge by Council.
- A large items drop off area consisting of four major bays for the drop-off and storage of mattresses, tyres, whitegoods/electrical appliances and comingled recyclables. This area is also to include a collection point for polystyrene materials and a polystyrene compacting machine.
- A Resource Recovery area with a sawtooth arrangement of 6 hydraulically operated tipping bins and associated skip bins (at lower ground level) for the collection of green waste, concrete, steel and general waste.

Immediately adjacent to the CRC and large item drop-off areas is to be a walkway and public vehicle drop-off bays. A central access roadway is to pass through the building providing access to and around the parking bays for each of the operational areas. Inside, along the western side of the building, a segregated pedestrian walkway is to be provided spanning the length of the CRC and large items drop-off areas to allow access to the adjoining new operational buildings for site personnel and site visitors.

A covered, level back of house area is to be provided on the eastern side of the building spanning he length of the CRC and large items drop-off areas to allow for all weather forklift loading of materials from those areas to collection vehicles servicing the site. it is proposed that the covered area be achieved via a cantilevered awning from the main shed structure.

New operational office buildings are to be built along the north-western side of the Resource Recovery Shed, along with bus and visitor parking and an associated external pedestrian walkway along the south-western side of the shed.

5.1.3 Gatehouse, Office, Staff Amenities and Education Centre

As part of the construction of the new CRC and Resource Recovery Shed, Council wish to improve the efficiency of operations and enhance the safety, security and support of their staff. They also wish to create a multifunctional education space to hold waste management and sustainability lessons with school students and community interest groups, and onsite training and meetings with operational staff.

To achieve this, a new operational building is to be constructed on the north-western side of the new CRC and Resource Recovery Shed that will contain the following spaces and facilities:

- Gatehouse at most northern point, which provides remote access control for public and operational vehicles entering the site, records vehicle net mass exiting the site, and takes payment for waste disposed on the site. The gatehouse is also used to provide access control for vehicles exiting the site, and monitoring of site CCTV footage.
- Office space next to the gatehouse area that has space for the site operations supervisors and office based staff so that they are in close proximity to readily support both the gatehouse and CRC/Resource Recovery Shed operations personnel.
- Amenities for CRC/Resource Recovery Shed operations operational staff and visitors to the education centre, to provide toilet and shower/change facilities (the latter being for operational staff only).
- Multifunctional Education Centre with space for at least 50 visitors, to host school and community interest groups to educate them about sustainability, waste management and onsite operations. The space is also to be used to host meetings and training sessions with site operations personnel. The design of this space shall allow easy viewing of the operations within the CRC/Resource Recovery Shed.
- Parking area along south-western side of the new CRC/Resource Recovery Shed, with provision for at least one bus and two visitor parking spaces (one of which is to be disabled parking).

5.1.4 Support Infrastructure for Existing Site Entry Weighbridge

The existing site entry weighbridge will remain, however, a protective cantilevered awning is required to provide weather protection for the incoming vehicle drivers as they interact with access control requirements at the weighbridge.

5.2 Site Services

As part of the construction of the new facilities and the integration with existing facilities, site services including electrical reticulation, telecommunications, potable water, sewer, stormwater and support infrastructure including a backup generator are to be provided.

The existing services within the site included undergrounded electrical reticulation, telecommunications, stormwater, potable water, sewer and overhead electrical reticulation, overland stormwater and a number of potable water storage tanks.

To ensure the operational capability of the new facilities and the integration with the existing facilities meet Council requirements and provide a fit for purpose design, the following elements are included:

- Internal building power reticulation for all new facilities
- Internal and external building lighting
- Building communication and electrical cabling provision
- Building potable water and drainage
- Building sewer plumbing and drainage
- Integration of the new Diesel backup generator to the electrical reticulation
- Provision of connection of all new plant and equipment to site power
- Fire systems design including water, alarms and extinguishers
- Building electrical distribution boards
- Provision of heating, ventilation and air conditioning (HVAC)

5.3 Site Access

Access to the site will require an upgrade of the existing on site roadways to accommodate the new facilities and revised traffic flows on site. An unsealed road is proposed to be constructed as part of this proposal from the land fill operational area to the entrance of the new wash bay area, to accommodate the land fill operational vehicles that are not suitable to drive on standard pavements (as they will damage them due to steel vehicle tracks).

5.4 Hours of Operation

The hours of operation of the GWMC are 7:30am – 4:30pm, seven days per week, with the site being open to the public between 8:00am and 4:00pm.

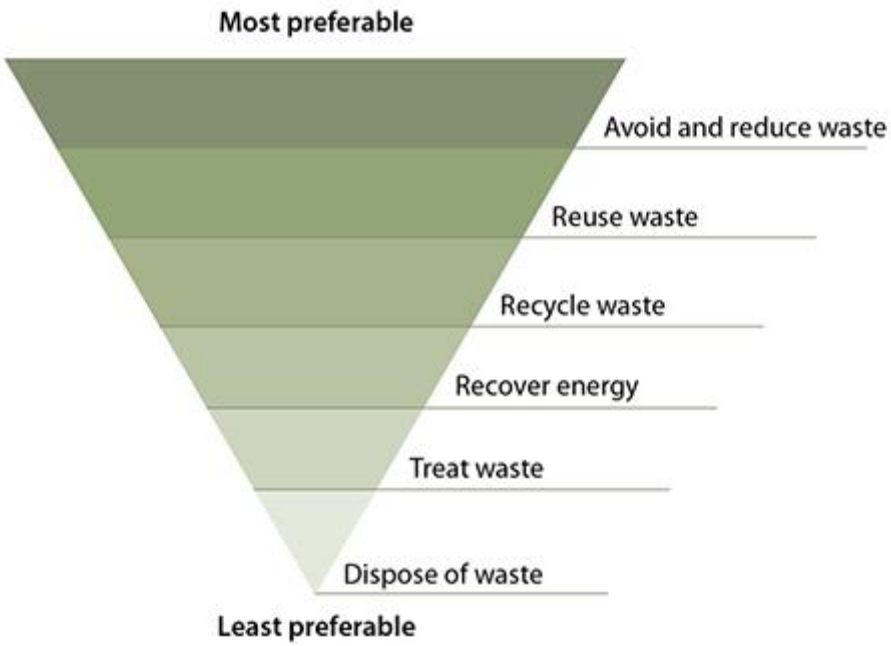
5.5 Proposed Operations

The RUG facilities will provide a modern waste management centre focussed on enhancing environmental sustainability in Goulburn Mulwaree Local Government Area by reducing the amount of waste landfilled through community education, recycling and re-use.

The facility will provide the practical infrastructure for the separation of waste streams into reusable and recyclable items at the point of disposal. Central to the design is enhancing the customer experience while also achieving operational efficiency and safety for all stakeholders.

The facility is designed to encompass most aspects of the Waste Hierarchy identified in the *NSW Waste Avoidance and Resource Recovery Act 2001*. The hierarchy is pictured in **Figure 5-1** below:

Figure 5-1 Waste Hierarchy



The RUG facility addresses this hierarchy through:

- Encouraging the community to avoid and reduce waste through education facilities and programs
- Providing customer friendly re-use options through the Re-Use Hub.
- Facilitating the separation of waste for recycling and correct disposal through the Resource Recovery Shed and accompanied Community Recycling Centre, which will be located under one roof to enhance the customer experience and ensure staff are available to provide assistance.
- Increase the amount of waste that can be recovered/recycled through ensuring items brought into the facility in mixed trailer/truck loads can be separated into their various waste streams. The addition of a new polystyrene compactor will also see this problematic waste removed from landfill, where it is low weight and creates a wind-blown litter risk, while also taking up valuable airspace.
- Ensuring only a minimal amount of waste is disposed of in landfill as residue waste. Currently many people bring mixed loads of waste to Goulburn Waste Management Centre and are charged a fee based on the trailer size or a tonnage rate. This does not encourage customers to sort their waste and avoid, re-use or recycle where possible. The new Resource Recovery Shed, with a thorough weight based charging system at the point of disposal for various separated waste streams, will provide a fundamental shift to the charging system. Waste to landfill will attract a significantly higher price than other items, providing an important price incentive to avoid, reduce, re-use and recycle. Similarly, products that can be re-used and recycled will attract either no or lower disposal fees, benefiting users who segregate and recover materials from mixed loads.
- As ancillary operations, including the landfill and composting area, are adjacent to the Resource Recovery Shed, there will be limited environmental impact caused by transporting waste to these components of the site for processing or disposal.

Goulburn Mulwaree Council's own Waste Management Strategy 2013 has the timeless vision of "sustainably managing Goulburn Mulwaree's Waste for the Long Term". This strategy established themes such as Waste Generation (Avoidance); Waste Diversion (Recovery); and Continuous Improvement to achieve this vision. The strategy identifies a number of requirements to achieve this vision that the Re-Use Goulburn project will either address or contribute to, including:

- The need to revisit the layout of the existing waste management centre to improve the drop off and recycling areas to facilitate the separation of waste and recyclables
- The need to focus on community education to reduce waste generation
- The need for a tip shop or Re-Use Hub to ensure reusable items do not go to landfill
- The need to recover a broader range of materials such as the items that will be collected through the Community Recycling Centre (eg fluorescent tubes), and polystyrene
- The need for a second weighbridge to enable all customers to be weighed when entering and exiting the facility. Currently many loads are applied an estimated weight based on the load size, which means the facility's annual reporting of total waste tonnages received and disposed of are not accurate
- The need to ensure pricing reflects user-pays and eliminates cross-subsidisation
- The need to maintain the waste management facility to a high environmental standard commensurate with obligations and funding constraints.

The Canberra Region Joint Organisation of Councils' Regional Waste Strategy 2018-2023 also recommends that Goulburn Waste Management Centre be transformed into a recycling and reuse hub. This regional strategy features a number of associated actions designed to divert waste from landfills across the Canberra region, including the following actions that are directly contributed to by this project:

- Develop waste sites to encourage greater separation of waste delivered by customers
- Sort mixed waste at transfer stations.

Both management and operational staff from Goulburn Mulwaree Council have assessed infrastructure at waste centres across NSW prior to developing the proposed design. The proposed design will offer a seamless flow for customers who can readily sort their wastes with the assistance of dedicated customer focussed staff.

Council currently employs a team of four full time Recycling Assistants, two casual Recycling Assistants and is investigating the option of a Waste and Recycling trainee, which would be a new position to support this infrastructure and composting operations. Staff in this role undertake activities such as customer service and operational duties. The Recycling Assistant team will initially staff the Re-Use Hub and Resource Recovery Shed (including the Community Recycling Centre and hydraulically operated tipping bin disposal area). Council may consider, at a later date, entering into a partnership with a non-profit organisation to operate the Re-Use Hub. Council would continue to operate the Resource Recovery Shed and associated infrastructure.

Over recent years, Council has placed significant effort into providing a high quality customer experience at the Goulburn Waste Management Centre, which has been well received by the community. The Waste and Recycling team has developed a good reputation for delivering a high quality of service even though only basic infrastructure is currently available at the site. This has led to Council receiving a number of compliments from customers about their experience, including the examples below received in 2019.

> *"As a resident of Mulwaree Council I would like to pass on how impressed I am of the council waste disposal in Goulburn. We have been going there with our household waste over the past thirteen years. It's always very clean and never smells, all the staff are excellent and over the years we have got to know them on first name basis. When we arrived each week there is always someone there to help us dispose of our rubbish. Each one of the staff at the entrance are always pleasant. Well done Goulburn, keep up the good work."*

> *This morning I had the positive experience of visiting the Goulburn Waste Management Centre to drop off some larger items … it was like a well-planned and rehearsed military operation, being executed by cheerful and confident soldiers who take pride in their work. The Council Team were all very helpful and efficient, and were directing the lines of customers to the correct location and helping with the unloading. Well done to all involved. High morale is hard to achieve but when it exists it clearly shows!*

It is believed that Council's current structure, with four full time Recycling Assistants, plus casual staff, and the addition of trainee, will enable adequate staffing for the new facilities. It is recognised that casual staff hours may need to increase and this could change over time as the community grows and demand for the facility increases. No more than two additional car spaces will be required, with one of these vehicles to be located at the Re-Use Hub. The Recycling Assistant staff are supported by a team of four full time Plant Operators, two casual Plant Operators and a Coordinator and Supervisor based in offices on the site. Council's Waste Collections staff are also based at the site.

5.5.2 Key design features and the customer experience

The overall RUG facility has been designed to enable customers to readily flow through the site, dropping off waste items at various locations for re-use and recycling, before finally entering the landfill collection point as their last destination.

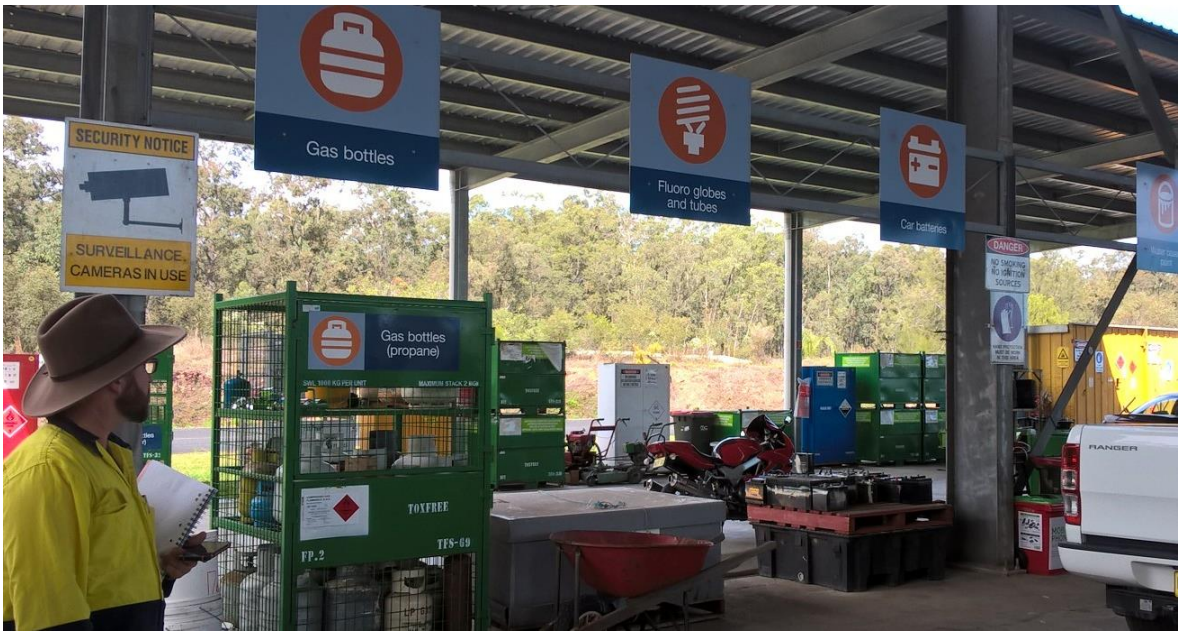
The following points from 1 to 9 outline how customers will experience the facilities from the Re-Use Hub to the landfill collection point. Further details on the proposed functionality of the site are provided in the Functional Design Specification at **Appendix O**.

1. The Re-Use Hub is located prior to the entry of the remainder of the facility. This ensures reusable items can be donated prior to entering the paid portion of the Re-Use Goulburn facility. This also ensures customers can visit the Re-Use Hub to purchase items during opening hours without impacting on traffic flow or weighbridge operations at the remainder of the site. Other NSW Councils that have their re-use area or tip shop located on the same site as their other waste operations highlighted that this posed many issues, such as customers having to undertake multiple passes over weighbridge infrastructure to have their fees calculated. These councils have also indicated that the most popular items sold through such centres are building materials, furniture, quality clothing, children's toys, bicycles and farm items.
2. The current weighbridge located at the entry to the site will become the entry-only weighbridge and the existing small gatehouse will be removed. This weighbridge will then have a remotely operated boom gate installed. The weight of each vehicle will be automatically sent to a centralised system located at the exit or weigh-out weighbridge, which will be calculated after customers have completed unloading waste at the Resource Recovery Shed. This layout is a significant safety improvement as the main gatehouse, where payment including cash is accepted, will be located near other key infrastructure and staff. Camera technology will record the number plate of vehicles entering the facility, as currently occurs at the site.
3. Vehicles requiring direct entry to the landfill (waste collection trucks and vehicles with tipping bodies), will turn left immediately after the weigh-in weighbridge. They will be required to enter the landfill section of the site via a second boom gate controlled by the gatehouse operator or an entry system/code for Council waste collection vehicles and regular customers that have been inducted on to the site. This system ensures landfill operations are controlled and well managed. It will also limit access by people who may be transporting waste from outside of the Goulburn Mulwaree Local Government Area, ensuring Council meets its obligations not to accept waste from the regulated (levy paying) area, which includes the neighbouring Wingecarribee Local Government Area. Vehicles using the landfill will either have a pre-recorded tare weight in the system, allowing them to exit the site without using the weigh-out weighbridge, or they will exit via the weigh-out weighbridge with other paying customers. Landfill operations will continue as they currently do. Council staff will continue to operate a landfill compactor throughout each day (7 days) and will monitor loads being disposed of. Limiting the number of people using the landfill will assist with this process, and the safety of staff and customers. Currently an 'A' and 'B' cell system operates at the landfill whereby the staff compact in one cell while the public dispose of waste in the other, and this alternates during the day to ensure all waste is compacted prior to it being covered at the end of each day. This system is designed to ensure the public and heavy plant are kept separate and at a safe distance and will not change due to this project.
4. All other customers entering the facility will proceed straight ahead to the undercover Resource Recovery Shed and associated Community Recycling Centre after going across the 'in' weighbridge.

5. At the Resource Recovery Shed and Community Recycling Centre, customers will be greeted by a clean, open plan, sheltered disposal facility where waste streams can be easily segregated for recycling, re-use or disposal. The bulky waste area will allow items such as mattresses, polystyrene and e-waste (eg computers and televisions) to be sorted for recycling. A polystyrene compactor will be co-located at the shed with appropriate separations and ventilation. Staff will compact polystyrene for recycling.

   The Community Recycling Centre will collect hazardous materials including water and oil based paints, car and household batteries, gas cylinders, fire extinguishers, fluorescent tubes and globes, gas bottles and used oils. These waste streams will be stored at minimal quantities and the centre will operate as per the Operations and Management Handbook developed by the former NSW EPA contained at **Appendix Q**. This waste will be collected and disposed of through specialist contractors engaged by the State Government. **Figure 5-2** below demonstrates how a Community Recycling Centre was set up at MidCoast Council's waste facility at Taree, which includes state-wide stillage signage artwork.

Figure 5-2 A Community Recycling Centre at MidCoast Council's waste facility in Taree



6. Still under the one roof, customers will then progress to the drop off bays serviced by the unique hydraulically operated tipping bin style disposal system. This unique system enables waste to be disposed of by customers at ground level, therefore avoiding any fall from heights issues which are common at many waste centres where waste must be dropped into a pit or large bin. When the hydraulically operated tipping bin bucket contains waste, a Council staff member can simply remove any items that do not belong in that location (if required) and then close a safety gate to exclude all staff and public before pressing a button to enable the bucket to be hydraulically emptied into a skip bin sitting at a lower level. A hook truck can then pick up the full skip bins and move the waste to where it is required for processing or disposal.

   Individual load cells will be set up on up to 6 hydraulically operated tipping bins, which will enable the individual waste streams to be weighed separately and therefore charged accordingly. This is a major benefit of this technology as it allows waste fees to be charged according to the cost of disposal, therefore encouraging recycling and reuse through cost benefits for customers who avoid, re-use and recycle waste. The disposal of landfill waste at the end of the process will attract the highest fee for customers. The hydraulically operate tipping bins will be used to collect the most common waste streams, including concrete, organic waste, landfill waste and steel. They are interchangeable and the configuration on site can be adapted dependent on community needs, for example, two hydraulic tipping bins can be dedicated to one waste stream if required.

Figure 5-3 below shows a hydraulically operated tipping bin in operation at MidCoast Council's waste facility in Taree. The hydraulically operated tipping bin (left) is in the process of emptying waste into a skip bin and the other hydraulically operated tipping bin (right) sits at ground level ready to accept waste from customers. These hydraulically operated tipping bins have been operational for many years however were not installed with load cells, which is a new technical solution currently only available from New Zealand.

Figure 5-3 Hydraulically operated tipping bins in operation at MidCoast Council's waste facility

7. Once vehicles exit the Resource Recovery Shed and hydraulically operated tipping bins area, they will turn right as per the traffic plan and will drive past the education centre/training room and offices, and stop at the exit weighbridge. Here their total cost will be calculated according to the waste streams they have disposed of, calculated based on weights at the hydraulically operated tipping bins or as a per item charge at the bulky waste disposal area. All items disposed of at the Community Recycling Centre will be free unless changes are made to the State-wide system or the wastes that can be accepted in this part of the facility due to changing market conditions or customer requirements.
8. A bus parking area and disabled car park will be provided immediately next to the Education Centre with footpath access. Access to all parts of this building will be via an accessible ramp with a handrail separating it from the operational Resource Recovery Shed. Visitors to the Education Centre will be able to view operations in the Resource Recovery Shed from a one-way window. Visitors to the Education Centre will arrive via bus, ensuring car parking is not impacted by the facility. The Education Centre will also be used as a training room for site staff and adequate car parking spaces are provided for staff in the existing carpark which is adjacent to the new Education Facility and will be connected via a pedestrian crossing. If required, additional day parking can be made available in the existing truck sheds when vehicles are off site in operation.
9. Located to the south of the Resource Recovery Shed is the Composting and Drilling Mud areas of the site. The general public accessing the site with mixed loads of waste will not access this area directly. Their organic waste will be disposed of into a hydraulically operated tipping bin where staff can ensure it is not contaminated, and it will then be transported to the composting area for processing. The drilling mud processing area will only be accessed by a small number of dedicated hydro-excavation operators, all of whom will be inducted on to the site.

5.6 Summary of Changes – Proposed vs. Current Operations

The only additional waste streams being collected or disposed of at Goulburn Waste Management Centre as part of this development are the Community Recycling Centre items of fluorescent globes and tubes, oil based paint, household batteries, smoke detectors, water based paints, by-catch chemicals and other oils. Currently Council works with the EPA and Canberra Region Joint Organisation of Councils to conduct an annual Household Chemical CleanOut for these items. The CleanOut is expected to continue initially as it also accepts items such as hazardous chemicals, which will not be collected in the Community Recycling Centre. However, Council areas with existing Community Recycling Centres have found that significantly more hazardous chemicals are correctly disposed of through the Community Recycling Centre system due to their ease of use and convenience.

Currently polystyrene is disposed of in landfill at Goulburn Waste Management Centre, where it takes up valuable airspace and is a lost resource. The addition of a polystyrene compactor will aid in Council's recycling efforts as the product compresses at around 40:1 and can be sold to make items such as plastic furniture.

Council will continue to transport recyclable waste such as co-mingled recycling and cardboard/paper to the Endeavour Industries Resource Recovery Shed located just down the road at 54 Sinclair Street. The Sinclair Street area is an established waste and recycling hub in Goulburn Mulwaree and this development will be a welcome improvement. Upgrades to Common Street and Sinclair Street are also currently underway by Goulburn Mulwaree Council as part of a grant funded program to encourage industrial development in the precinct.

The addition of a second exit weighbridge will greatly improve traffic flow as currently vehicles that require an exit weight must pass back over the same weighbridge at the facility. This creates traffic congestion as vehicles entering and exiting use the same weighbridge.

Without the addition of load cells on the individual hydraulically operated tipping bins, the only way to charge trailer loads of waste by weight is a flat rate regardless of the contents. This does not provide financial incentives for recycling or reusing waste and does not enable a true user-pays system relative to the waste streams being disposed of.

The Re-Use hub, to be constructed in a greenfield part of the site that overlooks native trees, is a much needed addition to the site providing an ancillary solution for waste minimisation. Many customers are time poor and throw away items that can be reused rather than repairing them or donating them to charity. This facility will enable Council to stop such items going to landfill and instead sell them for a small profit, which will help fund the operations of the facility. The advice received from councils with existing tip shops is that they prove popular when well managed. Building waste such as tiles and pallets are popular in such centres and there is currently limited avenues to dispose of such items in Goulburn Mulwaree without them going to landfill.

Community education is a key component of reducing the amount of waste that goes to landfill and the education centre in this development will provide important infrastructure for this purpose. Council currently has a Waste Education and Projects Officer who undertakes waste education programs at schools and community locations. Significant interest has been received from schools and community groups in undertaking waste and recycling education programs on-site at the waste facility. The Education Centre will cater for two classes or one-bus load of people at any one time, being 50-60 students seated in rows. Training could be undertaken by groups of approximately 20 people at tabled seating. Staffing will be undertaken by existing staff based at Council's administration building or supervisory staff already based at the waste centre.

5.7 Environment Protection Licence (EPL) Variation

Council's Waste and Recycling staff have commenced discussions with the Queanbeyan office of the Department of Planning, Industry and Environment (formerly the EPA) and a variation to the EPL is required to reflect the new facilities, namely the inclusion of the Community Recycling Centre (which is part funded by the Department of Planning, Industry and Environment).

Currently the site's EPL 6780 includes Composting and Waste Disposal (application to land) as the Scheduled Activities. To facilitate the new operations it is expected that resource recovery and waste storage will need to be added to the licence as Scheduled Activities.

Based on recent discussions with the Department of Planning, Industry and Environment, there are unlikely to be major barriers in achieving this variation and the department will impose appropriate conditions as required.

5.8 Project Staging and Operations During Construction

Goulburn Mulwaree Council will be seeking grant funding towards this important community project. It will be beneficial to have the flexibility to stage the development by constructing the Re-Use Hub separately to the remainder of the Re-Use Goulburn project.

This proposal would include:

Stage A – Re-Use Hub, to be constructed on a greenfield part of the site not impacted by current waste centre operations

Stage B – the Resource Recovery Shed, Community Recycling Centre, Education Centre, Offices and new Gatehouse and Weighbridge, which are all co-located on the area currently used for Goulburn Waste Management centre operations.

Either part of the Re-Use Goulburn project could be constructed first dependent on grant funding opportunities.

Stage A will not affect current site operations.

During construction of Stage B, an early works package will be undertaken and site operations will be adapted so that staff and customers will not enter the construction zone. This will involve undertaking the necessary site roadway and utility upgrades prior to undertaking the main construction works, followed by placing cages or skip bins for the disposal of recyclable waste (eg paper/cardboard, e-waste, mattresses, steel, organic waste and co-mingled recycling) to the north of the site nearer to the existing landfill. All customers will need to dispose of landfill waste directly at the landfill during construction. A Traffic Management Plan and safety documents will be developed for this process. The recyclables disposal area will be at a safe distance from the landfill with good visibility. The site is large and has a significant area to enable such a layout to occur during construction. Traffic Control will be implemented as required.

6 Regulatory Framework

6.1 NSW Legislation

6.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides the legislative framework for the assessment and approval of the proposed development.

The EP&A Act defines numerous objectives. The objectives applicable to the proposed development include:

a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,

b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

c) To promote the orderly and economic use and development of land,

e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

g) To promote good design and amenity of the built environment,

h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

i) To promote the sharing of the responsibility for the environmental planning and assessment between the different levels of government in the State,

j) To provide increased opportunity for community participation in environmental planning and assessment.

The proposal ensures the proper management and development of the site by transforming the existing GWMC to provide a modern and sustainable Re-Use Hub, Resource Recovery Shed and CRC to service the community. The proposal will contribute to the social and economic welfare of the locality by providing a community-focused facility with a range of employment opportunities.

The proposal comprises the construction of new buildings on the site to protect the health and safety of the public and operational staff.

6.1.2 Environmental Planning and Assessment Regulation 2000

Clause 4 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) states that development identified within Part 1, Schedule 3 of the EP&A Regulation is declared to be designated development.

The proposed development within the Goulburn Waste Management Centre fits under the criteria of “Waste Management Facilities or Works” which is included in Schedule 3 to the Regulations.

Schedule 3, Part 1, Clause 32 (1) (d) identifies that Waste Management Facilities or Works meeting the following criteria are classed as designated development:

“(d) that are located:

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

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

*(iii) **within a drinking water catchment**, or*

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or
(v) on a floodplain, or
(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic."

Under Clause 32 (1) (d) (i) and (iii) the proposal meets the criteria for designated development as it is located within the Sydney Drinking Water Catchment and is within 100m of a natural waterbody (refer to Site Analysis Plan at **Figure 2.2**).

However, Part 2, Clause 35 identifies that where proposals are alterations or additions to an existing development, the works are not considered designated development:

"Development involving alterations or additions to development (whether existing or approved) is not designated development if, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development."

The proposal involves alterations and additions to the existing Waste Management Centre to provide a community-focused and sustainable re-use hub to increase resource recovery, improve customer service and experience, and reduce landfill waste.

Construction of the proposal is anticipated to have minimal environmental impacts as the site is predominately cleared and currently used for waste management purposes. The Flora and Fauna Assessment provided at **Appendix E** demonstrates that the proposal will not have a significant impact on the existing environment. Furthermore, the Bushfire Assessment provided at **Appendix H** demonstrates that the development is suitable for the site.

The operation of the facility is not anticipated to produce additional traffic, noise or odour beyond what is currently experienced on the site. Conversely, the revised facility should reduce traffic movements on site through streamlining of operations with associated reductions in congestion, noise and air quality. Therefore, the proposal is not considered to be designated development.

6.1.3 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POE Act) aims to protect, restore and enhance the quality of the environment in NSW. The use of land for a Waste Management Centre is listed in Schedule 1 of this Act as a 'scheduled activity'.

Under Section 43(b) of the POEO Act, a licence is required to authorise the carrying out of scheduled activities at any premises. Schedule 1 of the POEO Act identifies those 'scheduled activities' that require a licence.

A Waste Management Centre is classified as a 'scheduled activity' if it meets the set of criteria specified in Schedule 1 to the POEO Act..

Under Schedule 1 Clause 39 of the Act, the existing use of the site is classified as "waste disposal (application to land)" which is defined as follows (our emphasis added to relate to the specific development).

*"(1) This clause applies to **waste disposal by application to land**, **meaning the application to land of waste received from off site, including (but not limited to) application by** any of the following methods:*

(a) Spraying, spreading or depositing on the land,

(b) Ploughing, injecting or mixing into the land,

*(c) **Filling, raising, reclaiming or contouring the land**. "*

"*Waste disposal by application to land" by "filling, raising, reclaiming or contouring the land*" is declared to be a scheduled activity by way of Schedule 1 Clause 39(3) which states

> *"(3) The activity to which this clause applies is declared to be a scheduled activity."*

The Waste Management Centre operates under an existing Environmental Protection Licence (EPL), licence number 6780. This licence permits an unlimited capacity of waste disposal and is therefore not excluded from Schedule 1 of the POEO Act. A copy of licence 6780 is provided for reference in **Appendix J**.

The operations associated with the proposed development would be classed as *resource recovery* under Schedule 1 Clause 34 and *waste storage* under Schedule 1 Clause42 of the POEO Act.

Under Clause 34 (3):

> *"(3) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:*
>
> *(a) it meets the criteria set out in Column 2 of the Table,"*

The recovery of general waste is listed as an activity under Column 1. The criteria for this activity under Column 2 is as follows:

> "*If the premises are in the regulated area:*
>
> *(a) involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres or waste, and*
>
> *(b) involves processing more than 6,000 tonnes of waste per year"*

Under Clause 42(3):

> *"(3) The activity to which this clause applies is declared to be a scheduled activity if:*
>
> *(a) more than 5 tonnes of hazardous waste, restricted solid waste, liquid waste or special waste (other than waste tyres) is stored on the premises at any time"*

Under Schedule 1, any activity that is declared by this Part to be a scheduled activity is taken to be an activity that requires a licence for the premises at which the activity is carried out.

Part 3.2 Clause 48(2) to the POEO Act provides that the occupier of premises at which such an activity is carried out is guilty of an offence unless he or she holds a licence that authorises the activity to be carried out at those premises.

Construction of the proposed facilities will require waste material to be exhumed and disposed of onsite. According to Clause 110A (3) of the Protection of the Environment Operations Legislation Amendment (Waste) Regulation 2018, written approval is sought from the NSW EPA as part of the Development Application process as waste material will be exhumed as a consequence of proposed works.

Construction activities involving the exhumation or drilling into the landfill cap will be conducted in accordance with the Resource Recovery Management Plan provided in Appendix P. Given the potential for bonded asbestos within the areas of disturbance, appropriate occupational hygiene and safety measures will be implemented as detailed in the SafeWork 'How to manage and Control Asbestos in the Workplace – Code of Practice (2011)' and existing GWMC Management Plans.

The proposal will require an amendment to the existing EPL (No. 6870) to include waste storage and resource recovery, both listed as Scheduled Activities under the POEO Act. An application will be made to the EPA for the proposed amendments.

It is noted that on 7 June 2016, the licence was varied to allow composting of up to 50,000 tonnes annual capacity of organics (combined food waste, garden waste and biosolids) in addition to the existing scheduled activity of waste disposal. A licence variation has also been lodged to enable drilling mud treatment at the facility. Council is currently seeking approval under Part 4 of the EP&A Act for a series of drying beds on the site to enable this activity to occur and the licence variation to be progressed.

6.1.4 Water Management Act 2000

The *Water Management Act 2000* (WM Act) is designed to provide for sustainable and integrated management and use of State water sources. The Act regulates controlled activities that occur within 40m of a water course, riverbank, lake shore or estuary mean high water mark.

Under the WM Act, a controlled activity includes:

a) *The erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or*

b) *The removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or*

c) *The deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or*

d) *The carrying out of any other activity that affects the quantity or flow of water in a water source.*

The closest riparian corridor comprises an unnamed creek approximately 200m to the south of the site (refer to Constraints Plan at **Figure 2-2**). Consequently, a referral to the NSW Department of Industry – Water (DPI Water) is not required.

6.1.5 Roads Act 1993

The *Roads Act 1993* (Roads Act) is administered by the Roads and Maritime Service (RMS) and local Council. The RMS has jurisdiction over major roads and the local Council over minor roads. Under Section 138, Part 9, Division 3 of the Roads Act, the following actions cannot be undertaken unless the appropriate roads authority provides consent:

- *Erect a structure or carry out work in, or over a public road*
- *Dig up or disturb the surface of a public road*
- *Remove or interfere with a structure, work or tree on a public road*
- *Pump water into a public road from any land adjoining the road*
- *Connect a road (whether public or private) to a classified road.*

The proposal does not involve the construction of any additional public roads. Any modifications or upgrades to the existing Sinclair Street roadway will be internal to the subject site. Likewise, any additional roadways to accommodate the proposed development will be constructed internally on the subject site. Consequently, a Section 138 application is not required

6.1.6 Rural Fires Act 1997

The *Rural Fires Act 1997* (RF Act) is administered by the NSW RFS and aims to protect persons from injury, death and property arising from fires, along with the management, protection and co-ordination of other activities relating to fires, risk of fire and prevention of fires. Section 100B of the RF Act lists a range of developments on bushfire prone land that are considered to be 'special fire protection purposes' under the Act, requiring concurrence from the RFS.

The subject site is identified on the Goulburn Mulwaree Council Bushfire Prone Land Map as Bushfire Prone Category 2 Vegetation with buffer. The Site Analysis Plan at **Figure 2.2** indicates that a portion of the proposed development will be located within the bushfire prone land.

A Bushfire Assessment has been prepared in support of this development application and is provided at **Appendix H**. The assessment determined that the proposed development is considered suitable for the site subject to the mitigation measures described in **Section 7.7**.

6.1.7 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) aims to maintain a healthy, productive and resilient environment and to maintain and protect biodiversity values of ecosystems. Part 4 Divisions 2 and 5 lists

threatened species, ecological communities and key threatening processes to be considered under Section 7.3 of the BC Act. Section 7.3 of the BC Act tests and determines whether the proposed development or activity is likely to have a significant effect on threatened species or ecological communities.

The subject site is not identified on the Goulburn Mulwaree Council Terrestrial Biodiversity Map.

A Flora and Fauna Assessment has been prepared in support of this development application and is provided in **Appendix E**. The assessment determined that the proposed development will not have a significant impact on threatened species or their potential habitat. Tests of significance have been conducted for the subject site and have been included within the Flora and Fauna Assessment produced by accredited Ecology Consultants, Ecoplanning as outlined in Section 7.3 of the BC Act. Mitigation measures are described in **Section 7.6**.

6.2 State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) are Environmental Planning Instruments (EPI's) established under the EP&A Act to regulate environmental planning and assessment practices across areas of land and categories of development independently of Local Environmental Plans and other EPI's. They are typically used to target specific areas or specific kinds of development.

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

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) provides an approach to assessing potentially hazardous or offensive proposed developments.

The definition of a "potentially hazardous industry" and "potentially offensive industry" in SEPP 33 are outlined below:

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

The proposed development has the potential to be considered a potentially offensive industry due to vehicle movements to and from the facility, along with noise and odour generated within the facility. The site is surrounded by the following land use zones: *B6 – Enterprise Corridor* to north-east, *RE1 – Public Recreation* and *E2 – Environmental Conservation* to the south and *RU6 – Transition* to the west. There is one nearby residential neighbour, located approximately 370m north-west from the site.

The proposed hours of operation of the facility are between 7:30am and 4:30pm, which are as per current operational hours and within normal business hours. Further, the proposal is not anticipated to increase traffic volumes beyond what is already experienced and therefore will not generate noise beyond existing levels.

The proposed new polystyrene compactor has been assessed for potential odour generation. It is considered, based on the compactor being located within a ventilated area, that the risk of this being considered offensive in terms of odour is low. The proposed further segregation of the existing waste

streams on site when dropped off by the public will not result in any increase in odour or noise emissions from the site.

The environmental assessments undertaken in support of this development application demonstrate that the proposal is not considered to be offensive. Refer to **Section 7**.

6.2.2 State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land, with the aim of promoting the remediation of contaminated land for the purpose of reducing the risk of harm to human health or the environment.

Clause 7 of SEPP 55 provides guidelines to be considered by the consent authority when determining development applications.

> *(1) A consent authority must not consent to the carrying out of any development on land unless:*
>
> *a) it has considered whether the land is contaminated, and*
>
> *b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

A Phase 1 Environmental Assessment has been undertaken to support this DA, with detailed review in **Section 7.8**. The preliminary environmental investigation identified exceedance of the SAC for benzo(a)pyrene, FA and AF, and Bonded ACM in TP102 and copper in TP101. It is noted in the Conceptual Site Model (CSM) that TP101, TP102 and TP105 are located with the landfilled area and the sampled soils are near surface materials comprising the intermediate landfill cover. As such Cardno consider that there are not sensitive ecological receptors to the contaminants in these areas.

This investigation found that subject to implementation of the recommendations, the results of laboratory analysis indicate that the proposed development, located on a hard stand area designed to cap any potential subsurface contamination, will be suitable in the proposed location.

6.2.3 State Environmental Planning Policy No. 64 – Advertising and Signage

The proposed signage for the RUG facilities will be consistent with the aims and objectives of State Environmental Planning Policy No 64 - Advertising and Signage, which outlines in Clause 3:

> *(a) to ensure that signage (including advertising)*
>
> *(i) is compatible with the desired amenity and visual character of an area, and*
>
> *(ii) provides effective communication in suitable locations, and*
>
> *(iii) is of high quality design and finish, and*
>
> *(b) to regulate signage (but not content) under Part 4 of the Act, and*
>
> *(c) to provide time-limited consents for the display of certain advertisements, and*
>
> *(d) to regulate the display of advertisements in transport corridors, and*
>
> *(e) to ensure that public benefits may be derived from advertising in and adjacent to transport corridors.*

Signage at Goulburn Waste Management Centre will be upgraded to complement the new RUG facility and will be in harmony with the local environment. The signs will be consistent with Goulburn Mulwaree Council's recent signage installed in the Local Government Area, such as that installed at Victoria Park in the Central Business District during 2019. Artwork for this signage is show in **Figure 6-1** below. Signage stating the name of the facility, a contact phone number and website will be installed at the entry to the main facility incorporating the existing landfill and new Resource Recovery Shed, plus at the Re-Use Hub.

Figure 6-1 Recent Council signs installed at Victoria Park.

As can be seen in the examples above, the signs will feature the colours of the Goulburn Mulwaree Council logo, which are the natural colours of blue and green. This is also consistent with the ethos of the RUG facilities, which will establish a waste centre focussed on environmental sustainability through recycling and re-use. The signage will be consistent with the future character of the precinct and Local Government Area.

Such signage will have a positive impact on visual amenity in the area by replacing some outdated signs at the existing facility. They will be of an appropriate size and material, similar to the Victoria Park examples above which are 1890mm x 750mm and made of Dibond composite panels, laminated with UV and anti-graffiti coatings. To ensure there are no negative visual impacts from Sinclair Street, the signs will not protrude above any fencing or buildings and will not create any negative safety impacts for vehicles or pedestrians.

The signs will not include internal illumination.

Other signs, such as directional signage, will be consistent with Standards Australia requirements.

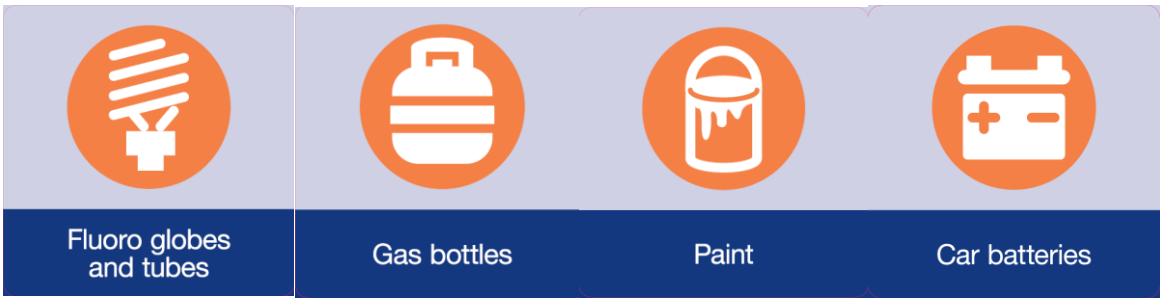
There will be no commercial advertising at the facility.

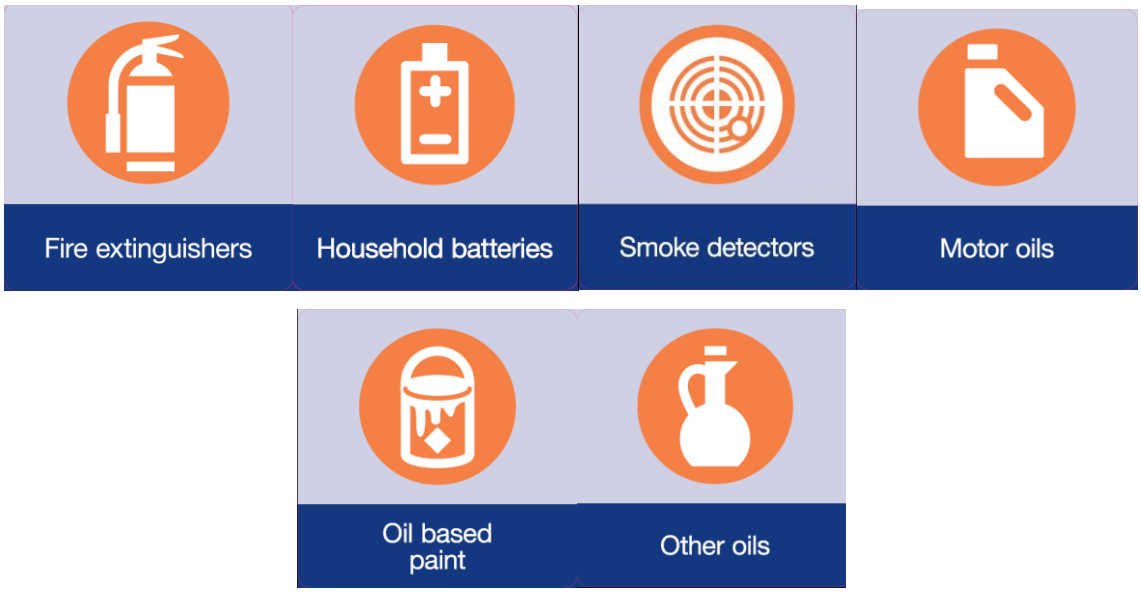
In addition to the Council signage above, signs using templates provided by the Department of Planning, Industry and Environment will be installed at the Community Recycling Centre portion of the facility. These signs are consistent across NSW, creating a familiar state-wide network of centres designed to safely remove problem wastes from communities and the environment. Examples of these Community Recycling Centre signs are shown in **Figures 6-2 to 6-4** below. Much of this signage will be internal to the building, providing clear direction to customers on where to dispose of each type of problem waste (such as paint, fire extinguishers etc).

Figure 6-2 External shed sign

Figure 6-3 Acknowledgement sign

Figure 6-4 Community Recycling Centre internal stillage signs





6.2.4 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) has consolidated and updated the planning processes for new public and private infrastructure, resulting in a more streamlined and simplified approval process.

The proposed development is subject to ISEPP under Division 23 of the Act. A waste or resource management facility is permitted with consent in the following zones: *RU1 – Primary Production*, *RU2 – Rural Landscape*, *IN1 – General Industrial*, *IN3 – Heavy Industrial*, *SP1 – Special Activities* and *SP2 – Infrastructure*.

The definition of a "waste or resource management facility":

> ***Waste or resource management facility*** *means a waste or resource transfer station, a resource recovery facility or a waste disposal facility.*

The Goulburn Waste Management Centre is permitted with consent under the SP2 zoning. Consequently, a DA under Part 4 of ISEPP is required with Council as the determining authority.

Under Schedule 3 of the ISEPP, landfill, recycling facilities and waste transfer stations of any size or capacity are defined as traffic-generating development. As the proposal is for alterations and additions to an existing development and will not increase traffic volumes beyond what is currently experienced on the site, the proposal is not considered to be a traffic-generating development and the application will not be referred to the NSW Roads and Maritime Services (RMS).

6.2.5 State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Drinking Catchment) 2011 (SEPP SDWC) applies to any proposed development on land located within the Sydney Drinking Catchment. The land in which the proposed development is found, is located with the Sydney Drinking Water Catchment area.

Due to the proposed development site being located within the Sydney Drinking Water Catchment, it must comply with the following recommended practices and performance standards of WaterNSW.

> *(1) Any development or activity to be carried out on land to which this Policy applies should incorporate Water NSW's current recommended practices and standards.*
>
> *(2) If any development or activity does not incorporate Water NSW's current recommended practices and standards, the development or activity should demonstrate to the satisfaction of the consent authority or determining authority how the practices and performance standards proposed to be*

adopted will achieve outcomes not less than those achieved by Water NSW's current recommended practices and standards.

SEPP SWDC requires the consent authority to consider whether the proposal would have a neutral or beneficial effect on water quality. This requirement is completed with the Neutral or Beneficial Effect on Water Quality Assessment Tool, which assesses wastewater, stormwater, erosion and sediment control.

A Water Cycle Management Study is provided at **Section 7.2**. The study concludes that the proposal will have a neutral of beneficial effect on water quality in accordance with SEPP SDWC.

6.3 Goulburn Mulwaree Local Environmental Plan 2009

The *Goulburn Mulwaree Local Environmental Plan 2009* (LEP) provides the key development controls and land use definitions pertaining to the proposed development.

6.3.1 Land Use Definition

The proposed development is defined as a "waste or resource management facility", which has the following definition under the LEP:

Waste or resource management facility *means any of the following:*

a) a resource recovery facility,

b) a waste disposal facility,

c) a waste or resource transfer station,

d) a building or place that is a combination of any of the things referred to in paragraphs (a)–(c).

The proposal would be considered a waste or resource management facility as it will comprise a building that is a combination a waste disposal facility and a transfer station.

6.3.2 Land Use Zoning

The subject site is zoned *SP2 – Infrastructure* by the LEP, which contains the following controls:

Zone SP2 Infrastructure

1 Objectives of zone

- *To provide for infrastructure and related uses.*
- *To prevent development that is not compatible with or that may detract from the provision of infrastructure.*

2 Permitted without consent

Roads

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

4 Prohibited

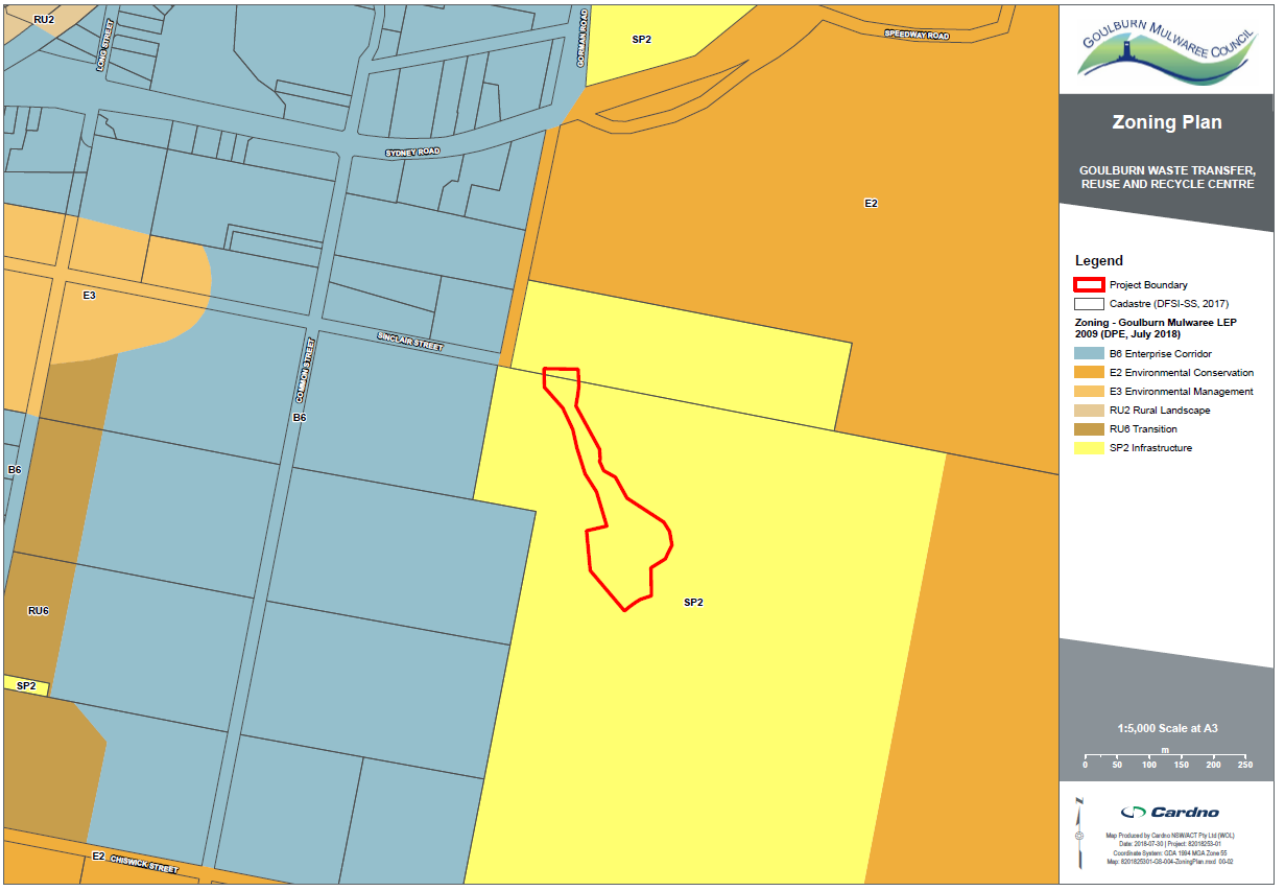
Any development not specified in item 2 or 3

The land use zoning on the site is shown in **Figure 6-1**.

Development for the purpose of a waste or resource management facility is not listed in item 2 (permitted without consent) or item 4 (prohibited), however, item 3 does state that development which is ancillary to the development is permitted with consent.

As the proposed development is ancillary to the existing GWMC on the site, it is permitted with consent within this zone. Therefore, the proposal is considered to be consistent with the objectives of the *SP2 – Infrastructure* zone.

Figure 6-5 Land Use Zoning



6.4 Goulburn Mulwaree Development Control Plan

The Goulburn Mulwaree Development Control Plan (DCP) is the document that provides detailed planning guidelines for developments within the Goulburn Mulwaree LGA.

Section 3.42 of the EP&A Act explains the purpose of development control plans:

> ***3.42 Purpose and Status of Development Control Plans***
>
> *(1) The principal purpose of a development control plan is to provide guidance on the following matters to the persons proposing to carry out development to which this Part applies and to the consent authority for any such development:*
>
> *a) Giving effect to the aims of any environmental planning instrument that applies to the development,*
>
> *b) Facilitating development that is permissible under any such instrument,*
>
> c) *Achieving the objectives of land zones under any such instrument*

As such, the controls of the DCP are considered to be guidelines and "not statutory requirements". Consequently, the objectives of the controls outlined in the DCP need to only be considered by the consent authority.

Notwithstanding the above, the proposal aims to comply with the objectives and requirements presented in the various sections of the DCP to aid Council in realising their planning vision for the Goulburn Mulwaree LGA.

The DCP provides site-specific controls for developments throughout the Goulburn Mulwaree LGA. *Volume 3 – General Development Controls* of the DCP are relevant to the proposed development.

The proposed development and operation of the site has been assessed against the relevant clauses in the following subsections. Overall, it is considered that the proposed development satisfies the requirements of the DCP.

6.4.1 Volume 3: General Development Controls

Volume 3 of the DCP provides the requirements, objective and controls for a range of development controls including heritage management, biodiversity management, disability standards and landscaping. The relevant controls relating to the proposed development are addressed below in **Table 6-1**.

Table 6-1 General Development Controls

DCP Control	Comment	Compliance
3.1 European (non-indigenous) Heritage Conservation *The heritage information for a development application will depend on the significance of the heritage building or site, the contribution of the existing building or site to the heritage conservation area or heritage streetscape, and the extent of changes proposed.* *3.1.3.5 Heritage Impact Statement* *Determining whether a property is within, or impacts upon, the setting of a heritage item is a necessary component of the site analysis of a proposal.*	Refer to **Section 7.5**.	**Yes**
3.2 Indigenous Heritage and Archaeology	Refer to **Section 7.4**.	**Yes**

Where a development or works area has not been subject to comprehensive Aboriginal Heritage Assessment within the last 5 years, the presence of all or part of an identified Aboriginal cultural landscape will necessitate the conduct of an Aboriginal Heritage Impact Assessment.		
3.3 Landscaping *Development proposals over $250,000 value must include a landscape plan, prepared by a qualified landscape architect or other qualified person*	Refer to Landscape Plan at **Appendix K**.	**Yes**
3.4 Vehicular Access and Parking *The layout and design of access, parking and service areas should address the needs of the site occupants and visitors as well as respecting the amenity of the area.*	A new carpark is to be constructed at the front of the new Re Use Hub building that includes provision for parking of ten light vehicles (five with trailers and five without) as well as one 50 seater bus and one accessible parking spot. There is also a provision for short term drop off bays for 3 light vehicles. In addition to this further parking is provided on the western side of the new Resource Recovery Shed for one 50 seater bus, and two light vehicles.	**Yes**
3.5 Crime Prevention Through Environmental Design > *Lighting* > *Fencing* > *Car Parking* > *Landscaping* > *Entrances*	The majority of the new facilities will be located within the existing secure site boundary, and CCTV will be incorporated throughout the new facilities. The new Re Use Hub building located at the entrance to the site (outside of secure site area) will have a secure fenced rear area, and out the front of the building will feature a large open carpark area and lighting to provide passive security.	**Yes**
3.7 Tree and Vegetation Preservation *Any removal or native vegetation including trees, shrubs and other vegetation that occurs in an area zoned non-urban and non-industrial, may require consent under the Native Vegetation Act unless exemption applies.*	Minimal removal of existing trees and vegetation will be carried out as part of this development. Refer to Flora and Fauna Assessment at **Section 7.6** and **Appendix E.**	**Yes**
3.13 Stormwater Pollution *Reference should be made to State Environmental Planning Policy (Sydney Drinking Water Catchment) and the Water NSW website, which outline the requirements for developments in the drinking water catchment and current recommended practices and performance standards endorsed or published by Water NSW that relate to the protection of water*	A Water Cycle Management Study is provided at **Section 7.2.**	**Yes**
3.14 Bushfire Risk Management *All developments occurring on bushfire prone land, must be developed in accordance with the RFS's Planning for Bushfire Protection Guidelines (2006)*	A Bushfire Assessment is provided at **Section 7.7** and **Appendix H.**	**Yes**

The assessment in **Table 3-1** demonstrates that the proposal satisfies the requirements of the DCP.

7 Environmental Impact Assessment

7.1 Traffic and Transport

7.1.1 Overview

Cardno has prepared a combined Traffic Assessment for the planned development of the RUG facilities and the proposed Drill Mud Processing Facility at the GWMC (refer to **Appendix C**). Considering the Drill Mud Processing Facility and the RUG project site both utilise the same access roads, Cardno has considered the cumulative traffic impacts of both developments to assess the performance of the following intersections:

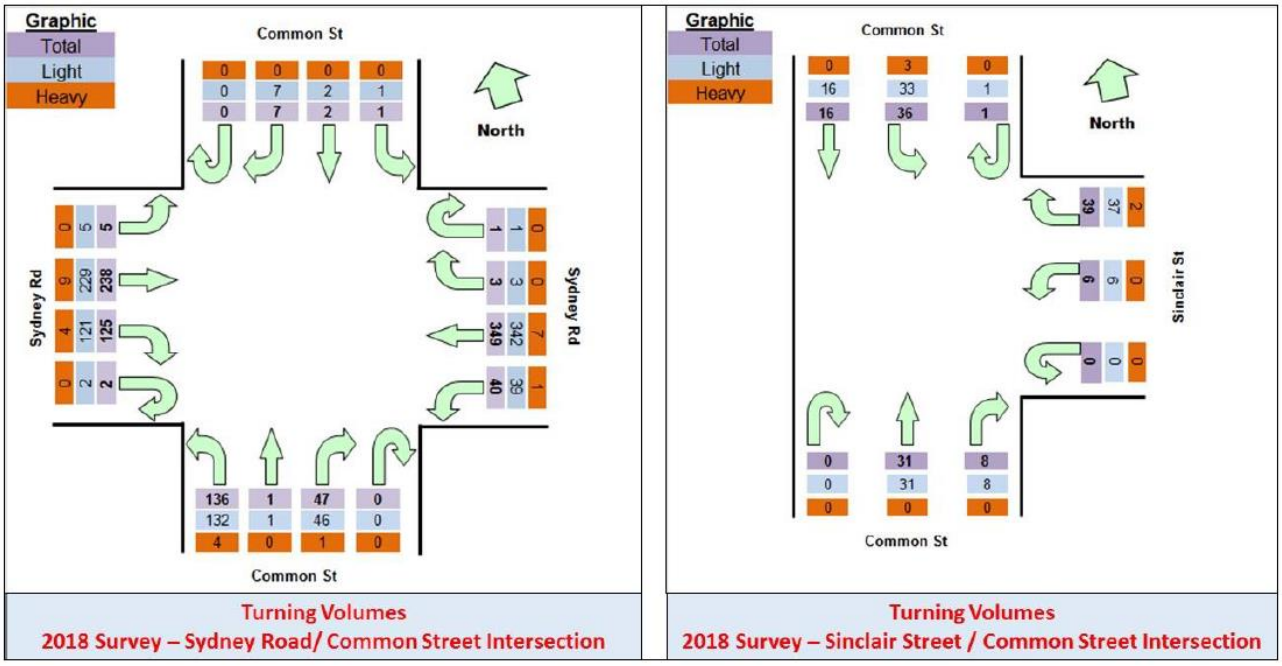
- Sinclair Street / Common Street
- Sydney Road / Common Street

The combined assessment approach was endorsed by Council noting that it will provide an opportunity to evaluate the cumulative impacts of the two development proposals.

7.1.2 Existing Traffic Demand

To assess the existing traffic demand and peak periods, Cardno engaged a sub-consultant to carry out classified intersection counts (CIC) at key intersections. As per CIC results, the hourly peak traffic demand at both key intersections was observed on the weekend between the hours of 10 AM to 12:30 PM. The identified weekend peak hour turning counts for key intersections is illustrated in **Figure 7-1**.

Figure 7-1 Weekend Peak Hour Traffic Demand at Key Intersections



Additionally, to assess the existing weekly traffic demand profile on Sydney Road, Cardno undertook a seven-day tube count on Sydney Road. Figure 2-4 and Table 2-1 of the Traffic Assessment at **Appendix C**. The peak hour traffic demand on Sydney Road on a weekend is consistent with the identified weekend peak periods for Sydney Road / Common Street and Sinclair / Common Street intersections.

7.1.3 Traffic Assessment

Discussions with Council have indicated that the proposed RUG project will only generate the following two additional monthly trips and the existing traffic flows will remain at current levels for public and commercial waste disposal, Councils collection fleet and recycling contractors who service the site:

- One EPA collection truck trip at CRC per month

- One bus trip to the Education Centre per month

To understand the existing traffic demand at GWMC, Cardno assessed the data provided in **Table 7-1**.

Table 7-1 Existing Traffic Demand at GWMC

Time		26 July 2018		28 July 2018		29 July 2018	
		Thursday		Saturday		Sunday	
To	From	LV	HV	LV	HV	LV	HV
7:00am	8:00am	0	4	0	1	0	1
8:00am	9:00am	2	1	8	0	10	0
9:00am	10:00am	8	4	17	0	16	0
10:00am	11:00am	1	2	16	0	22	0
11:00am	12:00pm	12	1	17	0	23	0
12:00pm	1:00pm	12	2	21	0	16	0
1:00pm	2:00pm	11	1	13	0	16	0
2:00pm	3:00pm	11	0	14	0	9	0
3:00pm	4:00pm	14	0	12	0	10	0
4:00pm	5:00pm	1	0	0	0	0	0
Average		**9**	**2**	**13**	**1**	**14**	**1**

Source: Data provided by Goulburn Mulwaree Council

Based on the existing peak traffic demand at GWMC and two additional monthly trips of heavy vehicles and for a conservative traffic assessment, Cardno has considered the following additional trips for the weekend peak assessment of key intersections as a result of the proposed development:

- 23 light vehicle trips
- 10 heavy vehicle trips

The SIDRA modelling results for the weekend peak period indicated that the Sinclair Street / Common Street intersection is expected to operate at satisfactory LoS in both 2018 and 2028 scenarios. Therefore, no modification to the existing intersection layout is required.

The SIDRA modelling results for weekend peak period indicated that the Sydney Road / Common Street intersection is:

- Expected to operate at satisfactory LoS "B" in the 2018 scenario
- Expected to operate near capacity i.e. LoS "D" in the 2028 scenario

7.1.4 Mitigation Measures

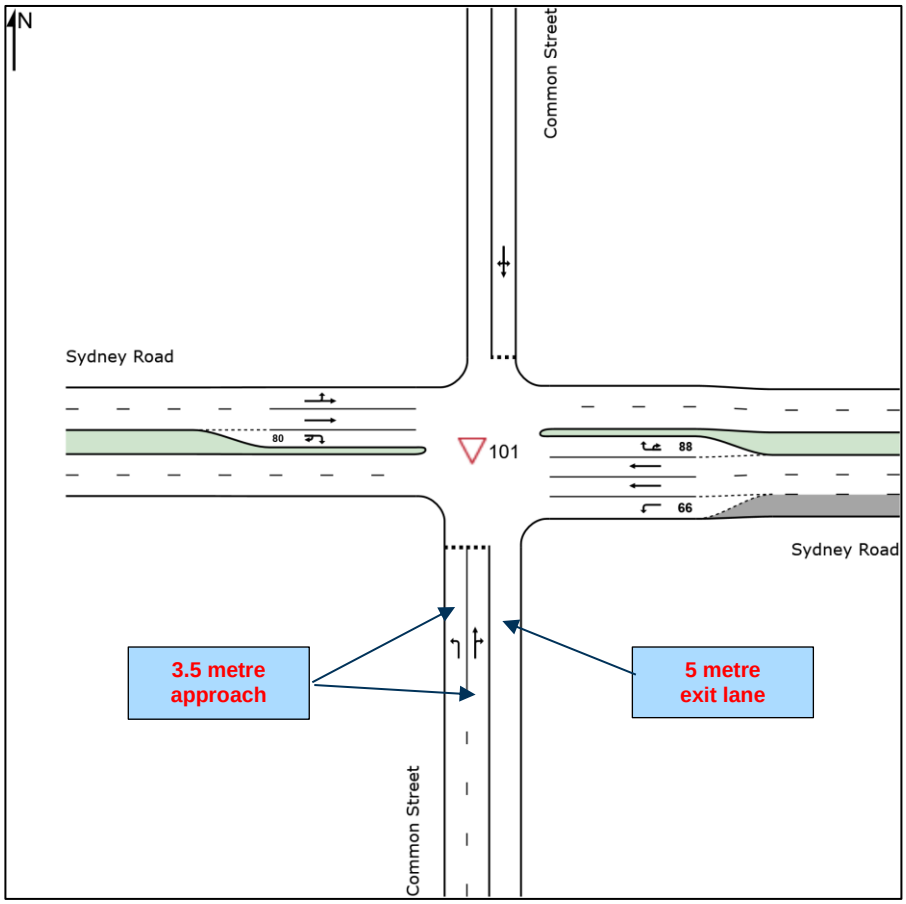
No significant impacts are anticipated at the site, therefore, there are no mitigation measures required.

Sydney Road / Common Street Intersection

A two lane approach is proposed at Common Street to mitigate against the identified performance issue of Sydney Road / Common Street intersection in the 2028 scenario identified in the SIDRA modelling above. As shown in **Figure 7-2**, the proposed mitigation will allow heavy left turn movement at Common Street to

continue flowing even if those vehicles turning right are waiting for a gap in eastbound traffic on Sydney Road. This will have a significant effect on safety and general road use behaviour.

Figure 7-2 Proposed mitigation measure to enhance Sydney Road / Common Street intersection



Common Street has a carriageway width of approximately 12.5 metres and an initial assessment has indicated the proposed mitigation can be implemented with simply the modification of line marking at Common Street. Therefore, it is recommended to implement the proposed mitigation measure in the near future to enhance the operational efficiency and safety of this intersection.

7.2 Water Cycle Management

7.2.1 Overview

The GWMC is located within the Sydney Drinking Water Catchment. SEPP SWDC requires the consent authority to consider whether the proposal would have a neutral or beneficial effect (NorBE) on water quality.

A Water Cycle Management Study (WCMS) has been prepared by Cardno (2018) to assess the impacts of the proposed development on water quality. A MUSIC stormwater quality model was undertaken to demonstrate that post-development stormwater treatment will provide an improved stormwater quality outcome to any downstream receiving source that was the case in a pre-development situation.

7.2.2 Existing Stormwater Investigation

Assessment of the existing stormwater management system was conducted by Cardno by reviewing current site data information and conditions; and modelling of stormwater flows from site. Detailed 1d hydrological and hydraulic software (DRAINS) was selected to model the existing drainage on site. The findings and recommendations from this investigation are summarised in **Table 7-2**.

7.2.3 Proposed Stormwater Concept Design

A concept design has been developed to ensure stormwater from the site is discharged in an acceptable manner. The proposed design aims to provide adequate stormwater conveyance and treatment from the site to ensure that the proposed development does not pose an impact to water quality downstream of the site.

Runoff generated from the subject site were divided into three categories to understand the treatment required prior to discharge (see **Figure 7-2**).

Figure 7-3 Site Runoff Categories

Catchment areas contributing to the type of runoff in **Figure 7-2** were identified to form the basis of the concept design for Phase 2 (see **Table 7-2**). These areas are:

> Leachate (highly contaminated runoff):
  - Water from the proposed RORO bin and wash bay areas. Water from this area will be directed to the existing leachate pond via the proposed leachate lines.

> Stormwater runoff:
  - Dirty stormwater – runoff from the proposed resource recovery shed, dirt road ways, capped land fill areas, stockpile area vegetated batters and non-contaminated runoff from the wash bay. Runoff from this area will be directed toward the existing sedimentation pond via proposed and existing stormwater network area (refer Drawing CI-1201 for location).
  - Clean stormwater – all areas outside the operational area. This includes the existing office and amenities building, existing storage shed, existing workshop and sealed roads. Clean stormwater runoff will be conveyed and treated via the proposed grass-lined swale (refer Drawing CI-1201 for location).

Table 7-2 Proposed Upgrades and Concept Design

Proposed Upgrade	Phase 1 Recommendations	Concept Design for Phase 2
1	The existing drainage line receives runoff from a large portion of the site. As the contributing catchment for the existing network is significant, we propose that the current pipe be upgraded to cater for additional flows resulting from any future proposed development on site.	No upgrades will be required to the existing stormwater pipe as it is sufficient for the proposed catchment flow. Clean stormwater now bypasses the existing stormwater reducing the required capacity of the existing network.

		Additionally, bunding around the landfill areas should be established to ensure that the highly contaminated runoff is directed towards the leachate pond, which will further reduce the contributing flows towards this network. However, it should be noted that the pit would need to be replaced as a result of the proposed fill.
2	We propose that a swale be constructed at the car battery storage outlet to provide treatment of the runoff captured within this area before discharging into the main stormwater network.	The car battery storage area will be moved to a covered area within the proposed resource recovery shed. Roof runoff from the proposed shed should be collected in a rainwater tank for reuse with overflow pipe directed towards clean stormwater swale.
	We propose that the decommissioned water quality filter be upgraded/ replaced to ensure discharge from the wash bay area is treated prior to discharge into the stormwater system. Other potential treatment system includes a formalised grassed-lined swale that could be constructed around the perimeter of the wash bay area and extend towards main pit discharge.	The wash bay area will be moved to a different location and isolated with a bund to ensure highly contaminated runoff are contained within this area. Discharge from the wash bay area enters a pit with a valve and two connecting lines (one to the leachate pond and one to the dirty stormwater line). Due to the expected contaminants in this area, discharge will be directed to the leachate pond in the first instance. In events where no toxic contaminants are present in the area, runoff should be discharged into the dirty stormwater line via the valve.
3	We propose that a combination of on-grade pits and lintel pits be placed along Sinclair Street to capture and convey stormwater from the site. Stormwater treatment (combination of GPTs and grassed-lined swale) will be required if runoff from this area is found to be contaminated. The proposed network should be connected to the existing stormwater network along Sinclair Street or Common Street.	A grass-lined swale is proposed to the west of Sinclair St to capture stormwater runoff. This runoff is categorised as clean stormwater as it's outside the operational area.
4	We note that at the present time, runoff from the workshop area is captured in tanks or flows into the bushland area to the west without undergoing treatment. As such, we propose that drainage (including any excess roof drainage) within this area be upgraded to improve stormwater collection and conveyance from the site. Stormwater treatment devices such as GPTs, grassed lined swales and bioretention basins should also be considered to ensure stormwater within this area is treated prior to discharge into the bushland area.	Reinstate existing rainwater tank to be collected and reuse. Surface regrading in this area to formalise overland flows towards the licenced discharge point.

7.2.4 Design Development

A number of design considerations were investigated. Design constraints identified throughout the design development are discussed in **Table 7-3**.

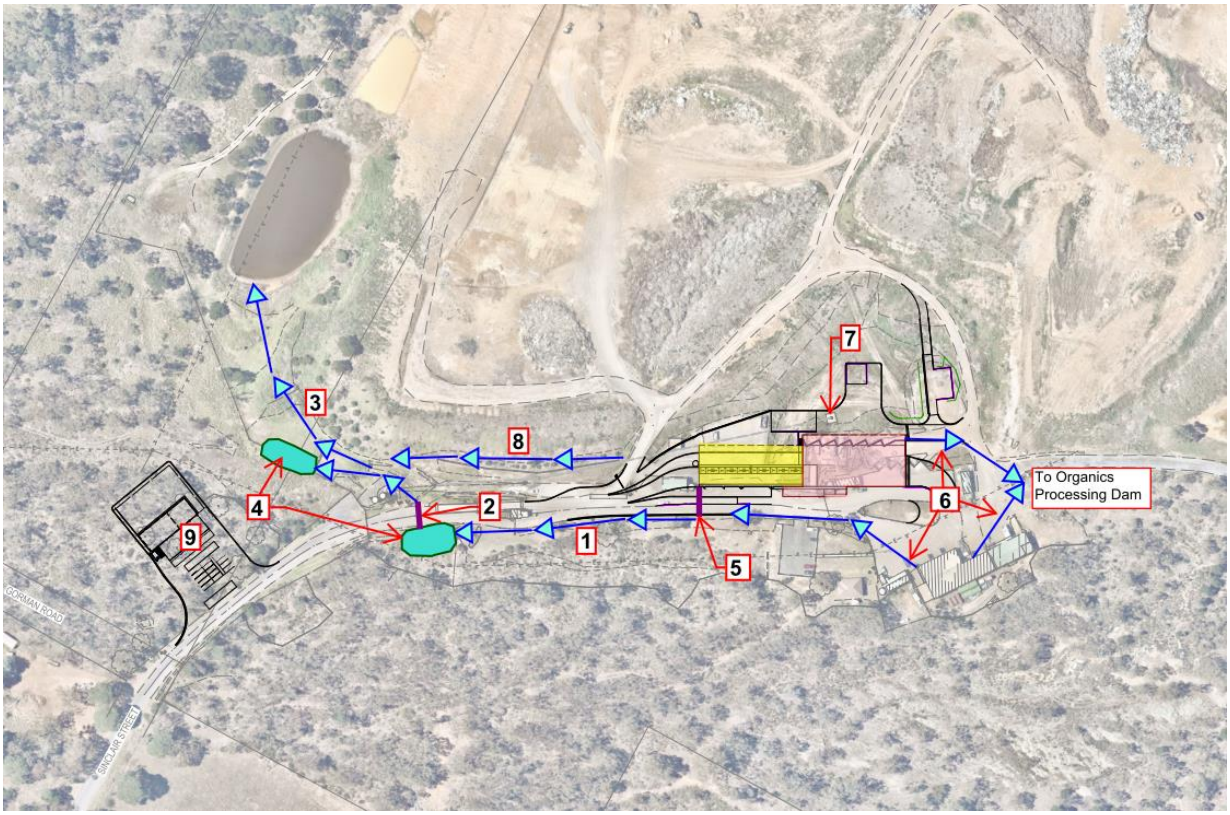
Table 7-3 Concept Design Consideration and Constraints

Item	Details	Constraints	Design Development	Proposed Concept Design
1	Formalise clean stormwater flowpath via grass-lined swales on western side of Sinclair St.	▪ Rock was found at depth 450 mm and is fairly consistent along the western side of Sinclair St. ▪ Utility lines (electrical and communications) were found directly	▪ Option 1: Reduce grade in swale to raise above the rock surface. This option was unfeasible due to existing conditions. ▪ Option 2: Locate the proposed swale away from road uphill towards the	Direct flows to the eastern side of Sinclair St. earlier and re-grade Sinclair St to one-way crossfall to direct flows towards grassed area (i.e. clean stormwater flowpath).

Item	Details	Constraints	Design Development	Proposed Concept Design
		beneath the proposed grassed swale. ▪ Maintenance pits for utilities found within the proposed swale.	vegetated area to the west. This option was unsuccessful due to the excessive grades on the hill. ▪ Option 3: Convey stormwater along Sinclair St. using kerb & gutter. This is not preferred, as stormwater would not benefit from treatment in grassed swale.	
2	Proposed pipe under road to direct clean stormwater towards EPA licensed discharge point	▪ Pipe under road may encounter more issues with depth, crossing services and getting around water tanks. ▪ Pipe from under road may encounter issues as rock is at a depth of 450mm.	▪ Pipe is not required as clean stormwater flows has been moved to the eastern side of Sinclair St.	Pipe is no longer proposed following relocation of the clean stormwater flows (item 1).
3	Separate dirty stormwater flows from clean flows via earth bund	▪ No constraints.	▪ We have found dirty stormwater runoff from the stockpile batters mixes with the clean stormwater water (item 8). Separation of dirty and clean water flows is required using earth bunds or grassed line swales.	Separate dirty and clean water flows using designed earth bunds.
4	Proposed water quality basins	▪ No constraints.	▪ A water quality basin was deemed unnecessary as NorBE requirements can be achieved via the proposed treatment train (see Section 0)	No basins required.
5	Proposed pipe under road to direct roof runoff from proposed shed towards clean stormwater flowpath	▪ No constraints.	▪ Re-direct pipe to discharge to the eastern side of Sinclair St.	Pipe location changed to discharge towards the eastern side of Sinclair St.
6	Formalise flowpath from existing rainwater tank overflow to organics processing dam or alternatively Sinclair St	▪ Surface elevation increases towards the organics dam access road. ▪ Substantial cut required to direct flows towards the organics dam.	Nil	No proposed designs as this area will retain its existing conditions.
7	Fill over existing pit	▪ No discharge point for proposed resource recovery shed, and wash bay	▪ Regrade design surface to discharge at newly proposed pit(s).	Proposed pit and pipe network at new sag points and connect to existing stormwater line.
8	Dirty water flowpath to convey runoff from batters	▪ Mixing with clean water flows from road runoff	▪ Proposed earth bund to separate clean and dirty water runoff	Design earth bund between clean and dirty water flowpaths

Item	Details	Constraints	Design Development	Proposed Concept Design
	and access road to stockpile area towards sedimentation pond.			
9	Maintain surface flows.	▪ No natural watercourses nearby for stormwater discharge	▪ Discharge towards Sinclair St.	Discharge into proposed water quality treatment prior to Sinclair St.

Figure 7-4 ***Proposed Concept Design***



7.2.4.2 Model Inputs and Assumptions

Further understanding of the site through additional survey, site inspections and RFI-006 have guided further stormwater modelling for the proposed site. Detailed 1d hydrological and hydraulic software (DRAINS) was selected to model the proposed stormwater network for the development. Both minor (10 year ARI) and major (100 year ARI) storms were modelled in DRAINS to size the proposed drainage network. A stormwater layout plan is included in the drawing set at **Appendix B**.

7.2.5 Stormwater Treatment and Water quality

7.2.5.1 Existing Case

Stormwater runoff from the Goulburn Waste Management Centre (GWMC) is split between two main routes; one flows North West from the GWMC down Sinclair St and the other travels North to the sedimentation basin. This route is currently the only flow path that is being treated via the sedimentation basin. The other flow path travelling North West is not treated and discharges onto Sinclair St. The sealed road forms the basis for the flow discharging onto Sinclair St and Common St.

7.2.5.2 Proposed Design

The main focus of the proposed design is to reinstate existing water quality assets and add any other structures required to meet water quality targets. The existing sedimentation basin will be used as part of the proposed treatment in addition to proposed grassed swales. The grassed swales are intended to convey majority of the runoff into the sedimentation basin whilst providing treatment. The two swales will be located towards the Northern half of the site with one swale leading to the sedimentation basin and the other leading directly to bushland. For the Re-Use Hub treatment will be provided through use of raingardens at the western end of the site area.

Gross Pollutant Trap (GPT's) have been added into the design to provide protection for the swales and sedimentation basin against coarse and fine sediments. Rainwater tanks are proposed to capture roof runoff from the proposed Resource Recovery Shed and Re-Use Hub for reuse.

7.2.5.3 Neutral or Beneficial Effect (NorBE) Requirements

The GWMC site is located within the Warragamba catchment area, the largest of greater Sydney's drinking water catchments, which provides vital drinking water to much of the population in the region. As such, provisions of the State Environmental Planning Policy (SEPP, 2011) apply to the site. This SEPP provides strong guidance and requirements for stormwater discharges to protect the water resource in the catchment. Under the SEPP, any proposed development within the catchment must pass an assessment of Neutral or Beneficial effect (NorBE).

NorBE is satisfied if the conditions of post development:

> has no identifiable potential impact on water quality, or

> will contain any water quality impact on the post developed site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or

> will transfer any water quality impact outside the site where it is treated and disposed of to the specific standards approved by the consent authority.

In order to meet these requirements, certain quantitative targets must be met. In accordance with '*Using MUSIC in Sydney's Drinking Water Catchment*' (SCA, 2012), post development stormwater quality would typically need to be treated to meet such targets below:

> The mean annual pollutant loads for the post-development case (including mitigation measures) must be 10% less than the pre-development case for total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN). For gross pollutants, the post-development load only needs to be equal to or less than the pre-development load.

> Pollutant concentrations for TP and TN for the post-development case (including mitigation measures) must be equal to or better compared to the pre-development case for between the 50th and 98th percentiles over the 5-year modelling period when runoff occurs.

In order to present evidence that the stormwater design meets NorBE requirements, MUSIC modelling has been undertaken to allow for a quantitative assessment into the difference between existing and proposed scenarios.

7.2.6 Water Quality Modelling

Water quality modelling was undertaken using MUSIC (Version 5.1.16) in accordance with guidelines of *Using MUSIC in Sydney's Drinking Water Catchment* (SCA, 2012). The adopted meteorological template uses a 6-minute time step from Sydney Catchment Authority's (SCA's) 'climate zone 1' (sourced from Water NSW on 11 November 2018). Climate zone 1 relates to the Upper Shoalhaven River sub-catchment of which the proposed development lies within.

For both existing and proposed scenarios modelled, the total catchment area is approximately 4 ha. This total area encompasses both the existing footprint and the proposed development of the site. This total area encompasses both the existing footprint and the proposed development of the site. Additionally, areas in the existing and proposed cases include the vegetated area towards the North of the site.

1.1.1 Results

MUSIC modelling results are presented in **Table 7-5** below.

Table 7-4 MUSIC Mean Annual Pollutant Loadings for Existing and Proposed Cases

Pollutant Type	Pollutant Load for Existing Conditions [kg/yr.]	Resultant Pollutant Load for Proposed Conditions [kg/yr.]	Percentage Reduction of Pollutant Load for Proposed Conditions [%]	Compliant with NorBE Requirements
Total Suspended Solids (TSS)	3430	950	78	YES
Total Phosphorus (TP)	3.61	1.70	53	YES
Total Nitrogen (TN)	22.6	16.3	28	YES
Gross Pollutants (GP)	153	21.1	86	YES

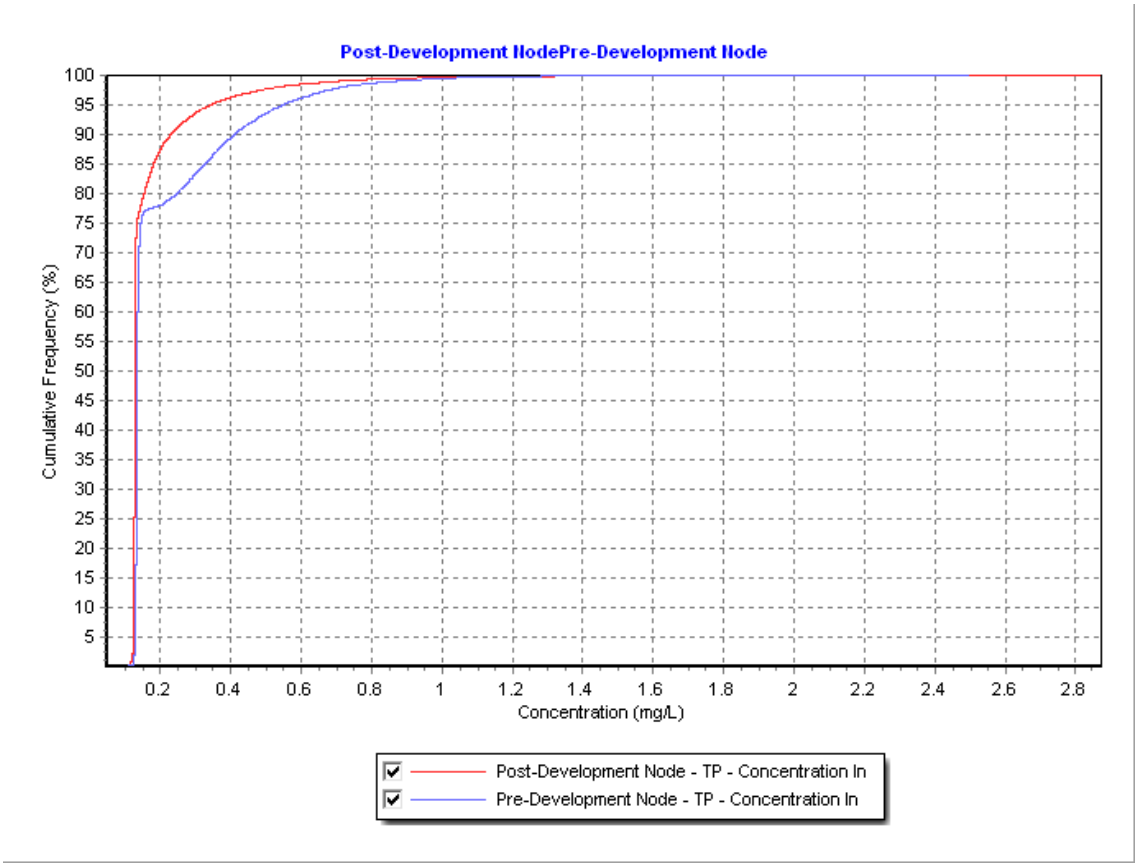


Figure 1-1 Total Phosphorous (TP) removal in Existing and Proposed Scenarios

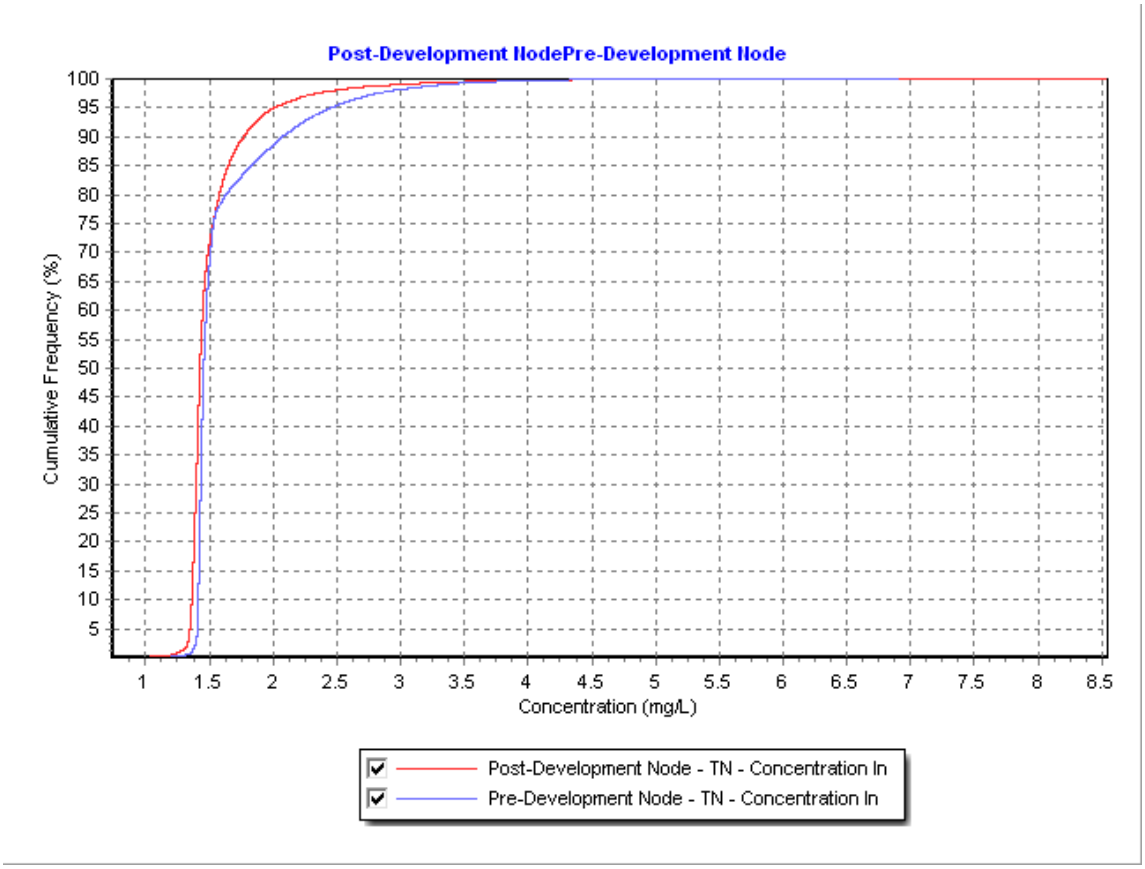


Figure 1-2 Total Nitrogen (TN) removal in Existing and Proposed Scenarios

1.1.2 Mitigation Measures

MUSIC results indicate that a proposed treatment strategy including a series of swales, GPT, raingardens and use of an existing sedimentation basin will meet all of the NorBE prescriptive requirements (SCA, 2012). However, consideration should be given to the following design recommendations:

- Both the Resource Recovery Shed and Re-Use Hub are to have 5,000L minimum sized rainwater tanks installed.
- Stormwater collected within existing and proposed rainwater tanks should be reused.

7.3 Noise and Vibration

7.3.1 Overview

The proposed RUG project has the potential to result in noise and vibration emissions. The noise and vibration sources associated with the operation of the proposed development include the following:

- Vehicle movements to and from the facility;
- Mechanical plant and equipment use within the facility depot.

The nearest residence to the proposed development is approximately 370m north-west of the site, with a number of other nearby residences located further afield. The closest residence may be impacted upon by the noise and vibration associated with the proposed operations.

Discussions with Council have indicated that the proposed development will only generate the following two additional monthly trips and the existing traffic flows will remain at current levels for public and commercial waste disposal:

- One EPA collection truck trip at CRC per month
- One bus trip at education centre per month

The operation of the facility is not anticipated to produce significant traffic, noise or odour beyond what is currently experienced on the site. Conversely, the revised facility should reduce traffic movements on site through streamlining of operations with associated reductions in congestion, noise and air quality.

7.3.2 Mitigation Measures

The following mitigation measures are proposed to minimise the impacts associated with noise and vibration from the proposal:

- The GWMC will operate between 7:30am and 4:30pm daily, within normal business hours. These hours of operation will aid in mitigating any potential impacts caused by noise and vibration associated with vehicles accessing and manoeuvring through the processing facility.

7.4 Aboriginal Heritage

7.4.1 Overview

A search of the OEH Aboriginal Heritage Information Management System (AHIMS) was undertaken in December 2018. The AHIMS is a statutory register managed by the OEH under section 90Q of the *National Parks and Wildlife Act 1974* (NPW Act). The AHIMS manages information on known Aboriginal sites, including objects as defined under the Act. The search identified 20 Aboriginal sites recorded within 1 km of the study area.

An Aboriginal Heritage Inspection was undertaken by Pejar Local Aboriginal Land Council (Pejar LALC) as part of the Drill Mud Processing Development Application (DA/03821/1718). The investigation identified two Aboriginal sites located outside of the study area, adjacent to the neighbouring fence line. There were no Aboriginal sites within the study area. Based on the findings of the investigation, Pejar LALC determined that there were no Aboriginal Heritage restraints to the project moving forward subject to the implementation of mitigation measures.

A subsequent Aboriginal Cultural Heritage Report has been prepared by Pejar LALC for the proposed RUG project to identify and record Aboriginal cultural heritage sites in the study area and provide recommendations for the protection of these sites. The full assessment is contained at **Appendix D**.

The key objectives of the assessment were to:

- Identify whether or not Aboriginal object are, or are likely to be, present in the area
- Determine whether or not activities are likely to harm Aboriginal objects
- Recommend actions to minimise and avoid harm to Aboriginal objects
- Recommend actions to enhance and celebrate Aboriginal objects or values
- Determine whether an Aboriginal Heritage Impact Permit (AHIP) is required
- Meet requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010)

Cultural heritage assessment property surveys were conducted using the following methodology:

- Vehicle and pedestrian survey on the majority of the property with more detailed investigation on landforms likely to contain Aboriginal objects

No Aboriginal Artefacts were identified within the project area during the property survey however, this does not rule out the fact that the area may contain Artefacts that are yet be found or recorded.

The mitigation measures identified below will ensure that potential harm to unidentified Aboriginal objects is minimised.

7.4.2 Mitigation Measures

Based on the findings of the site inspections, Pejar LALC made the following recommendations:

- Further monitoring will need to be carried out closer to a time when clearing of the land in and around the area is to take place
- If any previously undetected Aboriginal site or relic is uncovered or unearthed during an activity, work at that location must cease immediately and advice on appropriate action be obtained from the Pejar LALC in conjunction with NSW OEH
- If there are any changes to the design, Pejar LALC are to be contacted and further investigations are to be carried out

7.5 Non-Indigenous Heritage

7.5.1 Overview

The Goulburn Mulwaree LGA is rich in European heritage. There are a number of Heritage Conservation Areas (HCA) within the LGA, as outlined in the LEP. A total of 20 heritage items listed under the NSW Heritage Act and 350 heritage items listed by Local Government and State Agencies occur throughout the Goulburn Mulwaree LGA. None of these items are located within the site or immediately adjacent to the GWMC.

A heritage listed cemetery is located approximately 1km north-west of the site. A heritage listed house called "Nooga" is located approximately 1.2km south-east of the site. The proposed development is not anticipated to result in any impact to these surrounding heritage items, as all works are to be contained within the site.

7.5.2 Mitigation Measures

There will be no impact on any heritage items or HCAs, therefore, mitigation and management is not required. However, in the unlikely event that a heritage item is discovered on site, the appropriate unexpected finds management protocol will be implemented to mitigate any adverse impacts to heritage items.

7.6 Ecology

7.6.1 Overview

A Flora and Fauna Assessment has been prepared by Ecoplanning (2019) to identify and assess the flora and fauna within the study area and the likely impacts of the proposed development. The full report is contained at **Appendix E.**

The study area comprises approximately 2.78 hectares of primarily cleared land with a small amount of remnant vegetation present on the western and northern boundary. The proposal has been designed to minimise native vegetation clearance by locating the proposal largely within previously cleared land.

7.6.2 Field Survey

A general site survey (CSIRO and NCST 2009) was undertaken by Elizabeth Norris (Senior Botanist) on 18 October 2018. The survey assessed the vegetation and fauna habitat features on site and validated the vegetation communities occurring within the study area.

The study site had undergone extensive clearing through the development the Goulburn Waste Management Facility, and most of the native vegetation occurred in a disturbed and modified condition through maintenance clearing for overhead transmission lines and mowing of the ground-layer. More intact native vegetation within the study site was present at the northern end, north of the Sinclair Street, although some of this vegetation had also been disturbed to varying degrees.

Field survey determined the native vegetation in the study area to be generally consistent with the Western Tablelands Dry Forest (DSF p14) mapped by Tozer et al (2010). This community was equivalent to PCT

1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands (VIS 2018). The remaining parts of the study area were mapped as exotic grassland, disturbed land and infrastructure.

7.6.3 Impact Assessment

7.6.3.1 Vegetation Clearing

Up to 0.36 ha of Western Tablelands Dry Forest vegetation in the subject site would be directly impacted by the proposal comprising 0.35 ha in a moderate to good condition and 0.01 ha of scattered trees. The remainder of the impact area consists of exotic grassland (0.10 ha) and disturbed land (0.33 ha). As such, the direct impacts in the study area would predominantly include removal of disturbed land and exotic vegetation, which is 54% of the vegetation within the subject site. The exotic grassland and disturbed land have minimal ecological value and provides marginal foraging habitat for native fauna.

7.6.3.2 Loss of Fauna Habitat

The proposal will remove a small amount of potential foraging habitat (0.36 ha of Western Tablelands Dry Forest in a modified and scattered trees condition). The proposal will also remove three stag trees. This impact is considered relatively minor given the very small amount of habitat present and that threatened fauna in locality are generally highly mobile (birds, microbats). Large areas of more intact habitat will remain connected to the subject site on other surrounding properties. The habitat in the study area is of relatively low importance to native fauna species and adjacent consolidated patches of remnant vegetation retain fauna habitat of higher conservation significance.

7.6.4 Summary

The proposal will directly impact up to 0.79 ha of vegetated land, of which 0.36 ha consists of native vegetation. This includes impacts to 0.35 ha of Western Tablelands Dry Forest in a moderate to good condition and 0.01 ha occurring as scattered trees. The remaining vegetation comprises exotic grassland (0.10 ha) and disturbed land (0.33 ha). Western Tableland Dry Forest conforms to PCT 1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest, and is not listed as a TEC under the EPBC Act of BC Act. Within the subject site Western Tablelands Dry Forest was modified understorey through previous clearing maintenance works for electrical transmission lines. It is also found as scattered trees over mown grassland areas. Approximately 1.2 ha (63%) of Western Tablelands Dry Forest will remain within the study area and more extensive stand occur within the locality.

No threatened flora or fauna species listed under the EPBC Act or BC Act were identified in the study area during field assessment. Whilst the Dusky Woodswallow and Varied Sittella have the potential to utilise the site for foraging, the current proposal requires the removal of a relatively small area of Western Tablelands Dry Forest in a modified condition (0.36 ha). The results of the test of significance under the BC Act indicated that the proposal is not likely have a significant impact on any threatened fauna.

The subject site is not identified on the Goulburn Mulware Terrestrial Biodiversity Map.

7.6.5 Mitigation Measures

The majority of the study area consists of cleared and disturbed land and exotic vegetation and the proposal has been designed to avoid and minimise the removal of native vegetation. Access roads have been placed around current stands of vegetation and the facility has been placed in a cleared area. As the majority of vegetation to be removed is exotic vegetation, avoidance of impacts to the extent practicable has been implemented.

To avoid potential indirect offsite impacts during construction, an appropriate erosion and sedimentation control plan should be in place following best practice protocols such as that detailed in Landcom (2004).

7.7 Bushfire

7.7.1 Overview

The subject land is identified on the Goulburn Mulwaree Council Bushfire Prone Land Map as Bushfire Prone Category 2 vegetation with buffer. As such, a Bushfire Assessment has been prepared by Peterson Bushfire (2018) to determine whether the proposed development is suitable for the site. Refer to **Appendix H**.

In accordance with PBP, the predominant vegetation class has been determined for a distance of at least 140m out from the proposed development. The vegetation on the lower slopes surrounding the facility is mapped 'Tableland Low Woodland' (DECCW 2009). The open structure of the canopy and lack of midstorey and tall shrubbery validates a 'woodland' classification in accordance with PBP.

The woodland is located to the west of the existing administrative area and the proposed Resource Recovery Shed. The proposed Re-use Hub located near the entrance to the site will have woodland on all sides.

The effective slope underneath the woodland is within the PBP slope class of 'downslope 5-10 degrees' to the west of the proposed Resource Recovery Shed and to the west and north of the proposed Re-use Hub. The moderate downslopes would influence fire spread uphill towards the assets.

7.7.2 Defendable Space

For habitable development types such as dwellings, an Asset Protection Zone (APZ) dimension is related to the vulnerability of an asset typically in terms of combustibility of external materials or the nature of the occupants. The resulting APZ would stipulate a construction standard under *AS 3959-2009 Construction of buildings in bushfire-prone areas* (AS 3959).

As the proposal does not include a dwelling or habitable building, PBP does not list an APZ requirement. However, PBP does require the consideration of a managed hazard-separation area for fire-fighting purposes referred to as 'defendable space'. A defendable space is defined by PBP as "*an area within the asset protection zone that provides an environment in which a person can undertake property protection after the passage of a bushfire with some level of safety*". Therefore, the defendable space dimension is defined by the ability to gain access around an asset and conduct defensive fire-fighting operations. Relying on a defendable space in lieu of an APZ is deemed acceptable whereby construction materials are typically non-combustible and meet building and structural fire requirements under the NCC.

Therefore, the two proposed buildings are to have a defendable space between the building and the hazard identified in Section 2:

- The Resource Recovery Shed, containing the office and education centre, will have an access road around all sides. It will also have a hazard separation distance (i.e. Asset Protection Zone) of at least 20 m to the woodland to the west at its northern end, widening to 60 m at its southern end. The defendable space provided to the Resource Recovery Shed is adequate as it will allow fire-fighters to access all sides of the building in fire appliances, utilising the access roads that have been designed for the manoeuvrability of large vehicles used in day-to-day operations of the facility. In addition, the existing hazard separation of minimum 20 m to the west complies with the APZ distance specified by PBP for residential development. Although not a requirement for the proposal, the existing APZ distance will provide additional protection for occupants within the office and education centre to a standard commensurate with habitable development.
- The Re-use Hub will have a separation around the building of 6 m to the proposed batter on the sides (north-west and south-east elevations) and 20 m to the rear (north-east elevation into the open area) and 30 m to the front (south-west elevation towards the access road). The defendable space is adequate as it will allow fire-fighters around all sides of the building.

7.7.3 Building Construction

Building construction provisions within AS 3959 do not apply to developments of the type proposed as a deemed-to-satisfy requirement under the NCC. Due to the type of development and compliance with NCC requirements for building and structural fire, it is generally accepted that buildings will survive bushfire attack at all Bushfire Attack Levels (BAL) as specified by AS 3959. In addition, staff will not reside within the proposed buildings and will be familiar with the access routes should an evacuation be necessary.

A BAL assessment provides an understanding of the bushfire attack the building could experience in the 'design' bushfire scenario. If deemed appropriate, a BAL assessment provides a platform on which to develop any further recommendations specific to the bushfire threat, modes of bushfire attack, or vulnerabilities of the proposed building. An aspect of AS 3959 that is not addressed in the structural building fire safety provisions of the NCC for the development type proposed is the protection of the building from bushfire ember attack. The following recommendations are therefore made:

1. Weepholes, vents and openable portions of windows (with exception to the service window at the weighbridge) be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
2. Weather strips to external doors (side-hung);
3. Nylon brush seals to prevent the entry of embers around roller doors and other vehicle access doors and the like;
4. Preventing or sealing gaps at joins of external cladding (walls and roof) to prevent the entry of embers; and
5. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm.

7.7.4 Access

The assessment of access is to consider the adequacy of public road access, property access roads and defendable space.

The site is accessed by Sinclair Street in the north-west corner of the subject land. The public roads accessing the site comply with the public road design and construction standards specified by PBP.

Although it is the only vehicular access into and out of the site, the site access road is deemed adequate in providing the required level of access for fire-response and egress for evacuation as it leads away from the bushfire hazard and threat. It is only 300 m long from the commencement of the bushland hazard at the boundary to the proposed Resource Recovery Shed. The proposed Re-use Hub will be within 100 m of the site boundary. The length of road traversing the hazard is approximately 100 m. PBP states a threshold of 200 m before requiring an alternate access road (for residential development proposals). The access road is a paved 6 m wide road allowing ample room for passing and turning throughout the facility.

The access roads (existing and proposed) provide adequate perimeter access and defendable space for the proposed development. The layout complies with PBP property access road requirements. Additional access provisions are not required to support the proposed development.

7.7.5 Summary

Planning for Bushfire Protection 2006 does not require specific Asset Protection Zone measures or construction standards under *AS 3959-2009 Construction of buildings in bushfire prone-areas* for the development type proposed. However, a defendable space between the proposed buildings and the hazard is required. This assessment demonstrates that the proposed buildings will have an adequate defendable space.

The existing and proposed access ways provide adequate defendable space to allow fire-fighting operations to occur, whilst also providing a platform for rapid operational response and, in the unlikely event, evacuation.

7.7.6 Mitigation Measures

The following mitigation measures are proposed to minimise the bushfire impacts associated with the proposal:

- To complement the NCC structural fire requirements with protection measures specific to bushfire attack, the following ember protection is recommended to both proposed buildings:

- Weepholes, vents and openable portions of windows (with exception to the service window at the weighbridge) be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
- Weather strips to external doors (side-hung);
- Nylon brush seals to prevent the entry of embers around roller doors and other vehicle access doors and the like;
- Preventing or sealing gaps at joins of external cladding (walls and roof) to prevent the entry of embers; and
- Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm.

> The development will require fire hydrants to be installed to comply with AS 2419.1 – *2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

7.8 Contamination

7.8.1 Overview

Cardno were engaged to undertake a Preliminary Environmental Site Investigation for the proposed development (refer to **Appendix F**). The desktop study and site inspection, supplemented by subsurface investigation, has informed the identified of potential Areas of Environmental Concern (AEC). **Table 7-7** below shows the salient site features observed at the time of inspection along with the potential of environmental risk and the Contaminant of Potential Concern (COPC) associated with each feature based on the type of the anthropogenic items observed.

Table 7-5 Observations and Potential Environmental Risk

Observation	Potential Environmental Risk and COPC
Landfill facilities, various sheds, maintenance facilities and other sundry items	Heavy metals concentration due to weathering of metal objects, hydrocarbons spillage, chemical spillage or residue from solvents
Municipal Refuse	Heavy metals, hydrocarbons, including BTEXN compounds, Polycyclic Aromatic Hydrocarbons (PAHs, Organochlorine Pesticides (OCP), organophosphorus Pesticides (OPP), Polychlorinated biphenyls (PCB), Asbestos Containing Materials (ACM), medical wastes, landfill gas (LFG), leachate.
Potential uncontrolled dumping/windblown waste materials in north	Heavy metals, hydrocarbons, including BTEXN compounds, Polycyclic Aromatic Hydrocarbons (PAHs, Organochlorine Pesticides (OCP), organophosphorus Pesticides (OPP), Polychlorinated biphenyls (PCB), Asbestos Containing Materials (ACM)
Refrigeration/ air conditioning unit drop off area	PAHs, Volatile organic chlorinated compounds from leakage of refrigerants.
Waste management activities	Heavy metals, hydrocarbons, including BTEXN compounds, Polycyclic Aromatic Hydrocarbons (PAHs, Organochlorine Pesticides (OCP), organophosphorus Pesticides (OPP), Polychlorinated biphenyls (PCB), Asbestos Containing Materials (ACM)
Earth moving/waste handling machinery, vehicles and equipment	Heavy metals concentration due to weathering of metal objects, potential hydrocarbon or other chemical contamination from various empty drums
Above ground storage tanks	Hydrocarbons, PAHs, heavy metals, due to leakage and or spillage of oils.

Observation	Potential Environmental Risk and COPC
Battery storage/recycling depot	Heavy metals and PCBs, associated with leakage
Leachate storage tanks	Low potential for leakage of leachate collection and conveyance system as system uses sealed tanks and pipes.
Services trenches	Low potential for contamination arising from unknown composition of trench and backfill
Access driveway, filling activities	Low potential for contamination arising from fill of unknown origin.

7.8.2 Site Assessment Criteria

The selection of the most appropriate investigation levels for use with a site-specific environmental setting and land use scenario should consider factors including the protection of human health and ecosystems.

Investigation and screening levels are provided in *Guideline on Investigation Levels for Soil and Groundwater* (Schedule B1, NEPC, 2013) for commonly encountered contaminants which area applicable to generic land use scenarios and including considerations of, where possible, the soil type and the depth of contamination. Investigation levels and screening levels are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required. Investigation and screening levels provide the basis of Tier 1 risk assessment.

Health investigation levels (HILs) have been developed for a broad range of metals and organic substances. The HILs are applicable for assessing human health risk via all relevant pathways for exposure. The HILs are generic to all soil types.

Health screening levels (HSLs) have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the inhalation and direct contact pathways. The HSLs depend on specific soil physiochemical properties, land use scenarios and the characteristics of building structures. They apply to different soil types and the depth below the surface to >4m.

Ecological investigation levels (EILs) have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physiochemical properties, land use scenarios and generally apply to the top 2m of soil.

Ecological screening levels (ESLs) have been developed for selected petroleum hydrocarbon compounds and total petroleum hydrocarbon (TPH) fraction and area applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse and fine-grained soils and various land uses. They are generally applicable to the top 2m of soil.

Collectively the HILs, HSLs, EILs and ESLs adopted for the site are referred to as the Site Assessment Criteria (SAC).

7.8.3 Human Health Assessment

To address potential health impacts at the site, Cardno compared the analytical testing results against a set of health based soil investigation appropriate for the proposed land use. That is, the HIL has been set at a level that provides confidence that contaminant concentrations below the HIL will not adversely affect human health. The site land-use is and will continue to be Commercial/Industrial. NEPM (2013) HSL D and HIL D criteria has been selected for the assessment of human health.

7.8.4 Ecological Assessment

NEPC (1999) indicates that while protection of human health often drives the first stages of assessment, protection of the environment (terrestrial and aquatic) should be a consideration for all site assessments. The closest waterbodies, the Mulwaree and Wollondilly Rivers, are approximately 1.2km northwest of the site and are unlikely to be a sensitive ecological receptor from soils located on the site.

To address the potential ecological impacts at the site, Cardno compared the analytical testing results against a set of ecological investigation and screening levels appropriate for the proposed land use of commercial/industrial. The NEPM (2013) EIL criteria adopted was generated using the CSIRO *NEPM*

Ecological Investigation Level Calculation Spreadsheet (CSIRO, 2010). The most conservative values for pH and cation exchange capacity (CEC) were used in the absence of available data. Additionally, the NEPM (2013) ESL (coarse soil texture) was adopted for the ecological assessment.

7.8.5 Asbestos

Health screening levels for asbestos in soils, which are based on scenario-specific likely exposure levels, are adopted from the Western Australia Department of Health (WA DoH) guidelines. Based on the land use, commercial/industrial D exposure setting has been selected. As such, the HSL for bonded asbestos contained materials is 0.01% and 0.001% for asbestos fines (AF) and fibrous asbestos (FA).

7.8.6 Results of Investigation

Field Screening indicated PID values of between 0.5 and 1.9 parts per million (ppm). Samples with the highest PID values were selected for laboratory analysis. PID values are shown on the test pit logs and the PID calibration certification included within **Appendix F.**

Limited analytical testing was conducted as part of the geotechnical investigation. These results were compared with the relevant SAC, detailed above, adopted for the site. Full analytical tables comparing all data with the SAC are presented in **Appendix F**. Exceedances of the SAC are summarised in **Table 7-8**.

The preliminary environmental investigation identified exceedance of the SAC for benzo(a)pyrene, FA and AF, and Bonded ACM in TP102 and copper in TP101. It is noted in the Conceptual Site Model (CSM) that TP101, TP102 and TP105 are located with the landfilled area and the sampled soils are near surface materials comprising the intermediate landfill cover. As such, Cardno consider that there are not sensitive ecological receptors to the contaminants in these areas.

Table 7-6 Summary of SAC exceedances

Contaminant	Site Assessment Criteria	Result
Benzo(a)pyrene	ESL D = 0.7mg/kg	TP102 0.1-0.2 = 1.6mg/kg
Copper	EIL D = 85mg/kg[1]	TP101 0.1-0.2 = 110mg/kg
FA and AF[2]	All land uses = 0.001%	TP102 0.1-0.3 chrysotile and amosite asbestos detected [3]
Bonded ACM	HSL D = 0.05%	ACM confirmed in TP102 at 0.3mbgl

1 EIL is the most conservative value adopted from Table 1B(1) to 1B(3) NEPM 2013 in the absence of pH, CEC TOC testing
2Fribrous asbestos and asbestos fines
3Detected below reporting limit of 0.01%

7.8.7 Preliminary Conceptual Site Model

This section summarises the preliminary environmental assessment and site historical information to develop a Conceptual Site Model (CSM). Generally, a CSM provides an assessment of the fate and transport of COPCs relative to site specific, subsurface conditions with regard to their potential risk to human health and the environment. The CSM takes into account site specific factors including:

> Source(s) of contamination and identification of COPCs associated with the identified source(s)

> Vertical, lateral and temporal distribution of COPCs

> Site-specific lithologic information including soil type(s), depth to groundwater, and groundwater flow velocity. And at this site local marine water and sediment conditions

> Actual or potential receptors considering both current and future land use both for the site and adjacent properties, and any sensitive ecological receptor

Based upon the results of the investigation a preliminary Conceptual Site Model has been developed to determine the relevant exposure pathways of contaminants to ecological and human receptors. Two CSMs have been developed to present the current CSM and the CSM associated with the proposed construction associated with the development. The CSMs are presented in **Figure 7-4** and **Figure 7-5** below.

Figure 7-5 Current CSM Profile

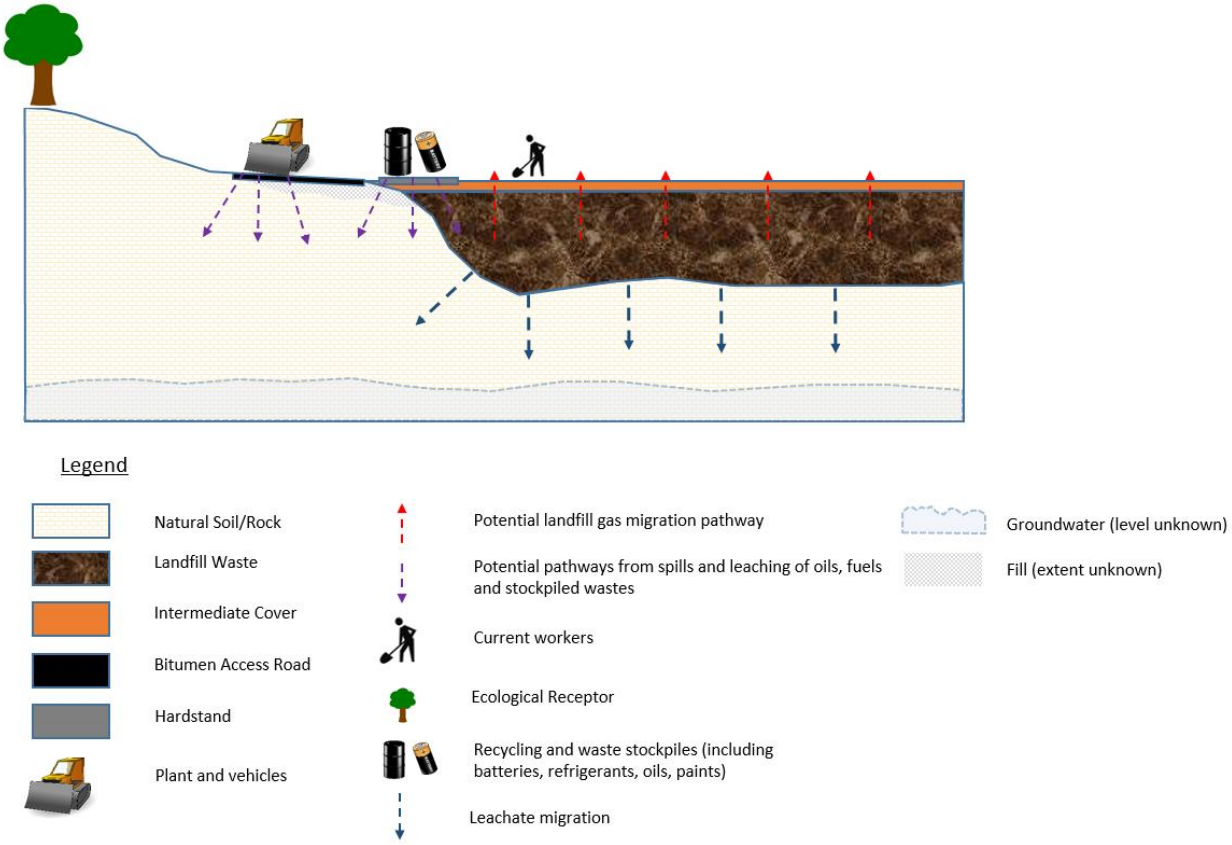
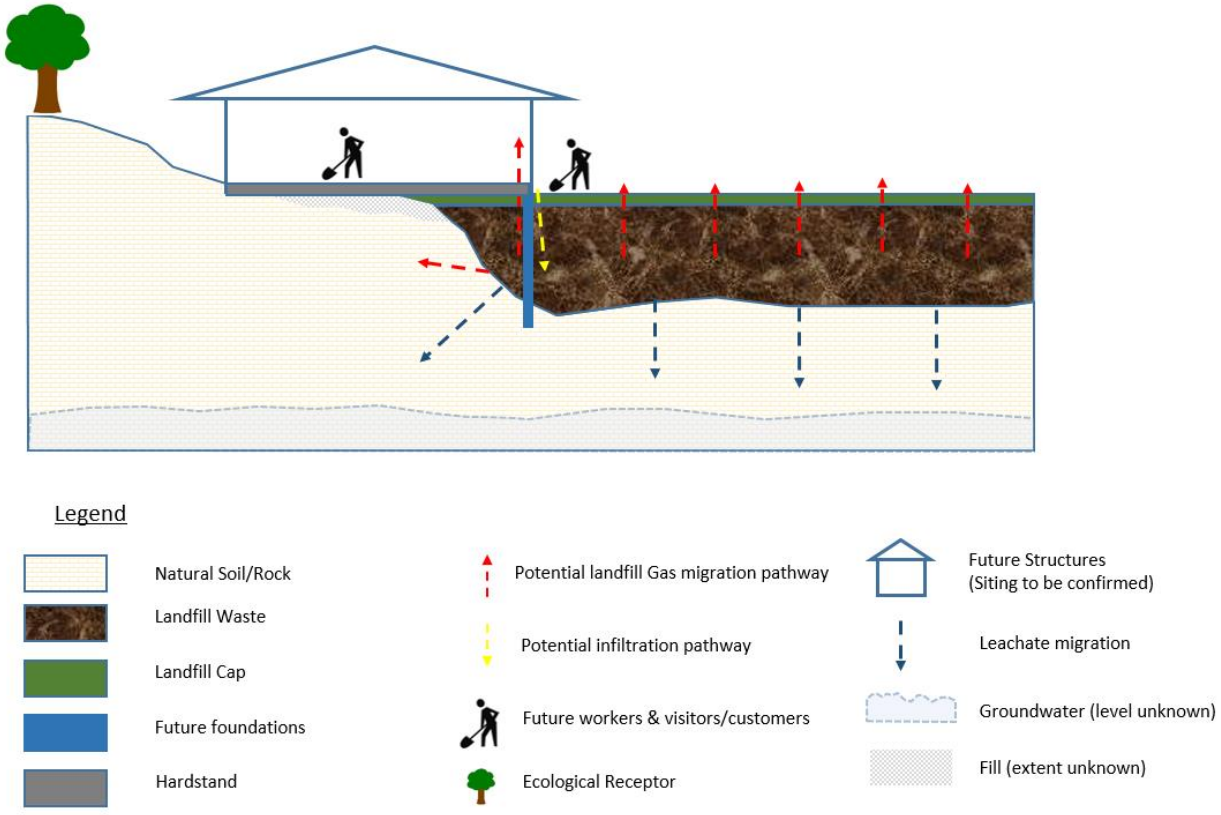


Figure 7-6 CSM under Proposed Development



The following exposure pathways have been identified which pose an environmental risk:

> Leachate generation through foundations penetrating the landfill cap

> Downward vertical leachate migration to the underlying groundwater

> Landfill gas migration pathways penetrating the landfill cap and then through foundations

> Potential landfill gas accumulation in structures over the landfill footprint

> Potential lateral landfill gas migration and accumulation in structures outside the landfill footprint

> Exposure of workers to waste materials (including asbestos) during construction and maintenance of future structures over the landfill footprint

Table 7-7 Conceptual Site Model

CSM Element	Description
Site History/Contaminant Sources	Based on the review of the site activates and history, the potential sources of subsurface contamination at the Site include: Presence of soil and groundwater contamination as a consequence of: > Licensed waste handling and application to land. > Plant and equipment maintenance and fueling. > Trafficking of vehicles that have transported or been in contact with waste. Hazardous building materials in standing buildings and structures associated with the existing house and landfill facilities. Uncontrolled fill material may be present associated with the construction of the road.
Site Current and Future Use	The current Site land use is as a waste handling, compositing and disposal facility. Known future uses of the site are for continued use with additional waste handling infrastructure and facilities constructed.
Site Geology	Undisturbed natural soils that have not been subjected to filling generally consisted of a topsoil layer comprised of sandy/clayey silts grading into that is underlain by gravelly sand colluvium and Quartzose sandstone. The soil profile under the access road typically included the presence of fill above the in situ Quartzose sandstone. The soil profile to the east of the access road included gravelly clay soils comprising the intermediate landfill cover layer of thickness between 0.3 and 0.6m, overlying municipal solid waste to the depth of investigation.
Site Hydrogeology	Groundwater was not encountered during the investigation. A registered groundwater bore (GW102736) is located approximately 350m south of the site. The standing water level was recorded at being 13mbgl.
COPCs – Soil	The following COPCs were detected at concentrations above the NEPM (2013) Ecological Investigation Levels for a commercial/industrial setting for soils containing a low pH, CEC, clay content, aged contamination with a depth range of 0 to 2 m bgl: > Copper in sample TP101 0.1-0.2m (110 mg/kg). > Benzo(a)pyrene in sample TP102 0.1-0.2 (1.6mg/kg) > Asbestos was detected in sample TP102 0.1-0.3 at less than the reporting limit of 0.01%. Four fragments of bonded asbestos were found in the sample. Chrysotile and amosite asbestos was detected in the sample. A fragment of asbestos cement sheeting was collected from TP102 at 0.3m and was tested for asbestos identification and contained chrysotile and crocidolite asbestos.
COPCs – groundwater	Groundwater was not encountered and assessment was beyond the scope of this investigation. However, it can be expected in periods of prolonged or intense inclement weather that groundwater maybe perched at the soil/sandstone interface. Installation of structural foundations through the landfill cover or engineered cap will potentially create a pathway for infiltration, increasing the potential for long term leachate generation.

CSM Element	Description
COPCs – surface water	No surface water bodies are located on the site. Assessment of surface water bodies downstream was beyond the scope of this investigation.
COPCs – Soil Vapour	Direct investigation of soil vapour and / or landfill gas (LFG) has not been conducted at the site. However, based on the presence of municipal waste materials on the site, ground gas presents a risk to enclosed spaces with 250m of the waste boundary. Installation of structural foundations through the landfill cover or engineered cap will potentially create a preferential pathway for landfill gas migration into overlying structures.
Extent of Soil Impacts	The lateral extent of soil with COPCs at concentrations above the NEPM (2013) EILs and HSLs limited to the areas of TP101 and TP102, which lie above landfill waste. Intermediate cover has been placed above the landfill in these areas.
Potential Human Receptors and Pathways	The site is used as a waste management and disposal center, and the potential human receptors under this land use are workers/employees, visitors and customers of the facility. The proposed development of the site will include the continued use of the site for this land use following the redevelopment of the site facilities. The future site users will include construction/maintenance workers, site employees, visitors and customers of the facility. The COPCs include asbestos with the landfill cover soils, and municipal wastes. The asbestos found within the cover soils would only present a risk if the soils are disturbed, though activities such as excavation or boring. The exhumation of waste or boring into waste will potentially expose workers to other COPCs. The risk arising from these pathways are considered to be short term and limited to construction only. The potential risks can be managed through typical OHS procedures employed during construction activities. Potential risks to human health from potential LFG gas migrating into future structures was not evaluated as part of this investigation
Potential Ecological Receptors and Pathways	Potentially sensitive ecological receptors were not noted within the areas where soils were found to exceed the ecological screening criteria. Potentially sensitive ecological receptors at the site and in the surrounds include trees and garden beds. The COPCs benzo(a)pyrene and copper were detected at concentrations above the adopted generic ecological screening levels indicating a potential risk to the local environment. However, the potential risk to the local environment from the identified COPCs is considered low and acceptable due to the distance to the nearest potential receptor. The exceedance were identified in landfill cover sols, which will be covered by an engineered landfill cap prior to closure of the landfill.

7.9 Geotechnical Investigation

Cardno (2018) have prepared a Geotechnical Investigation to support the design and construction of the proposed RUG Project at the GWMC (refer to **Appendix G**).The investigation comprised the following:

- Drilling of seven (7) geotechnical boreholes, in situ testing and sampling of the encountered materials
- Laboratory testing of selected samples
- Installation of four (4) subsurface as monitoring wells
- Analysis of available data and recommendations within this Geotechnical Investigation

7.9.1 Field Investigation

The field investigation comprised of the drilling of seven (7) boreholes, in situ testing and sampling of the encountered materials. Materials encountered during the investigation were classified based on visual and tactile properties and logged on site by an experienced geotechnical engineer from Cardno.

The subsurface profile encountered exhibited local variation across the site. Details of the encountered subsurface profiles are described in **Table 7-3** below.

Table 7-8 Subsurface Profiles

Unit	Approximate Thickness (m)	Typical Description
Hardstand	0.2 - 0.4	Sandy GRAVEL, fine to medium, sub-angular, grey
Landfill Cover	.2 - 0.7	Sandy CLAY, medium plasticity, light brown, trace gravel
Fill	1.6	Sandy CLAY, medium plasticity, light brown, trace gravel
Landfill Waste	1.2 - 3.8	Clayey SAND, fine to coarse, dark grey, with plastic, concrete, tile, timber, paper and cloth
Colluvium	0.3 - 1.8	SAND, fine to coarse, brown mottled light brown, trace gravel
Sandstone	-1	SANDSTONE, fine to medium, slightly weathered, light grey, quartzose

7.9.2 Engineering Assessment

The engineering assessment has been based on observations made during the site investigation, the material succession encountered within the boreholes and in situ, and laboratory test results. In summary, the boreholes and test pits indicate that the following generalised conditions can be expected:

- Southern extent of the proposed structure:
  - Subsurface profile comprises fill thickness increasing from 0.3m to 4.2m in thickness underlain by medium dense colluvial sand ranging in thickness from 0.9m to 1.8m before encountered bedrock comprising slightly weathered, very high strength sandstone.
- Northern extent of the proposed structure:
  - Subsurface profile comprises uniform fill thickness of approximately 3.0m directly underlain by bedrock comprising slightly weathered very high strength sandstone.
- Rock profile dipping steeply to the east with shallow rock expected in footings along the western extent of the structure.

Based on the above observations, potential founding systems may comprise shallow pad/strip footings along the western footprint and under the proposed office and deeper piled footings along the eastern footprint. Any pavement to be constructed over landfill waste is expected to require subgrade improvement works to ensure adequate long term pavement performance and to enable fill placement.

7.10 Landfill Gas Management

Landfill gas (LFG) is a natural by-product of decomposition of organic material in landfills and can present a human health risk is not monitored and managed appropriately. A Hazardous Ground Gas Risk Assessment has been prepared for the site and is provided at **Appendix L**.

7.10.1 Existing Site Infrastructure

It is understood that there is no gas collection system installed at the GWMC and LFG is passively vented through cover material into the atmosphere. The GWMC Masterplan (Resource Innovations, 2017) provides an overview of future landfill cell development; however, details are not yet available on any detailed LFG management measures. The extent of existing and future waste fill that will influence the potential for LFG is not clearly understood as no detailed engineering plans or historic surveys are available.

7.10.2 Existing Licencing

Section 2 (P1.1) of PEL 6780 stipulates that LFG surface gas monitoring should be undertaken every six months across areas where intermediate or final cover has been placed as well as inside all buildings within 250m of deposited waste. LFG monitoring is undertaken at the site to detect any surface gas emissions through the cover/capping materials in accordance with EPL 6780 and the *Environmental Guidelines: Solid Waste Guidelines* (Second Edition) (EPA, 2016).

LFG monitoring undertaken by Council a 6 monthly basis indicates that LFG was not detected above the threshold level for further investigation and corrective action of 500 parts per million (volume/volume) of methane at any point on the landfill surface for intermediate and finally capped areas.

7.10.3 Mitigation Measures

Although not considered a significant risk based on historical LFG monitoring results, the proposed development design has considered any potential migration and accumulation of LFG and appropriate measures will be implemented to address any risks.

Section 5.2 of the *Environmental Guidelines* (EPA, 2016) recommends a suitable methodology for LFG surface gas monitoring over deposited waste and within buildings, which includes:

- *Methane should be tested in the atmosphere 5 centimetres above the landfill surface in areas with intermediate or final cover/capping. Testing should be conducted in a grid pattern across the landfill surface at 25 metre spacing's. depressions in the cover material, or surface fissures away from the sampling grid, should also be investigated. The monitoring should be performed on calm days (winds below 10 kilometres/hour) and preferably during periods of relatively low and stable atmospheric pressure (e.g. less than 101.3 kPa).*
- *Surface gas emissions monitoring should be done on a monthly frequency, or as varied by the EPA on the basis of site assessment or monitoring results indicating that LFG does not pose an environmental risk.*
- *The LFG monitoring device should be capable of detecting methane gas in sufficiently low concentrations to ensure confidence in the results. For surface gas monitoring, this level is 20 parts per million. The device should be properly zeroed and calibrated according to the manufacturer's instructions before any measurements are made. A flame ionisation detector is usually used for this purpose.*

7.11 Visual Character

7.11.1 Overview

The existing visual character of the site and surrounds is defined as a rural landscape with large areas of open space and scattered pockets of vegetation. The site itself is located within the existing GWMC within the SP2 land use zone.

Surrounding land use zones include *B6 – Enterprise Corridor* to north-east, *RE1 – Public Recreation* and *E2 – Environmental Conservation* to the south, *RU6 – Transition* to the west. Minimal residential dwellings are located within these zones and the potential visual impact of the proposal is low.

The closest residential receivers to the site are located approximately 370m to the north-west. The existing GWMC is located immediately north. The low-rise nature of the development and continuation of the existing use of the site ensures that the visual character of the area will remain unchanged. Consequently, visual amenity is not a constraint.

It is not expected that the proposal will impact on the visual character of the area and the visual amenity of the surrounding area.

7.11.2 Mitigation Measures

No impact, therefore no mitigation measures required.

7.12 Construction and Waste

7.12.1 Overview

There will be temporary impacts during the construction of the development on site, namely additional traffic and noise generation. The rural location of the site, remote from sensitive receivers, along with the ease of access to Sydney Road and the regional road network via St Clair and Common Streets ensures that impacts will be limited. However, mitigation is proposed to limit these impacts as far as practicable.

7.12.2 Mitigation Measures

The following mitigation measures are proposed to minimise the impacts associated with the construction of the proposal:

- Use of sediment controls in accordance with the *Landcom Blue Book: Managing Urban Stormwater Soils and Construction 2004* to ensure sediment laden runoff does not occur during construction.
- The hours of construction are to be in accordance with Council's standard construction hours.
- Prior to works commencing, advise adjoining landowners of the works program and provide contractors details should any concerns need to be raised during works.
- An unexpected finds protocol should be included in the CEMP to ensure that any contamination or ACM identified during construction is managed and/or removed by a licensed contractor in accordance with *SafeWork NSW Guidelines*.
- Any asbestos materials to be disturbed or removed during demolition or construction works must be safely handled and disposed of by an appropriately qualified contractor to a licensed waste receiving facility.
- All reasonable, practicable steps are to be undertaken to reduce noise and vibration.
- Advise neighbouring properties of any instances of reduced site access, the associated timeframe and alternative routes in writing prior to works.
- Construction noise is to be attenuated with the use of screening, acoustic enclosures, engine silencing and substitution by alternative processes to reduce noise emission levels from typical construction equipment.

Further details on the proposed management of waste and the recovery of materials during construction is provided in the Resource Recovery Management Plan provided in **Appendix P**.

In addition, the contractor will prepare a Construction Environmental Management Plan (CEMP), which will be required to adequately identify and mitigate against impacts arising from construction works. The CEMP will be provided to Council prior to the issue of a Construction Certificate and will be supported through any final management measures within conditions of consent. It is envisaged that the CEMP will cover the following, as a minimum:

- Erosion and sediment control measures.
- Work Health and Safety measures (including any specific requirements for asbestos handling and disposal).
- Traffic Management Plans.
- Noise Control measures
- Waste management measures.

Overall, the construction impacts of the development are not expected to be negatively impact upon the environment, subject to the implementation of the above mitigation measures.

8 Conclusion

Cardno has prepared this SEE on behalf of Goulburn Mulwaree Council to accompany a DA seeking consent for the new RUG project at the existing GWMC at 100 Sinclair Street, Goulburn. The proposal comprises a high quality combination of structures and landscaped areas that provide for the public and operational staff to work together in.

The subject land is identified as Bushfire Prone Land Category 2 vegetation with buffer. As such, a Bushfire Impact Assessment has been prepared that determined that the proposal is suitable for the site, subject to the implementation of mitigation measures.

The environmental assessments contained in Section 7 demonstrate that the proposed development will have minimal impacts on threatened flora and fauna species. The development will directly impact on 0.36 ha of native vegetation consisting of Western Tablelands Dry Forest in a modified condition and scattered trees. However, this is a small portion of the retained vegetation in the locality and is considered to have minimal impacts on fauna habitat potential. There is a low potential for contamination on the site.

Impacts to Aboriginal and European heritage items are not anticipated, however, in the unlikely event that a heritage item is discovered on site, the appropriate unexpected finds management protocol will be implemented to mitigate any adverse impacts to heritage items.

Traffic impacts of the proposed development were assessed in a TIA that analysed the combined traffic impacts of the RUG Project and Drill Mud Processing Facility. The TIA determined that traffic generation from both of the proposed developments is minimal and not expected to have unacceptable traffic implications to the existing road network. Proposed mitigation measure of line markings to Common Road at the Sydney Road intersection has been proposed to enhance the safety of the roadway.

A WCMS has been prepared to assess the impacts of the proposed development on water quality. The assessment demonstrates that the proposal will have a neutral or beneficial effect on water quality subject to implementation of the measures recommended.

Overall, the proposed development is considered consistent with the controls and objectives of the SP2 – *Infrastructure* zoning placed on the site by the LEP, and is consistent with the relevant objectives of the DCP.

9 References

Cardno (2018a) Traffic Impact Assessment

Cardno (2018b), Contamination Assessment

Ecoplanning (2019) Flora and Fauna Assessment

Goulburn Mulwaree Council (2009), Goulburn Mulwaree Development Control Plan 2009

Goulburn Mulwaree Council (2009), Goulburn Mulwaree Local Environmental Plan 2009

NSW Government (1979), Environmental Planning and Assessment Act 1979

NSW Government (1993), Roads Act 1993

NSW Government (1997), Rural Fires Act 1997

NSW Government (2016), Biodiversity Conservation Act 2016

NSW Government (2000), Environmental Planning and Assessment Regulation 2000

NSW Government (2000a), Water Management Act 2000

Pejar LALC (2018) Heritage Impact Assessment

Peterson Bushfire (2018) Bushfire Impact Assessment

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

State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No 64 – Advertising and Signage

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

Re-Use Goulburn

APPENDIX A

PRE-LODGEMENT MEETING NOTES

Cardno
Shaping the Future

Minutes of Pre-Lodgement Meeting

Date: Thursday 16 August 2018 **Time:** 10am
Council Reference Doc #1060432

Proposal:	New Re-Use Goulburn Facilities at the Goulburn Waste Management Centre.
Site Address:	100 Sinclair Street, Goulburn
	Lot 1 of DP 1064103 and Lot 265 DP 750050
Zone:	SP2 Infrastructure (and part E2 Environmental Conservation)
Concept:	Submitted concept plans #1057296
Attendees:	Robert Kempton, Cardno Kaeley Draper , Town Planner, Cardno Stephanie Mowle, Acting Business Manager Planning & Strategic Outcomes Dianne James, Senior Development Assessment Officer Chris Hargood, Senior Development Assessment Officer Jane Wray, Development Liaison Officer Glenn Walker, Team Leader Building Surveying Marina Hollands, Director Utilities Teena Riley, Business Manager Waste & Recycling Jason Adams, Acting Business Manager Water Operations Mathew Jones, Acting Business Manager Infrastructure Anthony Dorsett, Water Quality Officer

1 Overview

The aim of this pre-lodgement meeting is to assist you and your client through the Development Application process, we seek to clarify and strengthen the application and identified items before lodgement as this will assist the timeframe and submission issues.

1.1. Proposed new Re-use Facility at Goulburn Waste Management Centre, comprising of a new resource recovery shed, new re-use hub and replacement of existing truck wash.

1.2. Resource recovery shed to include Community Recycling Centre (CRC), large item drop off and education centre.

1.3. Timeline proposed is to lodge DA by end of year 2018 and proposing construction to commence at end of this Financial Year 2019 pending approval process.

Zone SP2 Infrastructure

1 Objectives of zone

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

2 Permitted without consent

Roads

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

4 Prohibited

Any development not specified in item 2 or 3

2 Utilities – Mathew Jones and Jason Adams

2.1. Water

2.1.1. Services are located at the proposed location for development, Water meter may require relocation to allow for new construction.

2.1.2. Back flow preventions will be required in the form of an RPZD downstream of the meter set.

2.2. Sewer

2.2.1. Sewer connection is currently located at the front of the current facility and will be the point of discharge.

2.3. Contributions

2.3.1. A S305 will be required and contributions will depend on plans submitted.

2.4. Truck wash

2.4.1. Existing concrete truck wash structure to be demolished. Two concepts proposed for truck wash replacement in the planning stages.

2.4.2. Leachate system is proposed to deal with waste water and disposal, discharge from the leachate system to sewer will not be permitted. If the truck wash waste is to be discharged to sewer the truck wash area will need to be bunded and covered with an appropriate roof to prevent the ingress of stormwater. Application needs to clearly define how the waste water will be treated. If disposed via sewer, a Liquid Trade Waste and additional documents will be required.

3 Building Surveying – Glenn Walker

3.1 BCA Requirement

3.1.1 Buildings with a floor area >2000m^2 are deemed Large Isolated Building.

3.1.2 Preliminary BCA reporting required at DA stage to support design at CC stage.

4 Engineering – Ian Aldridge (to be supplied by note)

4.1 Traffic

4.1.1 Common Street identified as a roundabout – Just outside the contribution area for Common Street

4.1.2 Internal roads, car parking and manoeuvring areas shall be sealed and designed in accordance with Council's Engineering Standards.

5 Planning – Dianne James

5.1 Definition

The development is required to be categorised in accordance with the standard definitions. Is the development for a Waste or Resource Management Facility and Transfer Station?

Resource recovery facility means a building or place used for the recovery of resources from waste, including works or activities such as separating and sorting, processing or treating the

waste, composting, temporary storage, transfer or sale of recovered resources, energy generation from gases and water treatment, but not including re-manufacture or disposal of the material by landfill or incineration.

Note. Resource recovery facilities are a type of waste or resource management facility—see the definition of that term in this Dictionary.

Waste disposal facility means a building or place used for the disposal of waste by landfill, incineration or other means, including such works or activities as recycling, resource recovery and other resource management activities, energy generation from gases, leachate management, odour control and the winning of extractive material to generate a void for disposal of waste or to cover waste after its disposal.

Note. Waste disposal facilities are a type of waste or resource management facility—see the definition of that term in this Dictionary.

Waste or resource management facility means any of the following:

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

waste or resource transfer station means a building or place used for the collection and transfer of waste material or resources, including the receipt, sorting, compacting, temporary storage and distribution of waste or resources and the loading or unloading of waste or resources onto or from road or rail transport.

Note. Waste or resource transfer stations are a type of waste or resource management facility—see the definition of that term in this Dictionary.

5.2 Designated Development

Is the proposal designated development under clause 32 of Schedule 3 to the *Environmental Planning and Assessment Regulation 2000* or excluded under Part 2 to Schedule 3 to the *Environmental Planning and Assessment Regulation 2000?*
Please justify: https://www.legislation.nsw.gov.au/#/view/regulation/2000/557/sch3

Extract from Schedule 3, Clause 32:

32 Waste management facilities or works

(1) Waste management facilities or works that store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste and:
(a) that dispose (by landfilling, incinerating, storing, placing or other means) of solid or liquid waste:
(i) that includes any substance classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that comprises more than 100,000 tonnes of "clean fill" (such as soil, sand, gravel, bricks or other excavated or hard material) in a manner that, in the opinion of the consent authority, is likely to cause significant impacts on drainage or flooding, or
(iii) that comprises more than 1,000 tonnes per year of sludge or effluent, or
(iv) that comprises more than 200 tonnes per year of other waste material, or
(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:
(i) that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or
(ii) that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or
(iii) that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or
(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or
(d) that are located:
(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally sensitive area, or
(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or
(iii) within a drinking water catchment, or
(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or
(v) on a floodplain, or
(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.
(2) This clause does not apply to:
(a) development comprising or involving any use of sludge or effluent if:
(i) the dominant purpose is not waste disposal, and
(ii) the development is carried out in a location other than one listed in subclause (1) (d), above, or
(b) development comprising or involving waste management facilities or works specifically referred to elsewhere in this Schedule, or
(c) development for which State Environmental Planning Policy No 52—Farm Dams and Other Works in Land and Water Management Plan Areas

Extract from Schedule 3 Part 2:

Part 2 Are alterations or additions designated development?

35 Is there a significant increase in the environmental impacts of the total development?

Development involving alterations or additions to development (whether existing or approved) is not designated development if, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development.

Note. Development referred to in this clause is not designated development for the purposes of section 4.10 of the Act. This means that section 8.8 of the Act (Appeal by an objector) will not extend to any such development even if it is State significant development.

36 Factors to be taken into consideration

In forming its opinion as to whether or not development is designated development, a consent authority is to consider:

(a) the impact of the existing development having regard to factors including:
(i) previous environmental management performance, including compliance with the conditions of any consents, licences, leases or authorisations by a public authority and compliance with any relevant codes of practice, and
(ii) rehabilitation or restoration of any disturbed land, and
(iii) the number and nature of all past changes and their cumulative effects, and
(b) the likely impact of the proposed alterations or additions having regard to factors including:
(i) the scale, character or nature of the proposal in relation to the development, and
(ii) the existing vegetation, air, noise and water quality, scenic character and special features of the land on which the development is or is to be carried out and the surrounding locality, and
(iii) the degree to which the potential environmental impacts can be predicted with adequate certainty, and
(iv) the capacity of the receiving environment to accommodate changes in environmental impacts, and
(c) any proposals:
(i) to mitigate the environmental impacts and manage any residual risk, and
(ii) to facilitate compliance with relevant standards, codes of practice or guidelines published by the Department or other public authorities.

5.3 Owners consent

5.3.1 265//750050 is identified as Crown Land. If so any proposed use must be consistent with current Plan of Management (POM). Land Owners Consent documentation from the Department of Industry – Lands & Water (i.e. DOI are the legal owners of this Crown Reserve) to accompany the DA. Any Native title is to be extinguished. Further details may be obtained from Council's Manager Land and Property Services, Ken Wheeldon who is Council's contact concerning crown land implications.

5.3.2 1//1064103 does not appear to be crown land but GMC owned. This was confirmed at the meeting.

5.4 Design

5.4.1 Development is $4 million, will require quantity cost summary report.

5.4.2 Description of development and what is proposed to occur on site including processes (steps in receiving, processing and transporting) and volumes of different waste categories. Would be useful to show existing processes and proposed processes.

5.4.3 Any staging of development or construction proposed? – if yes, please note this at time of lodgement.

5.4.4 Noise Impact to be considered with the application with distance to nearest sensitive receivers, different types of machinery and any measures to minimise impact.

5.5 Parking & Traffic

5.5.1 Traffic Assessment required – refer below to Infrastructure SEPP Traffic Generating Development requirements.

5.6 Agencies

5.6.1 Water NSW concurrence

5.6.2 NSW Health referral

5.6.3 Office of Environment and Heritage referral (EPA and potentially OEH)

5.6.4 Roads and Maritime Services referral

5.6.5 Rural Fire Services

5.6.6 Pejar Local Aboriginal Lands Council

5.7 State Environmental Planning Policies

5.7.1 Sydney Drinking Water Catchment SEPP – Commercial/Industrial will require NorBE assessment and MUSIC Modelling at time of DA lodgement for management of leachate and stormwater. Concurrence from Water NSW will also be required – contact Jim Caddey at Water NSW. Environmental.Assessments@WaterNSW.com.au Best Practice Guide available on their website

5.7.2 Infrastructure SEPP 2007
https://www.legislation.nsw.gov.au/#/view/EPI/2007/641/part3/div23 –
Schedule 3 Traffic Generating Development require RMS referral. Matters for consideration include existing traffic movements and likely traffic types and numbers.

Also please address:

123 Determination of development applications

(1) In determining a development application for development for the purpose of the construction, operation or maintenance of a landfill for the disposal of waste, including putrescible waste, the consent authority must take the following matters into consideration:

(a) whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill, and

(b) whether the development:

(i) adopts best practice landfill design and operation, and

(ii) reduces the long term impacts of the disposal of waste, such as greenhouse gas emissions or the offsite impact of odours, by maximising landfill gas capture and energy recovery, and

(c) if the development relates to a new or expanded landfill:

(i) whether the land on which the development is located is degraded land such as a disused mine site, and

(ii) whether the development is located so as to avoid land use conflicts, including whether it is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time, and

(d) whether transport links to the landfill are optimised to reduce the environmental and social impacts associated with transporting waste to the landfill.

5.7.3 State and Regional Development 2011 SEPP – Schedule 7, potential for JRPP as determining authority https://www.legislation.nsw.gov.au/#/view/EPI/2011/511/sch7 as

3. Council related development over $5 million

Development that has a capital investment value of more than $5 million if:

(a) a council for the area in which the development is to be carried out is the applicant for development consent, or

(b) the council is the owner of any land on which the development is to be carried out, or

(c) the development is to be carried out by the council, or

(d) the council is a party to any agreement or arrangement relating to the development (other than any agreement or arrangement entered into under the Act or for the purposes of the payment of contributions by a person other than the council).

7 Particular designated development

Development for the purposes of:

(c) Waste management facilities or works, which meet the requirements for designated development under clause 32 of Schedule 3 to the Environmental Planning and Assessment Regulation 2000.

5.7.4 Hazardous and Offensive Development SEPP 33 https://www.legislation.nsw.gov.au/#/view/EPI/1992/129 consideration must be given to current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development. The Statement of environmental Effects is required to assess the controls and advise how they are or are not applicable.

5.7.5 Does the proposed development fall within "Scheduled Activity" under *Protection of the Environment Operations Act* (POEO) and therefore a Licence from EPA is required? OR does current EPA licence require amendment?

34 Resource recovery

(1) This clause applies to the following activities:

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

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

recovery of waste oil, meaning the receiving of waste oil from off site and its processing, otherwise than for the recovery of energy.

recovery of waste tyres, meaning the receiving of waste tyres from off site and their processing, otherwise than for the recovery of energy.

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

(a) contaminated soil,

(b) contaminated groundwater,

(c) sewage within a sewage treatment system (whether or not that system is licensed).

(2A) This clause also does not apply to the receiving of waste at premises from off site and its processing if:

(a) the waste is to be sold or supplied from those premises as landscaping material (that is, as lawful soil amendments or for landscape gardening) and nothing else occurs in respect of the waste at the premises other than blending, mixing, packaging or storage of the waste for the purpose of that sale or supply, and

(b) the waste is virgin excavated natural material or meets all of the conditions of a resource recovery order (made under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014) at the time it is received, and

(c) the waste does not include any liquid waste or biosolids that are not general solid waste (non-putrescible), and

(d) no other activity is carried out at the premises that would result in the premises being a scheduled waste facility within the meaning of the Protection of the Environment Operations (Waste) Regulation 2014.

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

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

(b) either:

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

(ii) an exemption granted under Part 9 of the Protection of the Environment Operations (Waste) Regulation 2014 exempts the person carrying out the activity from the requirements of section 48 (2) as they apply to waste disposal (application to land), waste disposal (thermal treatment), waste processing (non-thermal treatment) and waste storage.

Table

Column 1	*Column 2*
Activity	*Criteria*
recovery of general waste	*if the premises are in the regulated area:* *(a) involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres of waste, or* *(b) involves processing more than 6,000 tonnes of waste per year* *if the premises are outside the regulated area:* *(a) involves having on site at any time more than*

	2,500 tonnes or 2,500 cubic metres of waste, or *(b) involves processing more than 12,000 tonnes of waste per year*
recovery of hazardous and other waste	*involves having on site at any time more than 200 kilograms of waste*
recovery of waste oil	*involves processing more than 20 tonnes of waste oil per year or having on site at any time more than 2,000 litres of waste oil*
recovery of waste tyres	*involves having on site at any time (other than in or on a vehicle used to transport the tyres to or from the premises) more than 5 tonnes of waste tyres or 500 waste tyres, or* *involves processing more than 5,000 tonnes of waste tyres per year*

5.7.6 Vegetation in Non-Rural Areas SEPP and Biodiversity Conservation Act. Flora and Fauna Assessment required at time of lodgement. The land not mapped on Biodiversity Value Map and there is no Minimum Lot Size (MLS) for the land under Goulburn Mulwaree Local Environmental Plan 2009.
- Where there is no MLS, the calculation is based on the actual lot size in question to be cleared. Lot 1//1064103 area 7.2ha ->0.5ha clearing triggers requirement for Biodiversity Development Assessment Report. Lot 265//750050 no details on Councils software, Refer to Table on thresholds below:

Area clearing threshold

The area threshold varies depending on the minimum lot size (shown in the Lot Size Maps made under the relevant Council Local Environmental Plan (LEP)), or actual lot size if the LEP does not specify a minimum lot size for the land.

Minimum lot size associated with the property	Threshold area for clearing, above which the BAM and offsets scheme applies
Less than 1 hectare	0.25 hectare or more
1 hectare to less than 40 hectare	0.5 hectare or more
40 hectare to less than 1000 hectare	1 hectare or more
1000 hectare ore more	2 hectare or more

Where the clearing of native vegetation areas are exceeded then applicants must seek the services of an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) using

the Biodiversity Assessment Method (BAM) and the Development Application must be submitted with the BDAR.

A list of accredited assessors can be found on
https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor

The DA shall include a statement as to whether the proposal is likely to significantly affect threatened species, populations of their habitats (test of significance) and whether the Biodiversity Offsets Scheme has been triggered.

There are a number of key websites with useful information, including:

Biodiversity Assessment & Approvals Decision Support Tool – this takes you through some questions to determine which pathway to go down if there is clearing involved with a DA or someone wants to clear vegetation on their land

www.olg.nsw.gov.au/biodiversity-assessment-and-approvals-navigator

Biodiversity Offsets Scheme Entry Requirements – this is a great page that provides an overview of the scheme and links to further information + provides a link to the User Guide for the Biodiversity Values Map below which tells you how to search properties etc.

www.environment.nsw.gov.au/biodiversity/entryrequirements.htm

Biodiversity Values Map – this is the map that identifies areas where the Biodiversity Offset Scheme applies (and additional info is required for DAs)
https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap

5.8 LEP
Development not within Terrestrial Biodiversity layer – despite vegetation on the land.

5.9 DCP
https://www.goulburn.nsw.gov.au/Planning-Information/Goulburn-Mulwaree-Development-Control-Plan-2009.aspx

5.9.1 It is likely that the DA will require notification. A summary in plain English is deemed very useful for the notification and advertising process for ease of understanding with the general public.

5.9.2 Clause 3.2 - Land is identified as Potential for Aboriginal Cultural Heritage on Development Control Plan (DCP) map. Consultation with Pejar Local Land Council is recommended, Contact Delise Freeman Pejar1@bigpond.com

5.9.3 Clause 3.3 - Landscape plans required to be provided on lodgement of the DA.

5.9.4 Clause 3.7.1.2 - *Native Vegetation Act* is now replaced by Biodiversity Conservation Act 2016 reforms and a Test of Significance as detailed in S7.3 of the *Biodiversity Conservation Act 2016* must be used to determine whether a local development is likely to significantly affect threatened species or endangered ecological communities.

5.9.5 Clause 3.4 Vehicular Access and Parking including Disability standards for access

5.9.6 Clause 3.5 Crime Prevention Through Environmental Design

5.9.7 Clause 3.7 Tree and Vegetation Preservation – see Biodiversity response for further information

5.9.8 Clause 3.9 Waterbody and wetland protection - biodiversity management

5.9.9 Clause 3.13 Stormwater pollution prevention
5.9.10 Clause 3.14 Bushfire Risk Management, assessment required
5.9.11 Clause 4.2 Non-residential Development - Industrial
5.9.12 Clause 6.4 Signage provides guidance for advertising and signage
5.9.13 Noted that Draft DCP correcting matters is currently on exhibition and since the meeting has come into effect and is on the council web site.

5.10 Contributions

5.10.1 The Waste Management Facility land is located outside the traffic zone for Common St s94 Contribution Plan area (now s7.11 Contributions), however the traffic route generated is within the s94 Contribution Plan area.
5.10.2 Council will need to review the Contribution Plan to determine whether the s94 Plan applies or whether the s94A Contribution Plan (s7.12 Contributions) applies.
5.10.3 If S94A (7.12) contributions apply payment at 1% of cost of development applies

6 Post Meeting Advice

A completed Development Application form is required for all applications with written consent of all owners. Where a company owns the land then all signatories are to sign and state their positions in the company. The application will be accompanied with the following documentation, and will include 3 copies of each and one electronic copy:

- Statement of Environmental Effects (SEE) detailing the characteristics of the site and providing an assessment of the proposed development in accordance with the matters for consideration under Section 4.15 of the *Environmental Planning and Assessment Act 1979* including detailing compliance with the relevant State Environmental Planning Policies, the Goulburn Mulwaree Local Environmental (LEP) Plan and Goulburn Mulwaree Development Control Plan (DCP) shall accompany the application.
- Site analysis plan including existing buildings, trees and contours neighbouring properties and location of nearest dwellings (sensitive receivers)
- Site plan including any tree/vegetation removal
- Area of clearing of native vegetation (including access, services, APZ etc.)
- Demolition plan
- Cut and fill plan with existing and finished ground levels
- Floor plan with different uses of rooms identified
- Elevations including colours and materials
- Trade Waste details and truck wash plans
- Sections
- Landscape and fencing plan (and lighting when proposed)
- Concept Stormwater plan including details to satisfy NorBE and the requirements of WaterNSW including a Water Cycle Management Study
- Internal roads, loading and unloading areas, car parking and manoeuvring areas
- Details of proposed signage with dimensions, wording, colours and materials
- Machinery and equipment (any crushing? sorting? etc)

- No of staff existing and additional staff numbers
- Hazardous materials (including quantities) and measures to mitigate any potential impacts of delivery of these materials
- Aboriginal Cultural Heritage Assessment
- Bushfire Assessment Report
- Traffic Assessment
- Will the proposed clearing of native vegetation trigger the NSW Biodiversity Offset Scheme and require the preparation of a Biodiversity Development Assessment Report prepared by an accredited person under the *Biodiversity Conservation Act 2016*. If not, will the proposal require to removal of native vegetation. If so, a Flora and Fauna Test of Significance as detailed in S7.3 of the *Biodiversity Conservation Act 2016* is required to determine whether a local development is likely to significantly affect threatened species or endangered ecological communities.
- Noise Assessment or details of likely noise and measures to mitigate any impacts
- Referral – Water NSW, EPA, NSW Health, Office OEH depending on veg and potential for Aboriginal Cultural Heritage, RMS and RFS are flagged for referral.

Conclusion

The Development Application must be accompanied with all the requirements within this pre-lodgement advice, to alleviate time delays when the Development Application (DA) is lodged.

7 Disclaimer

The above preliminary advice is provided based on the information supplied to Council for the pre-lodgement meeting and therefore the advice provided is not exhaustive. The advice is provided to address technical issues that will assist in the preparation of the development application. Other issues may arise following the lodgement and merit assessment of the development application.

In so far as the advice is substantially based on information supplied to GMC by the owner, occupier or its agent, and easily obtainable Council records, GMC does not accept any responsibility for the correctness of that information; therefore additional issues/details may arise during the assessment of the application. Pre DA meeting advice is often provided prior to an inspection of the site which may also identify further issues and information.

This advice shall not be construed as support or otherwise for the proposal as a full assessment can only be made following lodgement of the development application. It is the applicant's responsibility to ensure that all relevant documentation is provided to support the development application.

Any purchaser/developer or user of the subject site must satisfy themselves that the site is suitable for the purposes that are proposed for the site.

Goulburn Mulwaree Council
Locked Bag 22
Goulburn NSW 2580

Civic Centre
184 - 194 Bourke Street
Goulburn NSW 2580
t (02) 4823 4444
e council@goulburn.nsw.gov.au
www.goulburn.nsw.gov.au

Minutes of Pre-Lodgement Meeting

for

100 Sinclair Street, Goulburn

28th August 2019

ref 1172307

DEVELOPMENT LIAISON TEAM

planningenquiries@goulburn.nsw.gov.au

Proposal: Alterations and additions to the Existing Waste Disposal Facility
Re-Use Goulburn – Goulburn Waste Management Facility

Site Address: 100 Sinclair Street, Goulburn
Lot 1 DP 1064103 & Lot 265 DP 750050

Zone: SP2 Infrastructure

Concept: Submitted concept plans #1170018

Attendees: Dialina Day, Senior Development Assessment Officer
Alana Harmer, Acting Team Leader Building Surveying
Ian Aldridge, Development Engineer
Mathew Jones, Business Manager Infrastructure
Trevor Sultana, Infrastructure & Development Engineer
Hayley Chapman, Development Liaison Officer

Applicant(s): Marina Hollands, Director Utilities
Teena Riley, Business Manager Waste & Recycling
Robert Kempton, Project Manager
Kayley Draper, Town Planner

Cost of Works: Approx. $7.2m

Abbreviations

Certain words and expressions are abbreviated as follows:-

Building Code of Australia – "*BCA*"
Environmental Planning and Assessment Act 1979 – "*EP&A Act 1979*"
Goulburn Mulwaree Local Environmental Plan 2009 – "*GMCLEP 2009*"
Goulburn Mulwaree Development Control Plan 2009 – "*GMCDCP 2009*"
Heritage Impact Assessment – "*HIA*"
State Environmental Planning Policy – "*SEPP*"
Statement of Environmental Effects – "*SoEE*"

1 Overview

The aim of this pre-lodgement meeting is to provide assistance with the development application process, by clarifying, strengthening the application and where possible identifying matters of concern before lodgement, as this will assist with processing the application and any matters raised through receipt of a submission.

1.1 Council is intended to be the applicant for the Development Application, with Teena Riley being the main contact.

1.2 Robert explained the project in context with the Phase 2 Site Fly Through (doc #1171252) which covered the following items:

- Clearing of the area near the entrance (left hand side) to construct the re-use hub. This appears to be a good opportunity to make revenue.

- The re-use hub will consist of white goods and other materials that can be re-used safely. As well as a drop off area, light vehicle and bus parking areas.
- Existing Weigh Bridge office has moved to the rear of the site.
- Weigh Bridge will incorporate a new access control system. With the operational area being able to operate the Weigh Bridge.
- Upgrade onsite stormwater management.
- The new resource recovery shed will allow for vehicles to drive through the bays and drop off waste as applicable to the bays. The first bays within the shed are for hazardous and toxic waste which is funded by NSW EPA.
- There will be a bulky goods collection area.
- New hydraulic waste bins to be installed in the bays located further in the shed for general waste.
- Council vehicle area will be located within the existing site workshop and site buildings.
- New visitor and bus parking to be allocated near the existing site buildings.
- New site office, amenities and educational facilities will be located on the other side (left hand side) of the resource recovery shed.
- New exit Weigh Bridge to be installed, which weighs the amount of rubbish that was dumped. This is where the public pays the tip fees and the gatehouse staff are located.

1.3 A previous pre-lodgement has occurred in the past, this information is building upon pre-existing advice.

2 Waste Services – Hannah Cotton (provided by note)

2.1 GMC Waste Management Guidelines for Developers is available from Council's website: https://www.goulburn.nsw.gov.au/Engineering-Master-List/Waste-Management.aspx

3 Utilities – Mathew Jones & Trevor Sultana

3.1 Water

3.1.1 On-site water pressure may not be sufficient and may require onsite tanks and pumps.

3.1.2 The development will need to comply with Councils water meter policy. The meter needs to be located inside the boundary, near the boundary of the proposed HUB.

3.1.3 Water main is required to be looped at the entrance of the site as part of the works.

3.1.4 A separate fire service will be required for the site, as well as a domestic water supply. Separate tanks are required for each water service. Fire service will also require backflow as per Council's Backlfow Prevention policy

3.2 Sewer

3.2.1 Runs straight through the site

3.2.2 Discharge point will be at the boundary of the hub

3.2.3 Ensure fall for sewer is okay for the new amenities

3.3 Contributions

3.3.1 A more detailed design will be required to calculate the 305 application fee and s64 contributions.

4 Building Surveying – Alana Harmer

4.1 Building Code of Australia Requirement

4.1.1 Ensure it complies with the BCA/NCC.

4.1.2 Services plan to be submitted, hose reels, fire hydrants locations etc

4.1.3 Advice is the same as the previous pre-lodgement.

5 Engineering – Ian Aldridge

5.1 Stormwater

5.1.1 Looks satisfactory. May require WaterNSW concurrence

5.2 Access/Traffic

5.2.1 Internal works are satisfactory, including pavement design.

5.3 Contributions

5.3.1 S64 stormwater contributions are not applicable, since no impact on Council infrastructure.

5.3.2 This site is outside the Common Street S94 roads/traffic zone, so no s94 contributions applicable. For information, Council has received a grant to upgrade the Common Street and Sydney Road area

5.3.3 Previous approval for drill mud a cumulative impact is covered under the traffic impact assessment which outlines what the assumed number of vehicles would be

5.4 Engineering Standards

Councils standards for engineering works is available via:
https://www.goulburn.nsw.gov.au/Development/Plans-Strategies#section-5

6 Planning – Dialina Day

6.1 Land Use

Zone SP2 Infrastructure

1 Objectives of zone

• To provide for infrastructure and related uses.

• To prevent development that is not compatible with or that may detract from the provision of infrastructure.

2 Permitted without consent

Roads

3 Permitted with consent

Aquaculture; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

4 Prohibited

Any development not specified in item 2 or 3

6.2 Design

6.2.1 All advice is provided additional to the previous pre-lodgement meeting advice. The DA must ensure that all requirements are satisfied.

6.2.2 Please ensure a Quantity Surveyor's Detailed Cost Report is submitted with the DA. The cost report must be completed by a Registered Quantity cost surveyor.

6.2.3 As the development proposal is Council related development over $5 million, the application will be referred to the Joint Regional Planning Panel (JRPP) for final determination.

6.2.4 Conceptual plans of the development proposal (to scale) will be required to support the application which will enable Council to explain the proposal to any agencies, the general public and the JRPP. Please ensure that the proposed building elevations show existing ground level and any proposed cut and fill.

6.2.5 The 3D design is good for the public, however Council/JRPP cannot approve a 3D design. This is for visual display purposes only.

6.2.6 Please ensure the plans that detail proposed signage (particularly proposed traffic signage) can be easily interpreted. A legend with each proposed signage type would be easier to read as opposed to detailing the location of the signs on the plan that are on different angles (e.g. see dwg No. 8201825301-DRG-CI-1501 Rev 3).

6.2.7 Please detail in the SEE the types of vehicles that will utilise the site as a result of the proposed development.

6.2.8 The SEE mentions some operational details although it is not clear whether these are current or as a result of the proposed development. Please clarify this in the SEE.

6.2.9 Please provide specific operational aspects for the proposed development, e.g. the educational area, e.g. will this generate different groups of people that don't currently visit the site? up to how many people to will attend, if this operation will employ more staff, car parking demand, etc.

6.2.10 The SEE to discuss how the RUG will operate, e.g. the materials being sold within the re-use HUB as well as how it is ancillary to the overall development, etc.

6.2.11 Information on how aspects of the development proposal will operate, e.g. the tip wells, new weigh bridge, etc.

6.2.12 If the development proposal will be carried out in stages, please detail how the staging will be carried out. How will the site operate while each stage is to be built. Please detail in the SEE.

6.2.13 JRPP timeframe cannot be guaranteed however depending on when the application is lodged it will take at least 3 months to progress the application to the JRPP for determination. If there are deadlines in which the application must be determined please detail in the application.

6.2.14 Please clarify whether or not the Environment Protection Licence is being altered under this development proposal. If it is being altered the proposal will require approval form the EPA.

6.2.15 Please clearly indicate on the proposed plans the location of proposed unsealed and sealed roads.

6.2.16 Please address the cumulative traffic impacts of the proposed development in the SEE and traffic assessment, given the recently approved Drill Mud Processing Facility and its potential operation at full capacity. Please justify in the SEE and traffic assessment if the development proposal warrants the road network from the site to Sydney Road to be upgraded as a result of the proposed development.

6.2.17 Referral agencies may request more information which cannot be covered in this meeting.

6.3 Crown Land

6.3.1 Owners consent is required from the Crown should any development be proposed on the Crown Land.

6.4 Vegetation & Landscaping

6.4.1 The site is not currently located on the Biodiversity Values Map (please review as you are preparing information to support your application as these maps may be revised periodically).

6.4.2 The DA shall include a statement as to whether the proposal is likely to significantly affect threatened species, populations of their habitats (test of significance detailed in section 7.3 of the Biodiversity Conservation Act 2016) and whether the Biodiversity Offsets Scheme has been triggered.

6.4.3 Proponents will need to supply evidence relating to the triggers for the Biodiversity Offsets Scheme Threshold and the test of significance when submitting their application to the consent authority.

6.4.4 If the area of clearing for the proposal exceeds the thresholds set out in the *Biodiversity Conservation Regulation 2007* then the application will require an accredited ecologist to prepare a Biodiversity Development Assessment Report under the Biodiversity Conservation Act reforms.

6.4.5 Area of clearing to be calculated for the whole development includes:

- Buildings and ancillary buildings
- Clearing for landscaping
- Access roads and driveways
- Asset protection zones required by RFS
- Any infrastructure associated with the development and includes:
  - gas
  - water
  - electricity
  - sewer
  - onsite effluent management systems
  - fences

6.4.6 There are a number of key websites with useful information, including:

- **Biodiversity Assessment & Approvals Decision Support Tool** – this takes you through some questions to determine which pathway to go down if there is clearing involved with a DA or for someone who wants to clear vegetation on their land www.olg.nsw.gov.au/biodiversity-assessment-and-approvals-navigator
- **Biodiversity Offsets Scheme Entry Requirements** – this is a great page that provides an overview of the scheme and links to further information and provides a link to the User Guide for the Biodiversity Values map below which tells you how to search properties etc. www.environment.nsw.gov.au/biodiversity/entryrequirements.htm
- **Biodiversity Values Map** – this is the map that identifies areas where the Biodiversity Offset Scheme applies (and additional information is required for DAs) https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap
- **Biodiversity Offset Scheme Entry Tool –** this tool can be used as a guide to decide whether or not you as the proponent would be required to enter the Biodiversity Offsets Scheme https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap
- A list of **accredited assessors** can be found on https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor

6.5 Heritage

6.5.1 The land is identified has having Potential Aboriginal Artefacts under the *Goulburn Mulwaree Development Control Plan 2009*. An investigation for potential Aboriginal Cultural Heritage is required to be undertaken in accordance with the current Office of Environment and Heritage guides including

- Consultation with Pejar Local Aboriginal Land Council (PLALC). PLALC will need to undertake a site inspection of the property and there is a fee associated with this.
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010b) (the Code)

- Aboriginal cultural heritage consultation requirements for proponents (DECCW 2010a) (consultation requirements)
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010c).

6.6 Agencies

6.6.1 Water NSW, EPA (if licence is changing), RMS, RFS. The primary assessment may reveal further referrals.

6.6.2 Roads and Maritime Services. The Infrastructure SEPP requires a referral to RMS.

6.6.3 NSW Rural Fire Service: The proposed development is not integrated with the NSW Rural Fire Service. However as the development proposal involves the visiting of persons not familiar with the site, the advice of the RFS regarding emergency management will be sought. A Bushfire Assessment Report is required to be submitted at the time of DA lodgement. The report must detail emergency management in the event of a bushfire event.

6.7 State Environmental Planning Policies

6.7.1 SEPP (Sydney Drinking Water Catchment) 2011: The proposed development is within the Sydney Drinking Water Catchment and will require concurrent from Water NSW. Applicant is to demonstrate neutral or beneficial water quality (NorBE) in the application. NorBE assessment and music modelling needs to be submitted in hard copy and electronically at time of Development Application lodgement.

6.7.2 SEPP No 55 Remediation of Land: this is required to be addressed in the application.

6.7.3 SEPP No 64 Advertising and Signage: any proposed signage is required to address this SEPP.

6.8 Contributions

6.8.1 Section 7.12 Contributions (formally section 94A contributions) will apply based on the value of works. The value of works is defined in Councils 7.12/s94A Contribution Plan as:

The contract price, or if there is no contract a genuine and accurate estimate, for all labour and material costs associated with all demolition and construction required for the development, including the cost of construction of any building and the preparation of a building for the purpose for which it is to be used (such as the costs of installing plant, fittings, fixtures and equipment). GST is to be included.

6.8.2 For this development value of works also includes (but not limited to) any earthworks and all service connections, road works, studies and the like

6.8.3 For all developments with a value of works greater than $1,000,000.00 a Quantity Cost Survey Report is required. For all development work less than $1,000,000.00 a Cost Summary Report is required.

7 Post Meeting Advice

A completed development application form is required for all applications with the written consent of all owners provided. Where a company owns the land or is the applicant then all signatories are to sign and state their positions in the company. The development application will be accompanied by the following documentation and will include three (3) copies of each and an electronic copy:

- Statement of Environmental Effects (SoEE) detailing the characteristics of the site and providing an assessment of the proposed development in accordance with the matters for consideration under Section 4.15 of the *Environmental Planning and Assessment Act 1979* including demonstrating compliance with any relevant State Environmental Planning Policies, the Goulburn Mulwaree Local Environmental Plan 2009 and Goulburn Mulwaree Development Control Plan 2009.
- An initial site analysis plan including all existing structures, features, vegetation, 1 or 2m contours, site strengths, constraints, weaknesses, opportunities and threats.
- If the subject site contains existing structure(s) or building(s) a set of plans *(a set of plans includes a site plan, floor plan(s) elevations(s) cross section(s))* that clearly identifies the existing configuration of those structures.
- If the proposal requires demolition either in part or whole of a structure a separate set of plans *(a set of plans includes a site plan, floor plan(s) elevations(s) cross section(s))* is to be provided that clearly identifies the item(s) being demolished. The use of visual aids such as dashed coloured (red) lines should be considered.
- If the proposal involves the removal of vegetation a site plan is to be provided that clearly identifies the areas, the type (native/exotic) and species of vegetation to be removed, the plans shall include square meterage values of all categories of vegetation loss.
- If the proposal involves new work in conjunction with an existing building there should be visually apparent differentiation between the proposed works and the existing structure. The use of visual aids such as colour, shading, cross hatching etc. should be considered. A separate set of plans *(a set of plans includes a site plan, floor plan(s), elevations(s), cross section(s), details)* shall be procured of the proposed works that clearly demonstrates the interaction with the existing structures.
- If the proposal involves standalone new work unconnected to any existing structure a set of plans *(a set of plans includes a site plan, floor plan(s), elevations(s), cross section(s), details)* are to be procured of the proposed works. Site plans and elevations should include existing structures on the site.
- Where landscaping, rehabilitation or works are proposed detailed landscape plans are required to include final form layout(s), proposed elevations, site plan layouts, specific details, species identification, plant out sizes, maturity dimensions and maintenance requirements.
- Concept sewer plan(s), where applicable long section(s) for any proposed sewer infrastructure both onsite and offsite required to service the proposal in collaboration and where applicable with Councils infrastructure.
- All drawings submitted must be uniquely identifiable by reference to a drawing and revision number. Each drawing shall be titled, contain the street address along with the Lot & DP number(s), Architects details and name of owner shall be provided.

- All drawings shall be drawn to scale, scales chosen should be appropriate to display the information clearly, scales shall be consistent throughout, if the proposal does not fit on A3 then use A2 & A1.
- Where demolition is to occur a waste and resource recovery management plan.
- Contamination report of the site.
- Biodiversity Development Assessment Report prepared by an accredited assessor.
- Bushfire Assessment Report.
- Water Cycle Management Study to satisfy NorBE and the requirements of WaterNSW

8 Conclusion

A development application must be accompanied with all the items identified above and further those matters contained and discussed within this prelodgement advice. The information must be provided in both paper and electronic form.

9 Disclaimer

The above preliminary is based on information supplied to Goulburn Mulwaree Council by the owner, occupier or its agent and easily obtainable Council records, Goulburn Mulwaree Council does not accept any responsibility for the correctness of that information provided for review.

Pre-development application meeting advice is often provided prior to an inspection of the site taking place.

The advice is provided to address technical issues that will assist in the preparation of the development application. Other issues may arise following the lodgement and merit assessment of the development application.

This advice shall not be construed as implied or in principal support or otherwise for the proposal as such a decisions can only be arrived at following a full assessment of a completed development application. It is the proponent's responsibility to ensure that all relevant documentation is provided to support the development application.

Finally, any owner/purchaser/developer or user of the subject site must satisfy themselves that the site is suitable for the purposes that are being proposed for the site.

Re-Use Goulburn

APPENDIX B

CIVIL DESIGN SET

Cardno
Shaping the Future

GOULBURN MULWAREE COUNCIL

GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

COVER SHEET

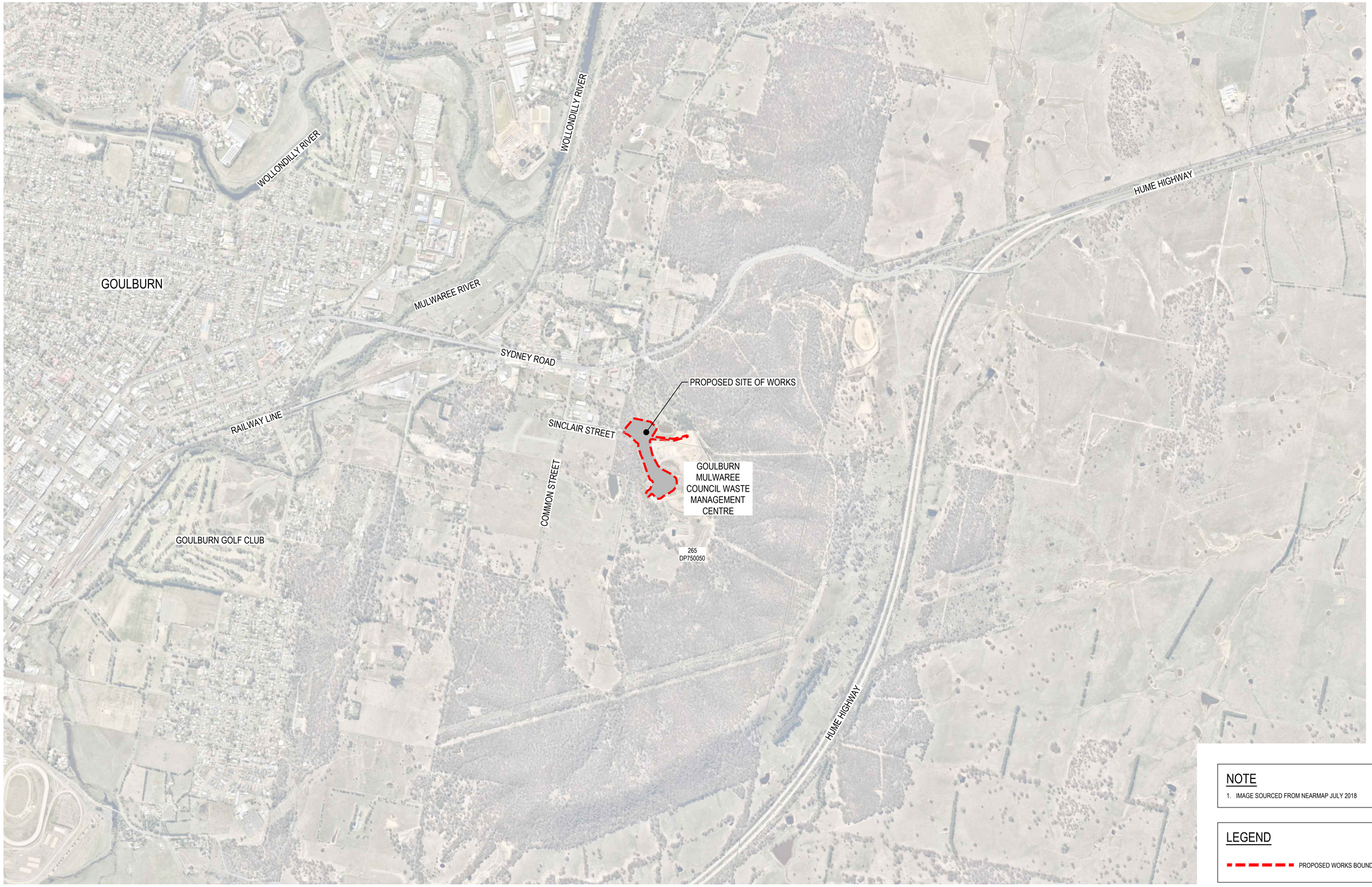
Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

		Date
Drawn	MFN	15/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		N.T.S.	A1

Drawing Number: 8201825301-DRG-GE-2001
Revision: A



LOCALITY PLAN
SCALE 1:10000

NOTE

1. IMAGE SOURCED FROM NEARMAP JULY 2018

LEGEND

PROPOSED WORKS BOUNDARY

0 200 400 600 800 1000m

SCALE 1:10000 (A1), 1:20000 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
LOCALITY PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:10000	A1

Drawing Number: 8201825301-DRG-GE-2002

Revision: A

SCHEDULE OF DRAWINGS

DRAWING No.	DESCRIPTION
GENERAL	
8201825301-DRG-GE-2001	COVER SHEET
8201825301-DRG-GE-2002	RUG SITE LOCALITY PLAN
8201825301-DRG-GE-2003	RUG SITE DRAWING SCHEDULE
8201825301-DRG-GE-2011	RUG SITE GENERAL ARRANGEMENT LAYOUT PLAN
8201825301-DRG-GE-2021	RUG SITE CONCEPT SITE LAYOUT
8201825301-DRG-GE-2031	RE-USE HUB GENERAL ARRANGEMENT PLAN SHEET 1 OF 3
8201825301-DRG-GE-2032	CRC & RESOURCE RECOVERY SHED GENERAL ARRANGEMENT PLAN SHEET 2 OF 3
8201825301-DRG-GE-2033	CRC & RESOURCE RECOVERY SHED GENERAL ARRANGEMENT PLAN SHEET 3 OF 3
CIVIL	
8201825301-DRG-CI-2101	RUG SITE GENERAL NOTES
8201825301-DRG-CI-2111	RUG SITE GENERAL ARRANGEMENT LAYOUT PLAN
8201825301-DRG-CI-2121	RUG SITE CONSTRUCTION STAGING
8201825301-DRG-CI-2131	RUG SITE DEMOLITION PLAN
8201825301-DRG-CI-2141	RUG SITE CLEARING AND GRUBBING PLAN
8201825301-DRG-CI-2201	RE-USE HUB SITE LAYOUT PLAN SHEET 1 OF 3
8201825301-DRG-CI-2202	CRC & RESOURCE RECOVERY SHED SITE LAYOUT PLAN SHEET 2 OF 3
8201825301-DRG-CI-2203	CRC & RESOURCE RECOVERY SHED SITE LAYOUT PLAN SHEET 3 OF 3
8201825301-DRG-CI-2211	RUG SITE CONTROL LINE & SETOUT LAYOUT PLAN
8201825301-DRG-CI-2221	RUG SITE CONTROL LINE LONG SECTIONS SHEET 1 OF 3
8201825301-DRG-CI-2222	RUG SITE CONTROL LINE LONG SECTIONS SHEET 2 OF 3
8201825301-DRG-CI-2223	RUG SITE CONTROL LINE LONG SECTIONS SHEET 3 OF 3
8201825301-DRG-CI-2231	RUG SITE KERB RETURN LAYOUT PLAN SHEET 1 OF 7
8201825301-DRG-CI-2232	RUG SITE KERB RETURN LAYOUT PLAN SHEET 2 OF 7
8201825301-DRG-CI-2233	RUG SITE KERB RETURN LAYOUT PLAN SHEET 3 OF 7
8201825301-DRG-CI-2234	RUG SITE KERB RETURN LAYOUT PLAN SHEET 4 OF 7
8201825301-DRG-CI-2235	RUG SITE KERB RETURN LAYOUT PLAN SHEET 5 OF 7
8201825301-DRG-CI-2236	RUG SITE KERB RETURN LAYOUT PLAN SHEET 6 OF 7
8201825301-DRG-CI-2237	RUG SITE KERB RETURN LAYOUT PLAN SHEET 7 OF 7
8201825301-DRG-CI-2251	RUG SITE EARTHWORKS LAYOUT PLAN
8201825301-DRG-CI-2252	CRC & RESOURCE RECOVERY SHED EARTHWORKS SITE SECTIONS SHEET 1 OF 4
8201825301-DRG-CI-2253	CRC & RESOURCE RECOVERY SHED EARTHWORKS SITE SECTIONS SHEET 2 OF 4
8201825301-DRG-CI-2254	RE-USE HUB EARTHWORKS SITE SECTIONS SHEET 3 OF 4
8201825301-DRG-CI-2255	RE-USE HUB EARTHWORKS SITE SECTIONS SHEET 4 OF 4
8201825301-DRG-CI-2261	RUG SITE RETAINING WALLS LAYOUT PLAN
8201825301-DRG-CI-2265	RUG SITE RETAINING WALLS LONG SECTIONS SHEET 1 OF 2
8201825301-DRG-CI-2266	RUG SITE RETAINING WALLS LONG SECTIONS SHEET 2 OF 2
8201825301-DRG-CI-2301	RUG SITE STORMWATER CATCHMENT PLAN
8201825301-DRG-CI-2302	RUG SITE STORMWATER LAYOUT PLAN SHEET 1 OF 3
8201825301-DRG-CI-2303	RUG SITE STORMWATER LAYOUT PLAN SHEET 2 OF 3
8201825301-DRG-CI-2304	RUG SITE STORMWATER LAYOUT PLAN SHEET 3 OF 3
8201825301-DRG-CI-2305	RUG SITE BUND LONG SECTION
8201825301-DRG-CI-2309	RUG SITE STORMWATER TYPICAL SECTIONS & DETAILS
8201825301-DRG-CI-2310	RUG SITE STORMWATER LONG SECTIONS
8201825301-DRG-CI-2401	RUG SITE PROPOSED SERVICES LAYOUT PLAN SHEET 1 OF 2
8201825301-DRG-CI-2402	RE-USE HUB PROPOSED SERVICES LAYOUT PLAN SHEET 2 OF 2
8201825301-DRG-CI-2411	RUG SITE PROPOSED LEACHATE LONG SECTIONS
8201825301-DRG-CI-2421	RUG SITE POTABLE WATER - CONNECTION AND TRENCH DETAILS
8201825301-DRG-CI-2501	RE-USE HUB SIGNAGE AND LINEMARKING LAYOUT PLAN SHEET 1 OF 3
8201825301-DRG-CI-2502	CRC & RESOURCE RECOVERY SHED SIGNAGE AND LINEMARKING LAYOUT PLAN SHEET 2 OF 3
8201825301-DRG-CI-2503	CRC & RESOURCE RECOVERY SHED SIGNAGE AND LINEMARKING LAYOUT PLAN SHEET 3 OF 3
8201825301-DRG-CI-2521	RE-USE HUB VEHICLE TURN PATH LAYOUT PLAN SHEET 1 OF 3
8201825301-DRG-CI-2522	RE-USE HUB VEHICLE TURN PATH LAYOUT PLAN SHEET 2 OF 3
8201825301-DRG-CI-2523	CRC & RESOURCE RECOVERY SHED VEHICLE TURN PATH LAYOUT PLAN SHEET 3 OF 3
8201825301-DRG-CI-2531	RUG SITE PAVEMENT LAYOUT PLAN
8201825301-DRG-CI-2532	RUG SITE PAVEMENT DETAILS
8201825301-DRG-CI-2601	RUG SITE SOIL AND WATER MANAGEMENT LAYOUT PLAN
8201825301-DRG-CI-2602	RUG SITE SOIL AND WATER MANAGEMENT DETAILS

DRAWING No.	DESCRIPTION
ARCHITECTURAL	
A001	COVER SHEET
A002	LOCATION PLAN
A100	RH - SITE PLAN
A101	RH - FLOOR PLAN
A102	RH - ROOF PLAN
A103	RH - RCP
A104	RH - CONCRETE SETOUT PLAN
A110	RH - SOUTHWEST & NORTHWEST ELEVATIONS
A111	RH - NORTHWEST & SOUTHEAST ELEVATIONS
A120	RH - SECTIONS
A130	RH - DOOR & WINDOW SCHEDULE
A140	RH - WET AREA DETAILS
A141	KITCHEN & JOINERY DETAILS
A150	RH - STATUTORY SIGNAGE
A200	RSS SITE PLAN
A201	RRS FLOOR PLAN (NORTH)
A202	RRS FLOOR PLAN (SOUTH)
A203	RRS ROOF PLAN (NORTH)
A204	RRS ROOF PLAN (SOUTH)
A205	RRS RCP (NORTH)
A207	RRS CONCRETE SETOUT PLAN (NORTH)
A208	RRS CONCRETE SETOUT PLAN (SOUTH)
A210	RRS NORTH & SOUTH ELEVATIONS
A211	RRS EAST ELEVATION
A212	RRS WEST ELEVATION
A220	RRS SECTION
A221	RRS SECTION
A222	RRS WALL SECTIONS - SHEET 1
A230	RRS DOOR & WINDOW SCHEDULE
A240	RRS WET AREA DETAILS
A250	RRS - STATUTORY SIGNAGE
HYDRAULIC	
21539-ALL-H-000	COVER SHEET, LEGEND, LINETYPES & DRAWING SCHEDULE
21539-ALL-H-001	SITE PLAN
21539-ALL-H-002	DETAILS SHEET
21539-RH-H-100	GROUND FLOOR GRAVITY LAYOUT
21539-RH-H-101	ROOF LEVEL GRAVITY LAYOUT
21539-RH-H-200	GROUND FLOOR PRESSURE LAYOUT
21539-RRS-H-100	GROUND FLOOR GRAVITY
21539-RRS-H-101	GROUND FLOOR GRAVITY SHEET 2
21539-RRS-H-102	ROOF LEVEL GRAVITY LAYOUT SHEET 1
21539-RRS-H-103	ROOF LEVEL GRAVITY LAYOUT SHEET 2
21539-RRS-H-200	GROUND FLOOR PRESSURE LAYOUT SHEET 1
21539-RRS-H-201	GROUND FLOOR PRESSURE LAYOUT SHEET 2
FIRE	
21539-ALL-F-000	COVER SHEET, LEGEND, LINETYPES & DRAWING SCHEDULE
21539-ALL-F-001	SITE PLAN & SCHEMATIC
21539-ALL-F-500	FIRE SERVICES DETAILS
21539-RH-F-100	GROUND FLOOR LAYOUT
21539-RRS-F-100	GROUND FLOOR LAYOUT & DETAILS
PROCESS	
8201825301-DRG-P-1000	P&ID STANDARD EQUIPMENT & LINE SYMBOLOGY
8201825301-DRG-P-1001	P&ID STANDARD INSTRUMENTATION SYMBOLOGY & LABELLING
8201825301-DRG-P-1002	P&ID STANDARD LINE & EQUIPMENT NUMBERING
8201825301-DRG-P-1003	PROCESS FLOW DIAGRAM
8201825301-DRG-P-1004	PROCESS & INSTRUMENTATION DIAGRAM
8201825301-DRG-P-1005	PROCESS & INSTRUMENTATION DIAGRAM
ELECTRICAL	
21539-ALL-E-000	COVER SHEET, LEGEND, LINETYPES & DRAWING SCHEDULE
21539-ALL-E-001	SITE PLAN
21539-ALL-E-002	SCHEMATICS
21539-RH-E-001	EXTERNAL LIGHTING LAYOUT
21539-RH-E-100	GROUND LEVEL - LIGHTING LAYOUT
21539-RH-E-200	GROUND LEVEL - POWER LAYOUT
21539-RH-E-201	ROOF LEVEL - POWER LAYOUT
21539-RRS-E-001	EXTERNAL LIGHTING LAYOUT
21539-RRS-E-100	GROUND LEVEL - LIGHTING LAYOUT - SHT 1 OF 2
21539-RRS-E-101	GROUND LEVEL - LIGHTING LAYOUT - SHT 2 OF 2
21539-RRS-E-200	GROUND LEVEL - POWER LAYOUT - SHT 1 OF 2
21539-RRS-E-201	GROUND LEVEL - POWER LAYOUT - SHT 2 OF 2
21539-RRS-E-202	ROOF LEVEL - POWER LAYOUT
MECHANICAL	
21539-ALL-M-000	COVER SHEET, LEGEND, LINETYPES & DRAWING SCHEDULE
21539-ALL-M-001	NOTES AND SCHEDULES
21539-ALL-M-002	DETAILS SHEET
21539-RH-M-100	GROUND AND ROOF LEVELS
21539-RRS-M-100	GROUND AND ROOF LAYOUTS
STRUCTURAL	
8201825301-DRG-ST-1001	RUG SITE STRUCTURAL NOTES SHEET 1 OF 2
8201825301-DRG-ST-1002	RUG SITE STRUCTURAL NOTES SHEET 2 OF 2
8201825301-DRG-ST-1005	CRC & RESOURCE RECOVERY SHED PILE PLAN
8201825301-DRG-ST-1011	CRC & RESOURCE RECOVERY SHED GROUND SLAB PLAN
8201825301-DRG-ST-1012	CRC & RESOURCE RECOVERY SHED GROUND SLAB REINFORCEMENT PLAN
8201825301-DRG-ST-1013	CRC & RESOURCE RECOVERY SHED GROUND SLAB DETAILS SHEET 1 OF 2
8201825301-DRG-ST-1014	CRC & RESOURCE RECOVERY SHED GROUND SLAB DETAILS SHEET 2 OF 2
8201825301-DRG-ST-1031	CRC & RESOURCE RECOVERY SHED ROOF FRAMING PLAN
8201825301-DRG-ST-1032	CRC & RESOURCE RECOVERY SHED ROOF FRAMING ELEVATIONS SHEET 1 OF 4
8201825301-DRG-ST-1033	CRC & RESOURCE RECOVERY SHED ROOF FRAMING ELEVATIONS SHEET 2 OF 4
8201825301-DRG-ST-1034	CRC & RESOURCE RECOVERY SHED ROOF FRAMING ELEVATIONS SHEET 3 OF 4
8201825301-DRG-ST-1035	CRC & RESOURCE RECOVERY SHED ROOF FRAMING ELEVATIONS SHEET 4 OF 4
8201825301-DRG-ST-1036	CRC & RESOURCE RECOVERY SHED ROOF FRAMING DETAILS SHEET 1 OF 2
8201825301-DRG-ST-1037	CRC & RESOURCE RECOVERY SHED ROOF FRAMING DETAILS SHEET 2 OF 3
8201825301-DRG-ST-1038	CRC & RESOURCE RECOVERY SHED ROOF FRAMING DETAILS SHEET 3 OF 3
8201825301-DRG-ST-1101	RE-USE HUB GROUND SLAB PLAN AND DETAILS
8201825301-DRG-ST-1102	RE-USE HUB ROOF FRAMING PLAN AND ELEVATIONS
8201825301-DRG-ST-1103	RE-USE HUB ROOF FRAMING DETAILS SHEET 1 OF 2
8201825301-DRG-ST-1104	RE-USE HUB ROOF FRAMING DETAILS SHEET 2 OF 2
8201825301-DRG-ST-1301	WASH BAY PLAN AND DETAILS
LANDSCAPE	
8201825301-DRG-LA-1001	RUG SITE LANDSCAPE KEY PLAN AND OVERALL PLANT SCHEDULE
8201825301-DRG-LA-1011	RE-USE HUB LANDSCAPE FINISHES, GRADING AND PLANTING PLAN 1 OF 3
8201825301-DRG-LA-1012	SITE ENTRY LANDSCAPE FINISHES, GRADING AND PLANTING PLAN 2 OF 3
8201825301-DRG-LA-1013	CRC & RESOURCE RECOVERY SHED LANDSCAPE FINISHES, GRADING AND PLANTING PLAN 3 OF 3
8201825301-DRG-LA-1021	RUG SITE LANDSCAPE CROSS SECTIONS AND CONSTRUCTION DETAILS
8201825301-DRG-LA-1031	RUG SITE LANDSCAPE SPECIFICATION AND MAINTENANCE NOTES
REFERENCE	
820182530101001	SURVEY DETAIL, LEVELS AND CONTOURS SHEET 1 & 2

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

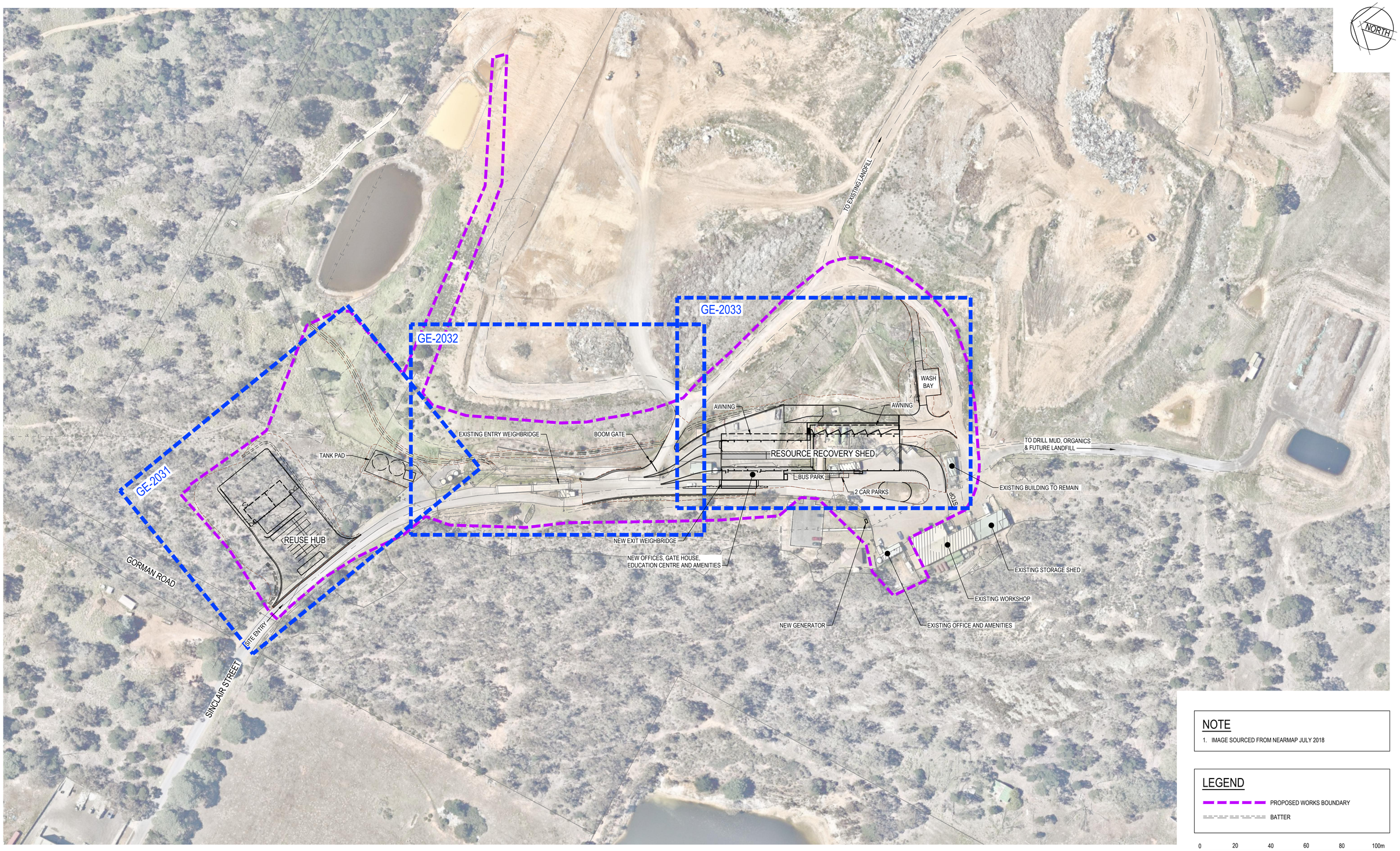
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
DRAWING SCHEDULE

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		N.T.S.	A1

Drawing Number: 8201825301-DRG-GE-2003
Revision: A



NOTE

1. IMAGE SOURCED FROM NEARMAP JULY 2018

LEGEND

PROPOSED WORKS BOUNDARY

BATTER

0 20 40 60 80 100m

SCALE 1:1000 (A1), 1:2000 (A3)

GENERAL ARRANGEMENT LAYOUT

SCALE 1:1000

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
GENERAL ARRANGEMENT
LAYOUT PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:1000	A1

Drawing Number: 8201825301-DRG-GE-2011

Revision: A

DATE PLOTTED: 20 December 2019 3:39 PM BY - JOEL MOY

SITE LAYOUT
SCALE 1:600

NOTE
1. IMAGE SOURCED FROM NEARMAP JULY 2018

LEGEND
- SMALL VEHICLE TRAFFIC FLOW
- OPERATIONAL VEHICLE TRAFFIC FLOW
- HEAVY VEHICLE TRAFFIC FLOW
- ALL VEHICLE TRAFFIC FLOW

0 10 20 30 40 50 60m
SCALE 1:600 (A1), 1:1200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Drawn	JWS	Date 15/11/2018
Checked	MPR	Date 19/12/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

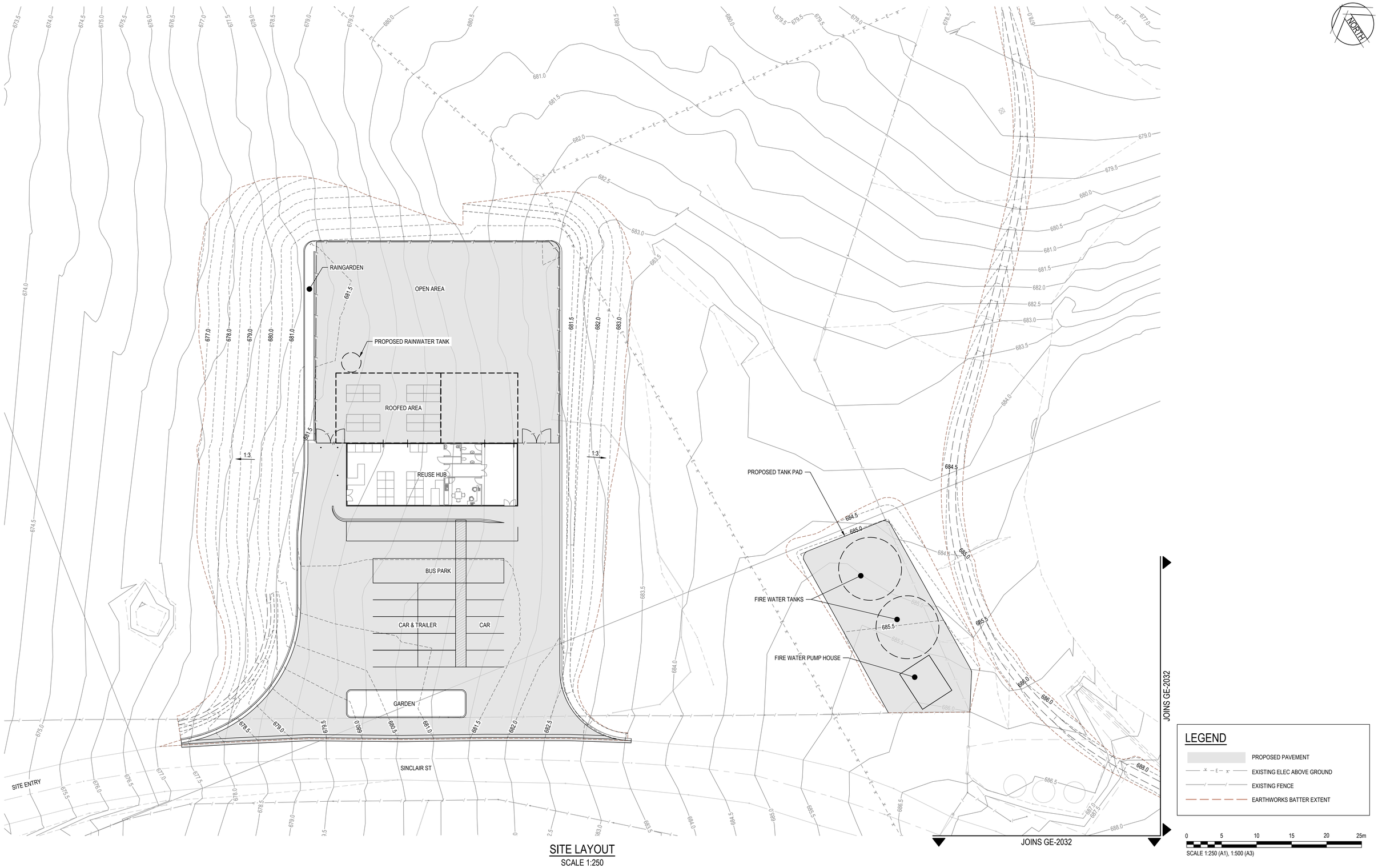
Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
OVERALL SITE LAYOUT

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-GE-2021
Revision: A

XREFs: XR-82018253-01-G-TITLE; XR-82018253-01-D-BASE; XR-82018253-01-E-SURVEY
CAD File: \\AUWOLCFS03\Projects\PY\18253_GMC Reuse Design\Drawings\Build\C2000\82018253\01\82018253-01-DRG-GE-2021.dwg



SITE LAYOUT
SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RE-USE HUB
GENERAL ARRANGEMENT PLAN
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-GE-2031
Revision: A

JOINS GE-2031

JOINS GE-2033

NORTH

EXISTING TRACK REGRADING

EXISTING LOW HEIGHT RETAINING WALL TO BE RETAINED

PROPOSED BOOM GATE

DISH CROSSING

MAKE SMOOTH CONNECTION WITH EXISTING

TO EXISTING LANDFILL

EXISTING ENTRY WEIGHBRIDGE

EXISTING GATE HOUSE

SINCLAIR STREET

SITE LAYOUT

SCALE 1:250

LEGEND

- PROPOSED PAVEMENT
- EXISTING ELEC ABOVE GROUND
- EXISTING FENCE
- EARTHWORKS BATTER EXTENT
- PROPOSED RETAINING WALL
- PROPOSED RETAINING WALL HEIGHTS

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
GENERAL ARRANGEMENT PLAN
SHEET 2 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-GE-2032

Revision: A

JOINS GE:2032

NORTH

EXISTING TRACK

TO EXISTING LANDFILL

EXISTING TRACK

1.8m HIGH COLORBOND FENCE

2m x 1m CONCRETE SLAB

WASH BAY

4m

12.5m

15m

1.0m

CONCRETE BUND

RAMP

9.7m

PROPOSED RAIN TANK

CONCRETE BUND

RETAINING WALL

2.0m

TIPPERS

STORMWATER BATTER CHUTE

CONCRETE BUND

MAKE SMOOTH CONNECTION WITH EXISTING

7.9m

10m

100m

CRC AREA

LARGE ITEMS

DROP-OFF

DROP-OFF

7.2m

3m

6.3m

4.5m

OFFICES

EDUCATION CENTRE

BUS PARK

2 CAR PARKS

NEW EXIT WEIGHBRIDGE

3.5m

SITE CL

MAKE SMOOTH CONNECTION WITH EXISTING

EXISTING BUILDING TO REMAIN

0.75m

9m

MAKE SMOOTH CONNECTION WITH EXISTING

LEGEND

- PROPOSED PAVEMENT
- 697.0 EXISTING CONTOURS
- EXISTING ELEC ABOVE GROUND
- EXISTING FENCE
- EXISTING RETAINING WALL
- 694.5 DESIGN CONTOURS
- EARTHWORKS BATTER EXTENT
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER STRUCTURE
- PROPOSED RETAINING WALL
- 1.8m PROPOSED RETAINING WALL HEIGHTS

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

OVERALL SITE LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

GOULBURN MULWAREE COUNCIL

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Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

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RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

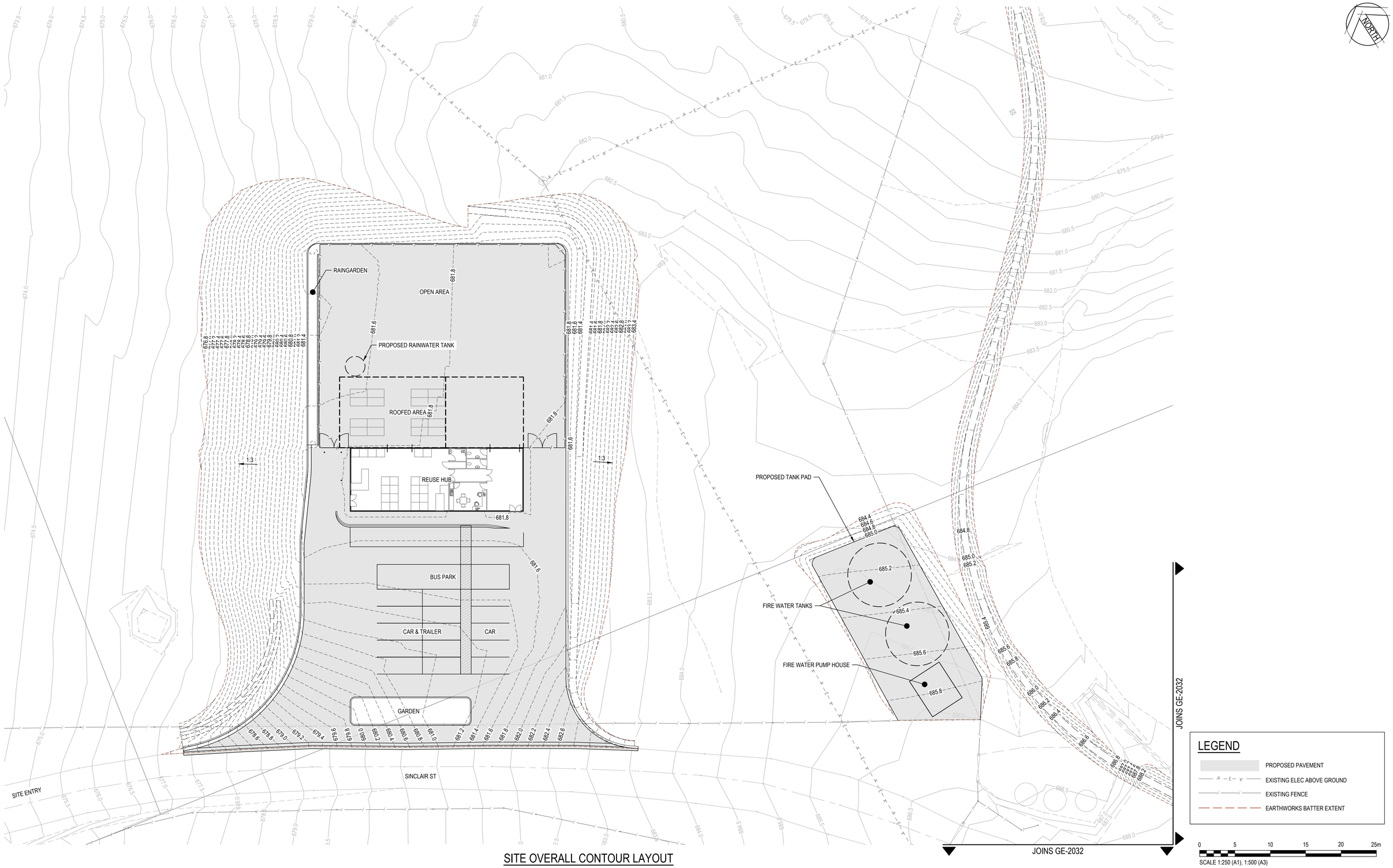
Title: CRC & RESOURCE RECOVERY SHED
GENERAL ARRANGEMENT PLAN
SHEET 3 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-GE-2033

Revision: A



SITE OVERALL CONTOUR LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
2		ISSUED FOR 80% DETAILED DESIGN			
1	23/10/2019	ISSUED FOR 80% DETAILED DESIGN REVIEW	MFN	CH	RJK

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Drawn	MFN	Date 15/11/2018
Checked	ZJP	Date 18/10/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 18/10/2019
Approved	RJK	Date 23/10/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RE-USE HUB
GENERAL ARRANGEMENT PLAN
SHEET 1 OF 3

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DATUM	Scale	Size
AHD	1:250	A1

Drawing Number: 8201825301-DRG-GE-2031

Revision: 2

NOTES

GENERAL

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATION, LOCAL COUNCIL SUBDIVISION CODE & TECHNICAL POLICIES.
2. PLANS TO BE READ IN CONJUNCTION WITH WATER, SEWER AND ELECTRICITY PLANS DOCUMENTATION.
3. THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH SERVICE AUTHORITIES TO ESTABLISH THE LOCATION OF UTILITY SERVICES AND SPECIAL REQUIREMENTS IF DBYD IS UNKNOWN.
4. FENCES REMOVED OR DAMAGED DURING CONSTRUCTION TO BE REINSTATED IMMEDIATELY UPON COMPLETION.
5. NO WORK TO BE UNDERTAKEN ON ADJOINING LAND WITHOUT THE WRITTEN PERMISSION OF THE AFFECTED OWNERS LAND AND OPERATIONS.
6. COUNCIL'S TREE PRESERVATION ORDER TO BE OBSERVED AT ALL TIMES.
7. ALL RUBBISH AND STRUCTURES TO BE REMOVED BY THE CONTRACTOR AND DISPOSED OF APPROPRIATELY
8. ALL NEW WORKS TO MAKE SMOOTH JUNCTION WITH EXISTING.
9. ALL CONDUITS AND STUBS TO BE LAID UNDER ROAD PAVEMENT PRIOR TO LAYING FINAL ASPHALT SEAL, KERB AND BASE COURSE.
10. ANY ROCK EXCAVATION TO BE REPORTED TO THE SUPERINTENDENT PRIOR TO UNDERTAKING SUCH EXCAVATION.

COMPLETION OF WORKS

1. THE COMPLETION OF CONTRACT SHALL OCCUR FOLLOWING APPROVAL BY COUNCIL'S REPRESENTATIVE THAT ALL WORKS HAVE BEEN COMPLETED TO A SATISFACTORY STANDARD IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATION AND DESIGN DRAWINGS.

DRAINAGE WORKS

1. ALL STORMWATER DRAINAGE STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LOCAL COUNCIL DRAWINGS AND DETAILS.
2. ALL BEDDING TO BE HS2 UNLESS SPECIFIED OTHERWISE.
3. BEDDING TO BE CONSTRUCTED IN ACCORDANCE WITH 'CONCRETE PIPE SELECTION AND INSTALLATION' BY CONCRETE PIPE ASSOCIATION OF AUSTRALIA AND AS 3725.
4. CONCRETE PIPES TO BE PURCHASED FROM QUALITY ASSURED MANUFACTURER OR TESTED BY LOCAL COUNCIL.
5. PIPE WITH GRADES GREATER THAN 15% TO HAVE CONCRETE ANCHOR BLOCKS ON A MINIMUM OF EVERY THIRD COLLAR.

ROADWORKS (ROAD)

1. ALL FLEXIBLE ROAD PAVEMENTS TO BE CONSTRUCTED IN ACCORDANCE THE CONSTRUCTION SPECIFICATION AND DESIGN DRAWINGS.
2. CONDUIT TRENCHES BENEATH ROADS TO BE BACKFILLED WITH 5mm MINUS BASALT GRAVEL OR AS OTHERWISE APPROVED BY THE SUPERINTENDENT.
3. CONDUIT LOCATIONS SHALL BE IMPRINTED ON THE KERB.

SURVEY

1. THE CONTRACTOR SHALL UNDERTAKE THE NECESSARY SURVEY SETOUT FOR THE WORKS.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ANY UTILITY SERVICES OVER THE SITE.
3. ALL SURVEY MARKS TO BE RETAINED UNLESS ADVISED OTHERWISE BY THE SUPERINTENDENT.
4. THE CONTRACTOR WILL SURVEY ALL AREAS OF OVER STRIPPING, AND ADVISE THE SUPERINTENDENT BEFORE PLACING FILL OVER SUCH AREAS.
5. THE CONTRACTOR SHALL SURVEY THE LOCATION AND LEVEL OF BURIED ENDS AND JUNCTIONS OF PIPES AND CONDUITS FOR FUTURE WORKS AS EXECUTED PLANS.

GEOTECHNICAL

1. STRIPPED FILL AREAS TO BE PROOF ROLLED AND APPROVED BY GEOTECHNICAL CONSULTANT ENGAGED BY CONTRACTOR PRIOR TO PLACEMENT OF FILL.
2. UNSUITABLE MATERIAL TO BE TREATED AS RECOMMENDED BY GEOTECHNICAL CONSULTANT ENGAGED BY CONTRACTOR .
3. ABRUPT CHANGES IN SUBSURFACE CONDITIONS TO BE REPORTED IMMEDIATELY TO THE GEOTECHNICAL CONSULTANT.
4. ALL FILLING WORKS TO BE CARRIED OUT IN ACCORDANCE WITH LOCAL COUNCIL'S STANDARDS.
5. 100mm DIAMETER PERFORATED SUBSOIL DRAIN TO BE CONSTRUCTED ON UNSEALED UPHILL SIDE OF ALL ROAD PAVEMENTS AND AS DIRECTED BY THE SUPERINTENDENT.
6. PAVEMENT DESIGN TO BE FINALISED BY GEOTECHNICAL CONSULTANT AFTER DETAILED SUBGRADE INVESTIGATION.
7. ALL FILL WORKS TO BE UNDER LEVEL 1 GEOTECHNICAL SUPERVISION IN ACCORDANCE WITH AS3798 - 1996 OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT.
8. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE GEOTECHNICAL CONSULTANT FOR THE USE OF VIBRATORY ROLLERS NEAR PERMANENT STRUCTURES DURING CONSTRUCTION.
9. ALL THE ROCK EXCAVATION SHOULD BE REPORTED TO THE SUPERINTENDENT PRIOR TO UNDERTAKING.
10. ALL THE ROCKS THAT CAN BE EXCAVATED WITH A D9 DOZER ARE CONSIDERED RIPPABLE.

BACKFILLING OF SERVICES TRENCHES NOTES

1. PLACE BEDDING MATERIAL, SERVICES, BACKFILLING ON FIRM GROUND FREE OF SURFACE WATER.
2. BACKFILL TRENCHES AS SOON AS POSSIBLE AFTER SERVICE PIPE IS LAID AND BEDDED
3. MATERIAL TO BE WELL GRADED, INORGANIC, NON PERISHABLE MATERIAL, MAXIMUM SIZE 0.075m, PLASTICITY INDEX < 50%.
4. PLACE BACKFILL IN LAYERS < 0.150m THICK COMPACTED TO DENSITY OF SUB-GRADE.

SOIL AND WATER MANAGEMENT NOTES

1. PERMANENT BATTERS TO BE TOPSOILED (MIN. 100mm) AND HYDROMULCHED WITH APPROVED MIX.
2. ALL FOOTPATHS AND DISTURBED AREAS TO BE HYDROMULCHED IMMEDIATELY UPON COMPLETION WITH MIX APPROVED BY DEPT LAND AND WATER CONSERVATION.
3. TOPSOIL TO BE STOCKPILED AS SHOWN, WITH SEDIMENT FENCE PLACED DOWNSTREAM TO PREVENT LOSS OF MATERIAL ALL DISTURBED AREAS ARE TO BE HYDROMULCHED WITH AN APPROVED MIX.
4. HYDROMULCHED AREAS TO BE REGULARLY WATERED TO PROMOTE RAPID GROWTH.
5. ANY REVEGETATED AREAS WHICH FAIL TO ESTABLISH WITHIN THREE MONTHS MUST BE RE-HYDROMULCHED.
6. ALL SOIL AND WATER MANAGEMENT DEVICES TO BE CHECKED AND MAINTAINED WEEKLY AND AFTER EACH STORM EVENT TO ENSURE OPERATION AND PERFORMANCE.
7. ANY INCIDENTS ON SITE LIKELY TO CAUSE POLLUTION TO BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT.
8. DUST SUPPRESSION EQUIPMENT TO BE AVAILABLE AT ALL TIMES (INCLUDING WEEKENDS, ROSTER DAYS AND PUBLIC HOLIDAYS) TO REDUCE THE EMISSION OF DUST FROM THE SITE.
9. SEDIMENT CONTROL MEASURES TO BE REMOVED WHEN REVEGETATION HAS BEEN ESTABLISHED.
10. HAULAGE VEHICLES TO REMAIN ON SEALED ROADS OR DEFINED TRACKS AT ALL TIMES WITHIN THE SITE.
11. BITUMEN DEFLECTORS TO BE PLACED ACROSS ROAD SHOULDER IF FINAL SEAL IS NOT TO BE PLACED IMMEDIATELY.
12. EARTHWORKS AND TRENCHING TO BE STAGED TO KEEP WORK AREAS TO A MANAGEABLE SIZE.
13. EXCAVATED MATERIAL FROM TRENCHES TO BE STOCKPILED UPHILL OF TRENCH UNTIL BACKFILLING.
14. PUBLIC ROADS TO BE KEPT CLEAR OF DEBRIS AT ALL TIMES.
15. CONTRACTOR TO PROVIDE SHAKER PAD FOR VEHICLES ENTERING/LEAVING SITE.

SCOUR PROTECTION

1. ROCK PROTECTION SHALL BE TO THE EXTENT SHOWN ON THE STORMWATER PLANS, TYPICAL SECTIONS & DETAILS.
2. PLACE BIDUM A39 GEOTEXTILE OR EQUIVALENT BENEATH ALL ROCK WORK.
3. ROCK TO BE DENSE, CLEAN, HARD AND FREE FROM DEFECTS, CRACKS, SEAMS, CLEAVAGE PLANS, WEATHERING, DEGRADATION AND PERVASIVE CHEMICAL ALTERATION THAT WILL AFFECT ROCK DURABILITY.

TEMPORARY WORKS

1. TEMPORARY WORKS ASSOCIATED WITH STAGING TO BE ALLOWED FOR BY CONTRACTOR
2. ALL PERMANENT STRUCTURES TO BE CONSTRUCTED TO FINAL STAGE 3 FSL LEVELS, WITH APPROPRIATE TEMPORARY WORKS TO EXISTING.

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A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
GENERAL NOTES

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		N.T.S.	A1

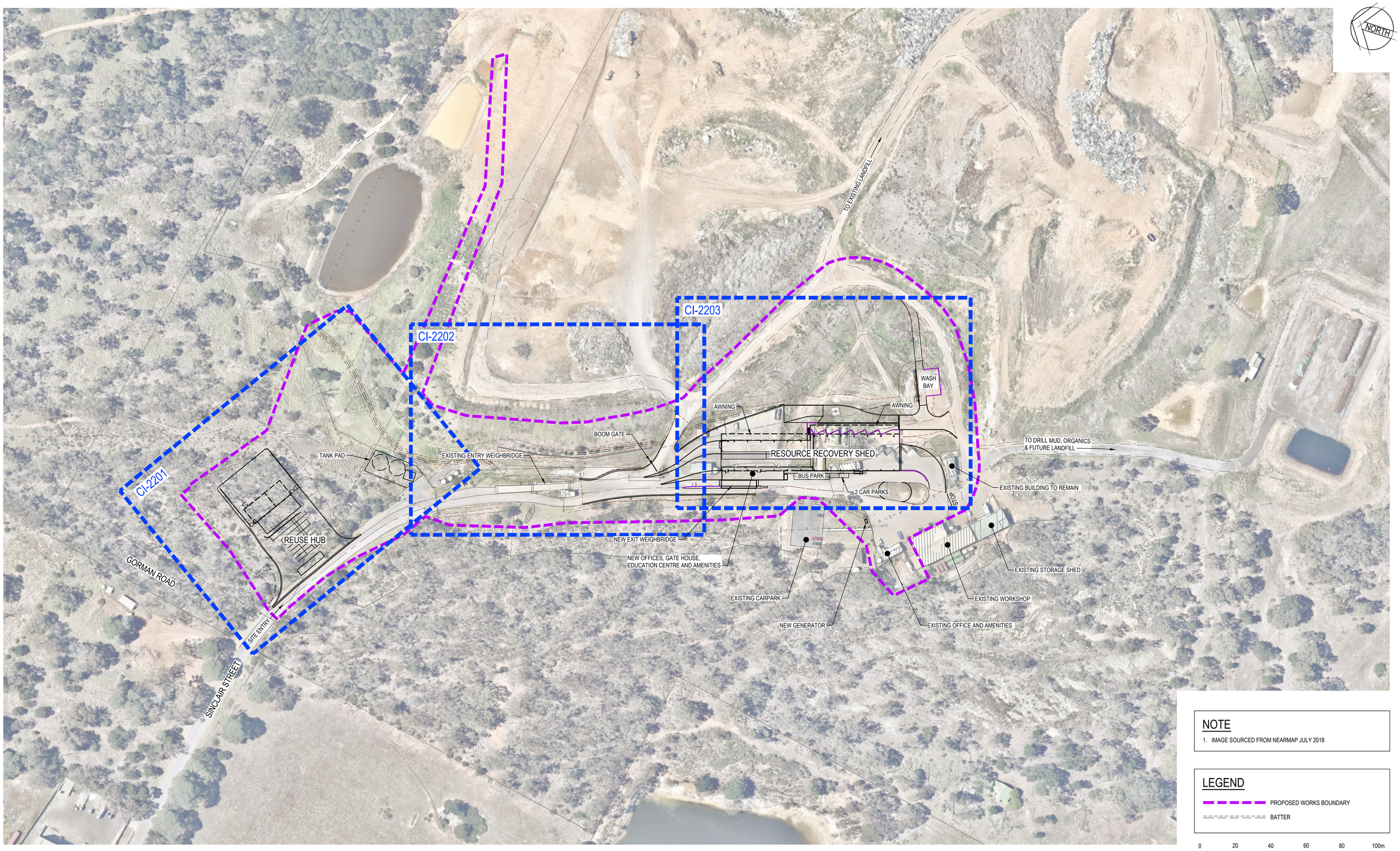
Drawing Number: 8201825301-DRG-CI-2101

Revision: A

DATE PLOTTED: 20 December 2019 3:01 PM BY - JOEL MOY

XREF's: XR-82018253-01-G-TITLE; XR-82018253-01-E-SURVEY; XR-82018253-01-D-BASE; XR-82018253-01-G-LEGEND; XR-82018253-01-D-STRM_BASE; XR-82018253-01-D-FRAMES

CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\c2000\82018253301-DRG-CI-2111.dwg



GENERAL ARRANGEMENT LAYOUT

SCALE 1:1000

NOTE

1. IMAGE SOURCED FROM NEARMAP JULY 2018

LEGEND

PROPOSED WORKS BOUNDARY

BATTER

0 20 40 60 80 100m

SCALE 1:1000 (A1), 1:2000 (A3)

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Approved	RJK	20/12/2019

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RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
GENERAL ARRANGEMENT
LAYOUT PLAN

Status: FOR APPROVAL
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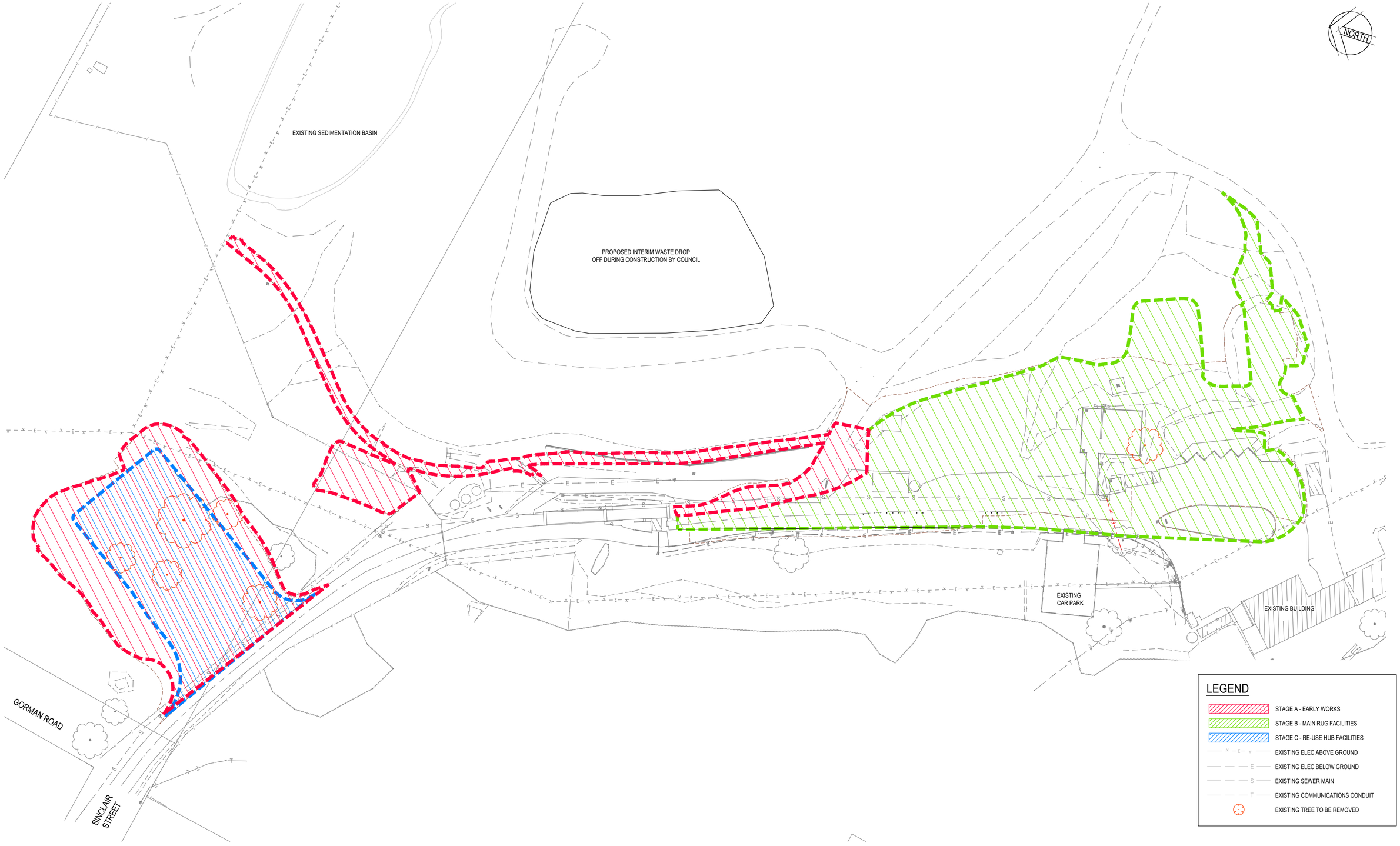
DATUM		Scale	Size
AHD		1:1000	A1

Drawing Number: 8201825301-DRG-CI-2111

Revision: A



CONSTRUCTION STAGING LAYOUT

SCALE 1:600

Rev.	Date	Description	Des.	Verif.	Appd.
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RUG PROJECT

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CONSTRUCTION STAGING

Status: FOR APPROVAL
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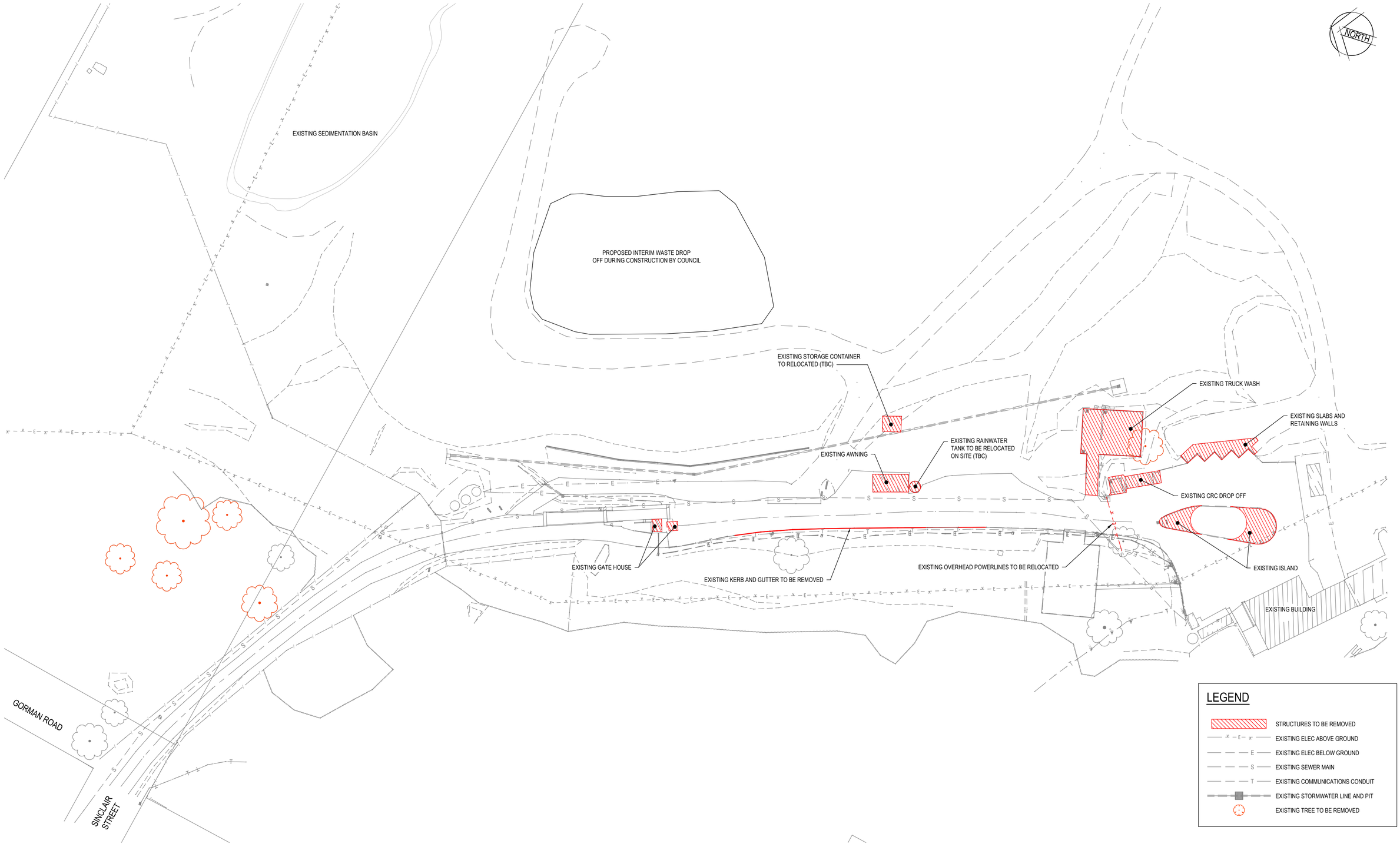
DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-CI-2121

Revision: A



DEMOLITION LAYOUT
SCALE 1:600

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Approved	RJK	20/12/2019

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Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
DEMOLITION PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-CI-2131

Revision: A

DATE PLOTTED: 20 December 2019 3:04 PM BY - JOEL MOY

XREF's: XR-8201825253-01-G-TITLE; XR-8201825253-01-E-SURVEY; XR-8201825253-01-D-BASE; XR-8201825253-01-G-LEGEND

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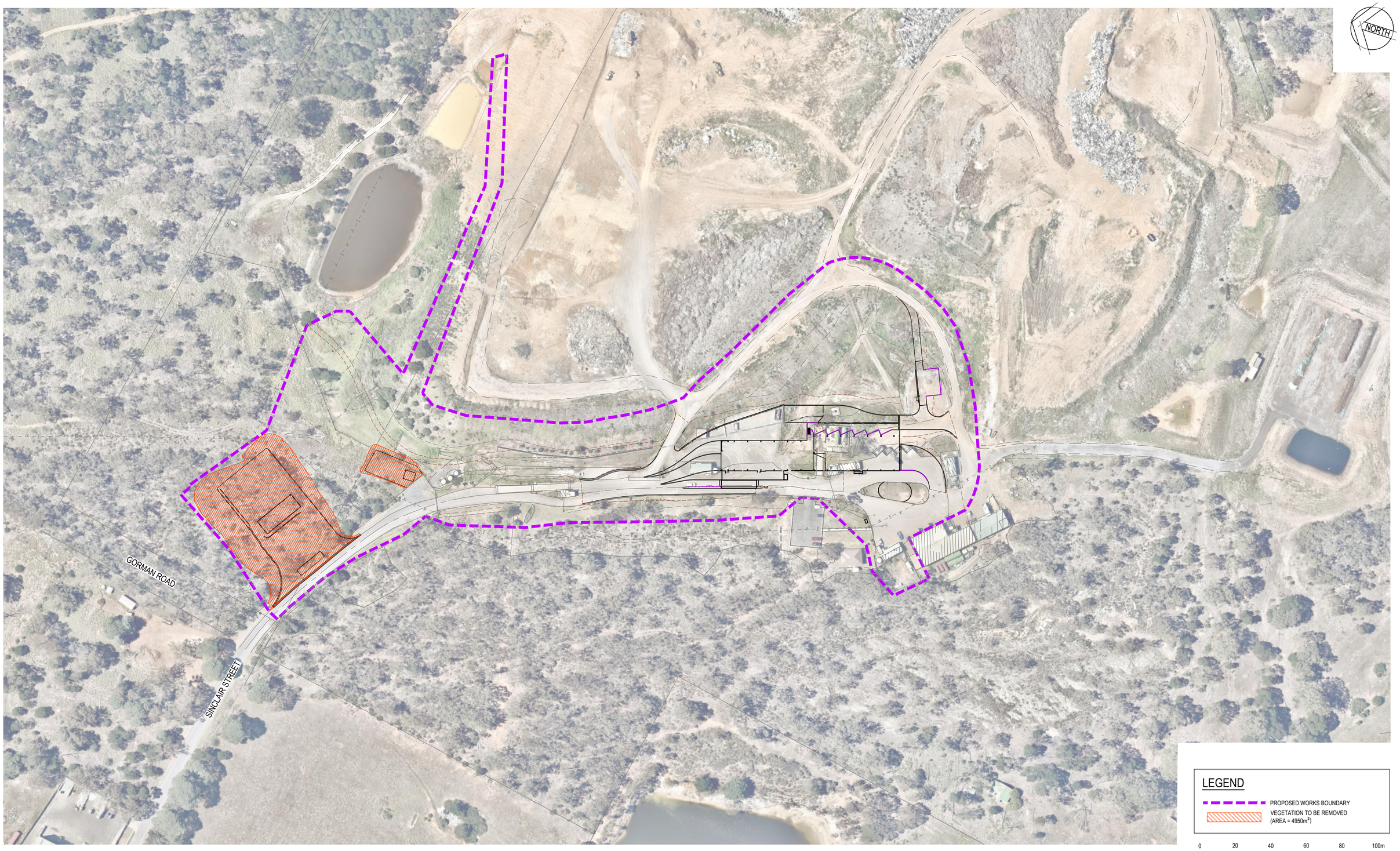

LEGEND

PROPOSED WORKS BOUNDARY

VEGETATION TO BE REMOVED (AREA = 4950m²)

0 20 40 60 80 100m

SCALE 1:1000 (A1), 1:2000 (A3)

CLEARING AND GRUBBING LAYOUT

SCALE 1:1000

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

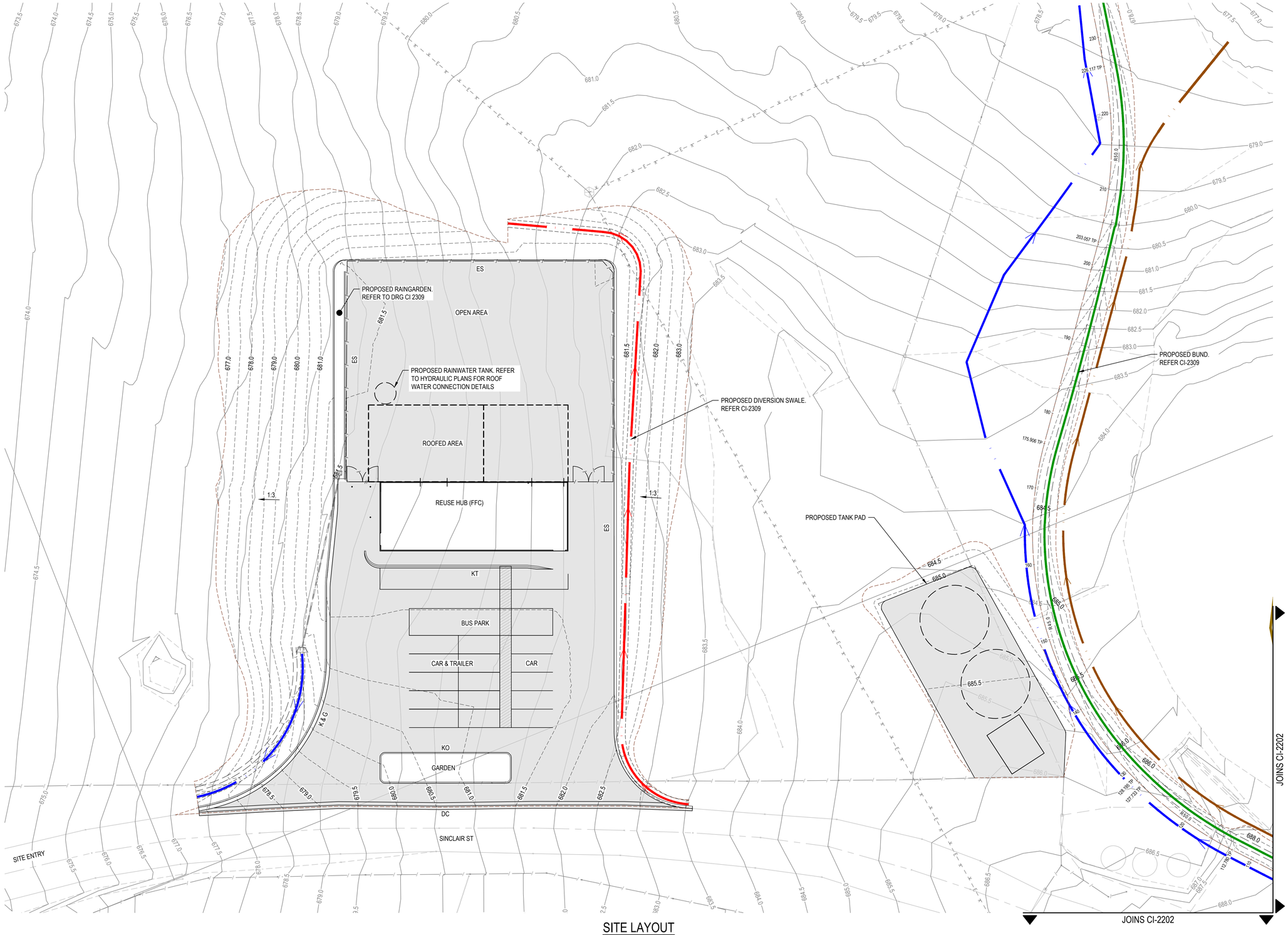
Title: RUG SITE
CLEARING AND GRUBBING PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:1000	A1

Drawing Number: 8201825301-DRG-CI-2141

Revision: A



SITE LAYOUT
SCALE 1:250

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED PAVEMENT
697.0	EXISTING CONTOURS
	EXISTING ELEC ABOVE GROUND
	EXISTING FENCE
	EXISTING RETAINING WALL
	EXISTING STORMWATER PIPE/CULVERT
	EXISTING STORMWATER STRUCTURE
694.5	DESIGN CONTOURS
	PROPOSED TOP OF BUND
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
	EARTHWORKS BATTER EXTENT
	PROPOSED STORMWATER PIPE
	PROPOSED STORMWATER STRUCTURE
	PROPOSED RETAINING WALL
1.8m	PROPOSED RETAINING WALL HEIGHTS

0 5 10 15 20 25m
SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Web: www.cardno.com.au

Drawn	MFN	Date 19/11/2018
Checked	MPR	Date 19/12/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RE-USE HUB
SITE LAYOUT PLAN
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2201
Revision: A

JOINS CI-2201

JOINS CI-2203

NORTH

PROPOSED BUND. REFER CI-2309

EXISTING LOW HEIGHT RETAINING WALL TO BE RETAINED

BUND 1

PROPOSED BOOM GATE

EXISTING TRACK REGRADING

LOCAL REGRADING OF EXISTING PAVEMENT. MAKE SMOOTH CONNECTION WITH EXISTING

TO EXISTING LANDFILL

DISH CROSSING

EXISTING ENTRY WEIGHBRIDGE

EXISTING GATE HOUSE

MAKE SMOOTH CONNECTION WITH EXISTING

SINCLAIR STREET

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED PAVEMENT
697.0	EXISTING CONTOURS
	EXISTING ELEC ABOVE GROUND
	EXISTING FENCE
	EXISTING RETAINING WALL
	EXISTING STORMWATER PIPE/CULVERT
	EXISTING STORMWATER STRUCTURE
694.5	DESIGN CONTOURS
	PROPOSED TOP OF BUND
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
	EARTHWORKS BATTER EXTENT
	PROPOSED STORMWATER PIPE
	PROPOSED STORMWATER STRUCTURE
	PROPOSED RETAINING WALL
1.8m	PROPOSED RETAINING WALL HEIGHTS

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

SITE LAYOUT

SCALE 1:250

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Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
SITE LAYOUT PLAN
SHEET 2 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2202

Revision: A

JOINS CI-2202

NORTH

EXISTING TRACK

TO EXISTING LANDFILL

EXISTING TRACK

PROPOSED RAIN TANK REFER TO HYDRAULIC PLANS FOR ROOF WATER CONNECION DETAILS

1.8m HIGH COLORBOND FENCE

2m x 1m CONCRETE SLAB FOR LEACHATE PUMP

WASH BAY

12.5m

15m

4m

1.0m

RAMP 7%

9.7m

CONCRETE BUND REFER TO STRUCTURAL DRAWINGS FOR DETAILS

CONCRETE BUND REFER TO STRUCTURAL DRAWINGS FOR DETAILS

MAKE SMOOTH CONNECTION WITH EXISTING

RETAINING WALL

2.0m

2.2m

TIPWELLS

STORMWATER BATTER CHUTE

CONCRETE BUND

STEEL BOLLARDS REFER TO DRG-CI-2532 FOR DETAILS

10m

100m

7.9m

CRC AREA

LARGE ITEMS

DROP-OFF

DROP-OFF

3m

7.2m

6.3m

HAND RAIL

RAMP 7%

4.5m

SITE CL

OFFICES

EDUCATION CENTRE

BUS PARK

2 CAR PARKS

NEW EXIT WEIGHBRIDGE

3.5m

3.5m

BARRIER

BARRIER

1.0m

0.75m

KO

STEEL BOLLARDS REFER TO DRG-CI-2532 FOR DETAILS

MAKE SMOOTH CONNECTION WITH EXISTING

EXISTING TRAFFIC ISLAND

9.3m

MAKE SMOOTH CONNECTION WITH EXISTING

EXISTING BUILDING TO REMAIN

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED PAVEMENT
697.0	EXISTING CONTOURS
	EXISTING ELEC ABOVE GROUND
	EXISTING FENCE
	EXISTING RETAINING WALL
	EXISTING STORMWATER PIPE/CULVERT
	EXISTING STORMWATER STRUCTURE
694.5	DESIGN CONTOURS
	PROPOSED TOP OF BUND
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
	EARTHWORKS BATTER EXTENT
	PROPOSED STORMWATER PIPE
	PROPOSED STORMWATER STRUCTURE
	PROPOSED RETAINING WALL
1.8m	PROPOSED RETAINING WALL HEIGHTS

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

SITE LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
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Checked	MPR	Date 19/12/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
SITE LAYOUT PLAN
SHEET 3 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

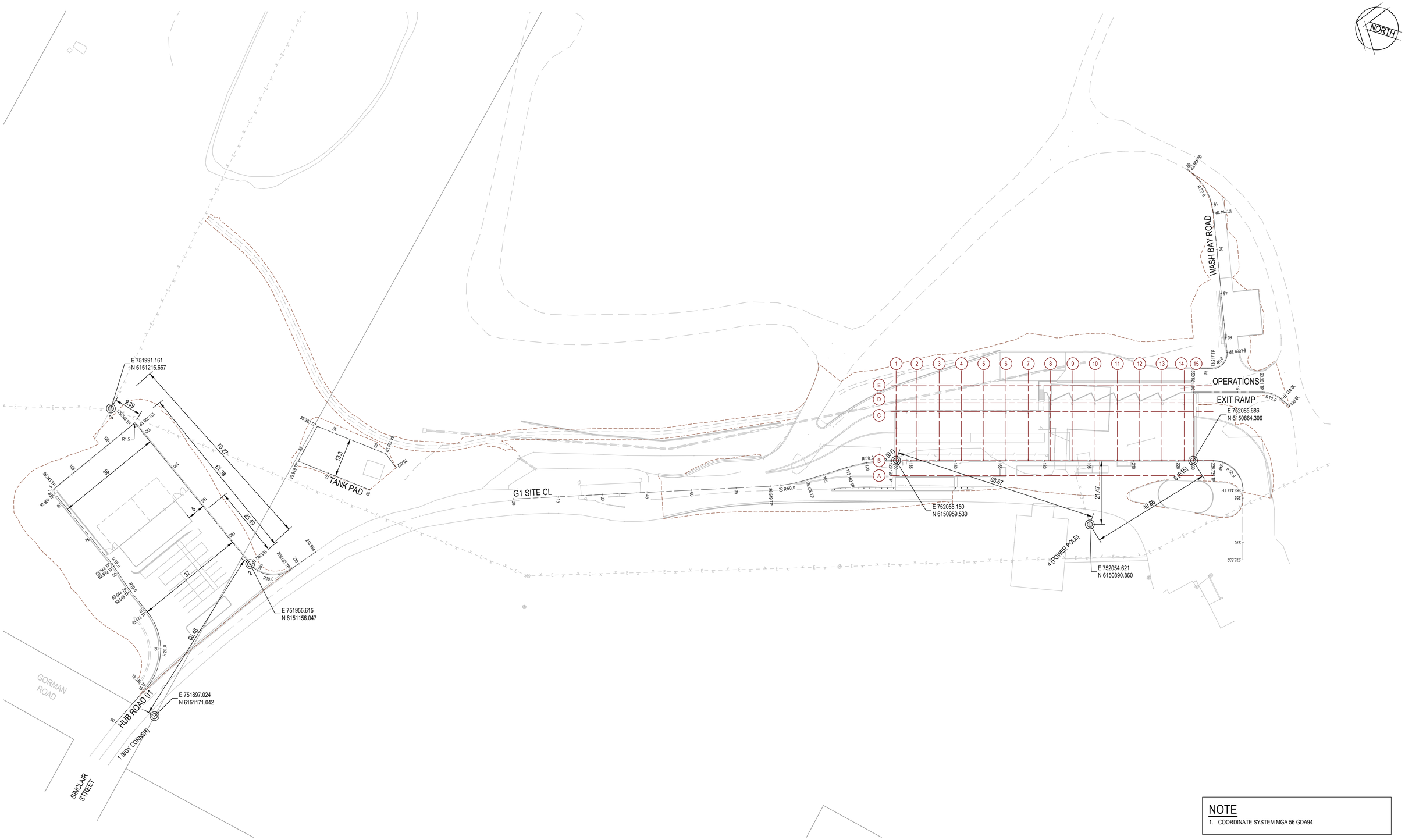
Drawing Number: 8201825301-DRG-CI-2203

Revision: A

DATE PLOTTED: 20 December 2019 3:05 PM BY - JOEL MOY

XREFs: XR-82018253-01-G-TITLE; XR-82018253-01-G-LEGEND; XR-82018253-01-D-BASE; XR-82018253-01-D-CTRL; XR-82018253-01-E-SURVEY

CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\82018253301-DRG-CI-2211.dwg



CONTROL LINE & SETOUT LAYOUT

SCALE 1:600

NOTE

1. COORDINATE SYSTEM MGA 56 GDA94

0 10 20 30 40 50 60m

SCALE 1:600 (A1), 1:1200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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		Date
Drawn	MFN	29/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

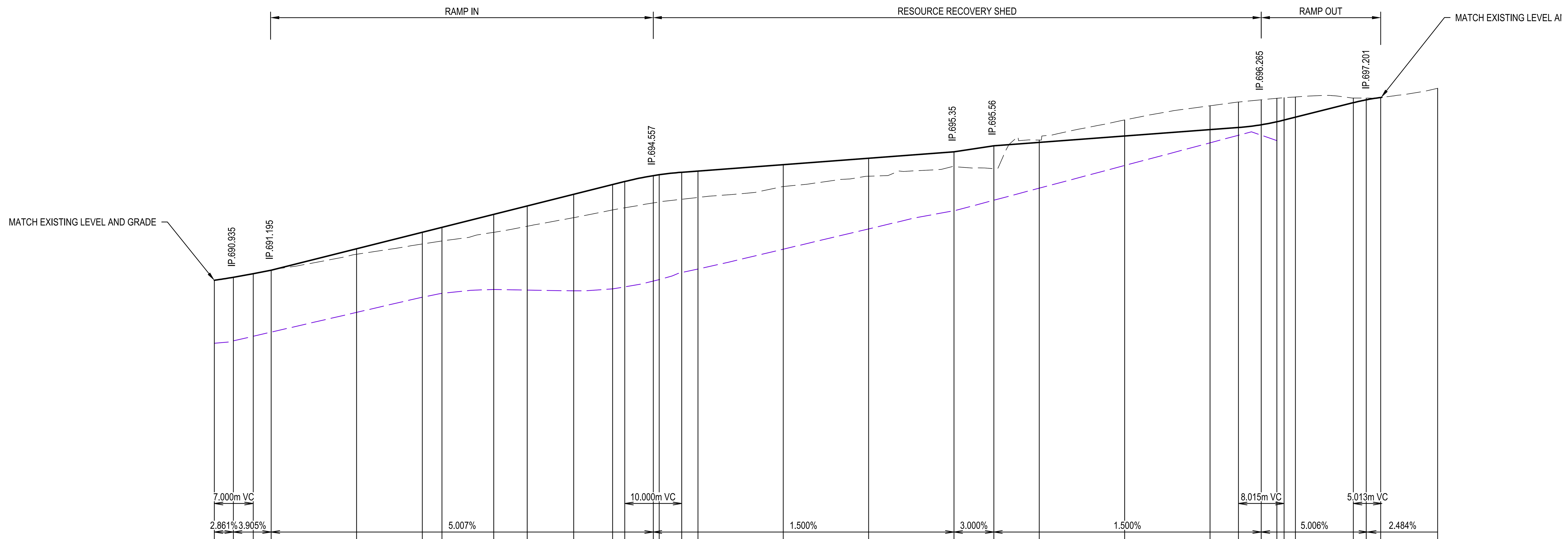
Title: RUG SITE
CONTROL LINE & SETOUT LAYOUT PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-CI-2211

Revision: A



DATUM RL 681

CHAINAGE	DESIGN LEVELS	ROCK	EXISTING LEVELS
50.000	690.839	688.627	690.839
53.345	690.944	688.712	690.941
56.845	691.072	688.873	691.072
60.000	691.195	689.019	691.195
75.000	691.946	689.712	691.752
86.549	692.524	690.245	692.112
90.000	692.697	690.379	692.218
99.108	693.153	690.516	692.522
105.000	693.448	690.495	692.737
113.169	693.857	690.467	693.038
120.000	694.199	690.537	693.307
122.145	694.307	690.597	693.385
127.145	694.513	690.807	693.555
128.196	694.546	690.863	693.591
132.145	694.632	691.109	693.684
135.000	694.675	691.235	693.748
150.000	694.900	691.931	694.133
165.000	695.125	692.643	694.494
180.000	695.350	693.282	694.829
187.000	695.560	693.649	694.759
195.000	695.680	694.074	695.763
210.000	695.905	694.870	696.469
225.000	696.130	695.666	696.967
230.000	696.205	695.931	697.099
234.007	696.300	695.932	697.176
236.739	696.405	695.743	697.229
238.015	696.466		697.251
240.000	696.565		697.275
250.185	697.075		697.240
252.447	697.175		697.238
255.000	697.258		697.259
265.000			697.581

LONGITUDINAL SECTION - G1 SITE CL

SCALES: HORIZ 1:500 VERTICAL 1:100

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

0 10 20 30 40 50m
SCALE 1:500 (A1), 1:1000 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Role	Name	Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

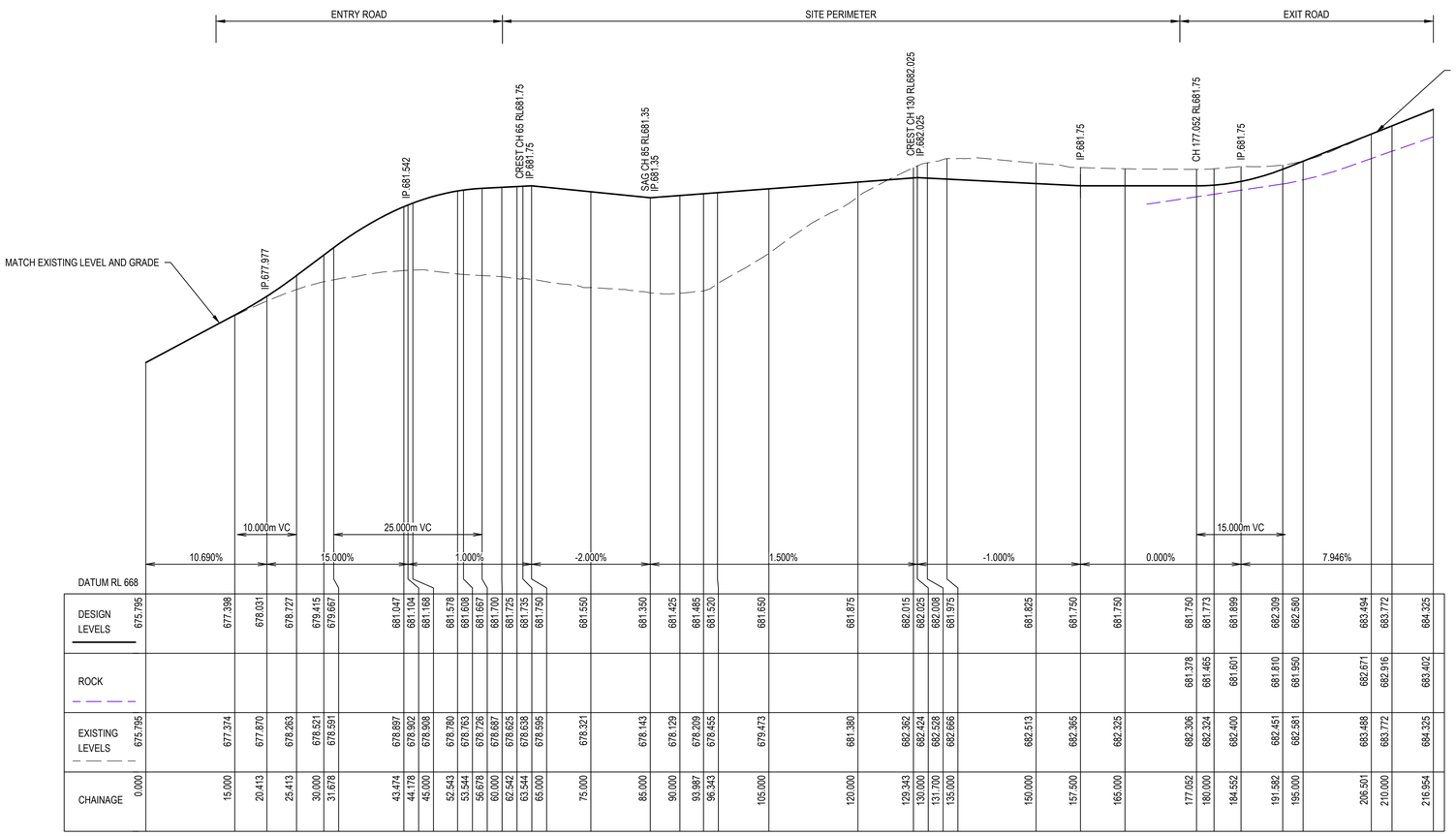
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
CONTROL LINE LONG SECTIONS
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

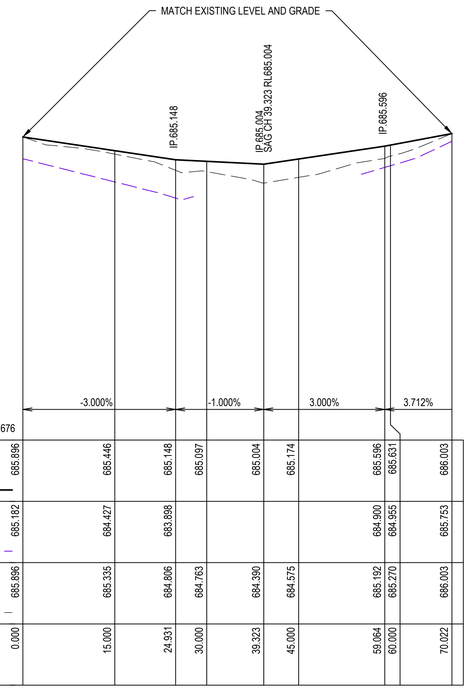
DATUM: AHD | Scale: AS SHOWN | Size: A1

Drawing Number: 8201825301-DRG-CI-2221 | Revision: A



LONGITUDINAL SECTION - HUB ROAD 01

SCALES: HORIZ 1:500 VERTICAL 1:100



LONGITUDINAL SECTION - TANK PAD

SCALES: HORIZ 1:500 VERTICAL 1:100

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

0 1 2 4 6 8 10m

SCALE 1:100 (A1), 1:200 (A3)

0 10 20 30 40 50m

SCALE 1:500 (A1), 1:1000 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
CONTROL LINE LONG SECTIONS
SHEET 2 OF 3

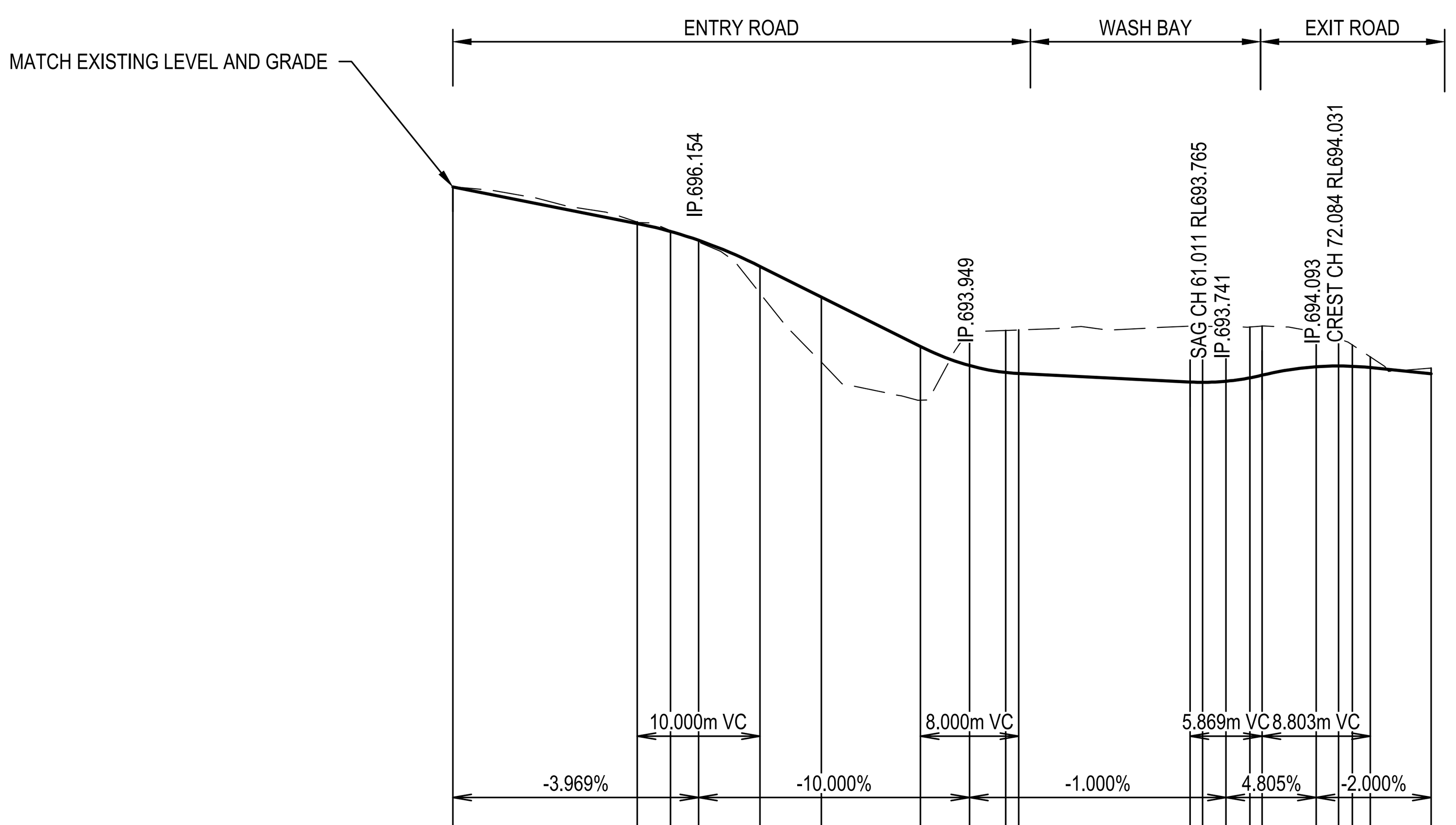
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWM	A1

Drawing Number: 8201825301-DRG-CI-2222

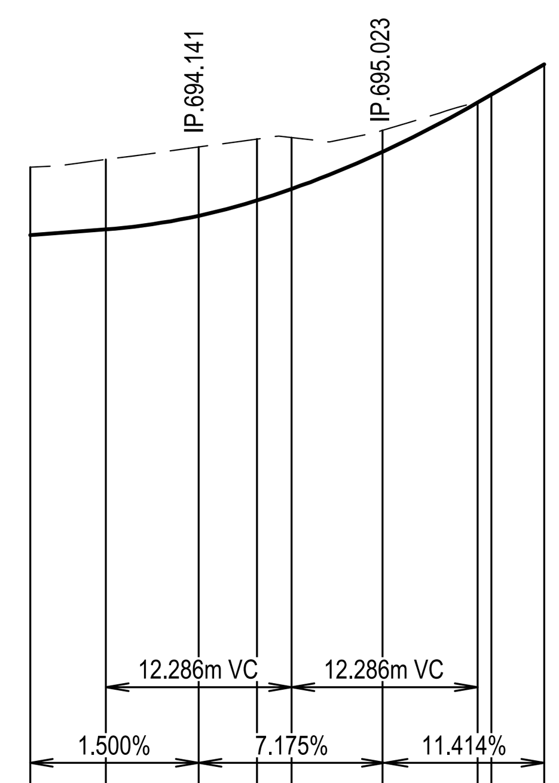
Revision: A

DATE PLOTTED: 20 December 2019 3:08 PM BY : JOEL MOY



CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	696.948	696.948
15.000	696.353	696.381
17.714	696.223	696.239
20.005	696.079	696.049
25.005	695.654	695.213
30.000	695.155	694.090
38.051	694.349	693.473
42.051	694.039	694.589
45.000	693.926	694.611
46.051	693.909	694.619
60.000	693.770	694.683
61.011	693.765	694.679
62.934	693.783	694.671
64.869	693.839	694.668
65.869	693.882	694.683
70.270	694.018	694.582
72.084	694.031	694.476
73.217	694.026	694.374
74.671	694.005	694.181
79.625	693.906	693.996

LONGITUDINAL SECTION - WASH BAY ROAD
SCALES: HORIZ 1:500 VERTICAL 1:100



CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	693.974	694.871
5.003	694.049	694.970
11.146	694.228	695.136
15.000	694.430	695.241
17.289	694.582	695.261
23.301	695.076	695.356
29.575	695.724	695.724
30.481	695.827	695.824
33.984	696.227	696.227

LONGITUDINAL SECTION - OPERATIONS
SCALES: HORIZ 1:500 VERTICAL 1:100

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

0 10 20 30 40 50m
SCALE 1:500 (A1), 1:1000 (A3)

XREF's: XR-82018253-01-G-TITLE; XR-82018253-01-D-RD_LSEC
CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\8201825301-DRG-CI-2223.dwg

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

GOULBURN MULWAREE COUNCIL

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Role	Name	Date
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Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

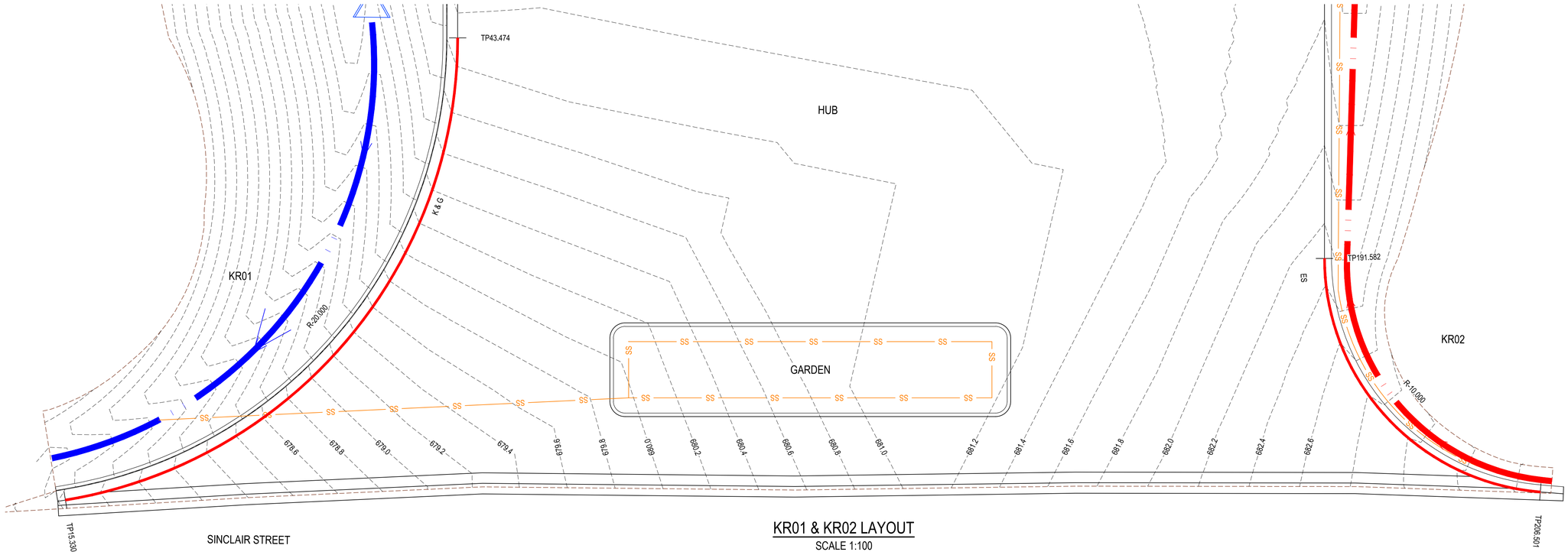
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
CONTROL LINE LONG SECTIONS
SHEET 3 OF 3

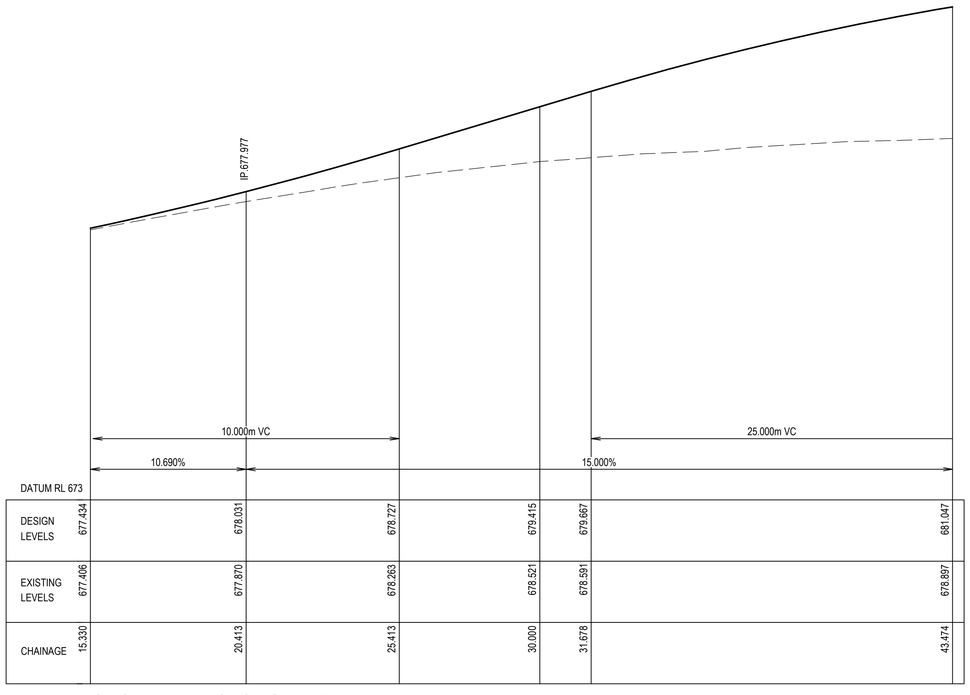
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM: AHD | Scale: AS SHOWN | Size: A1

Drawing Number: 8201825301-DRG-CI-2223 | Revision: A

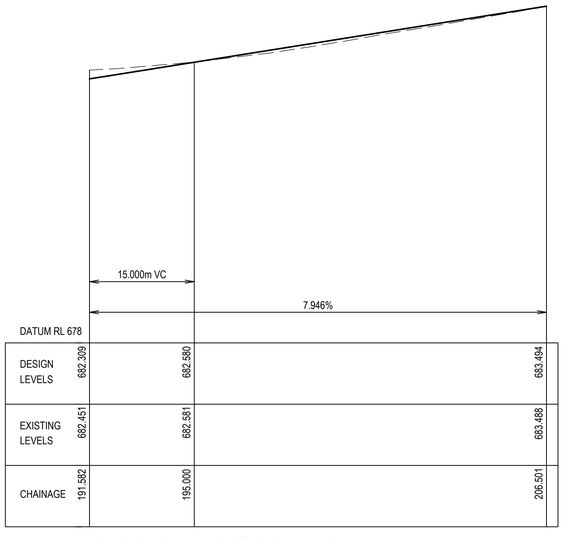


KR01 & KR02 LAYOUT
SCALE 1:100



DATUM RL 673						
DESIGN LEVELS	677.434	678.031	678.727	679.415	679.667	681.047
EXISTING LEVELS	677.406	677.870	678.263	678.521	678.591	678.897
CHAINAGE	15.330	20.413	25.413	30.000	31.678	43.474

LONGITUDINAL SECTION - KR01
SCALES: HORIZ 1:100 VERTICAL 1:50



DATUM RL 678			
DESIGN LEVELS	682.309	682.580	683.494
EXISTING LEVELS	682.451	682.581	683.488
CHAINAGE	191.562	195.000	206.501

LONGITUDINAL SECTION - KR02
SCALES: HORIZ 1:100 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 3 4 5m
SCALE 1:50 (A1), 1:100 (A3)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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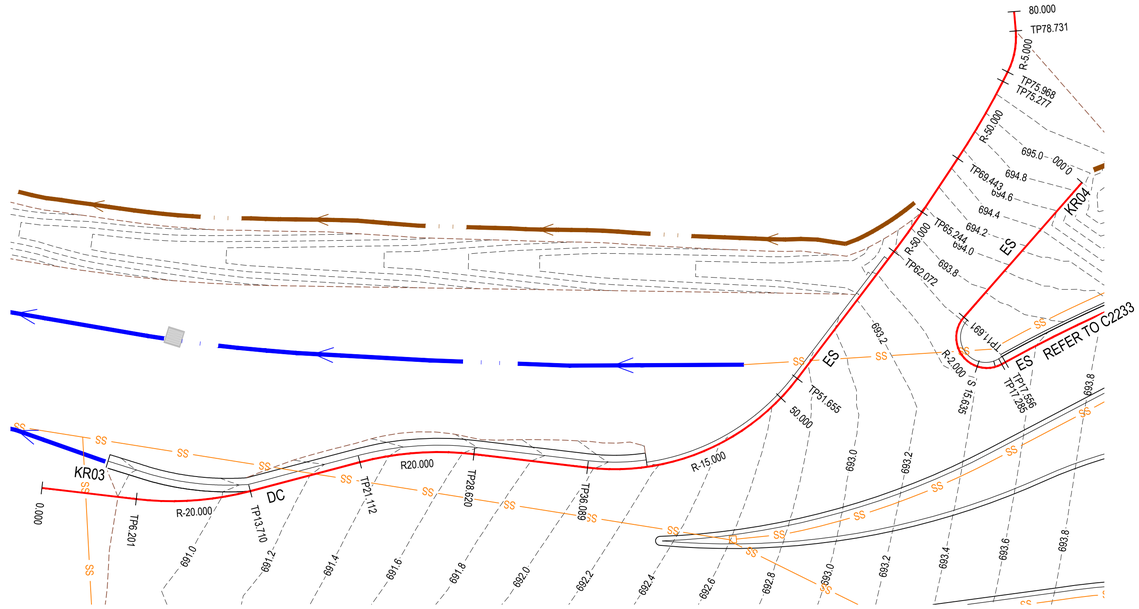
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 1 OF 7

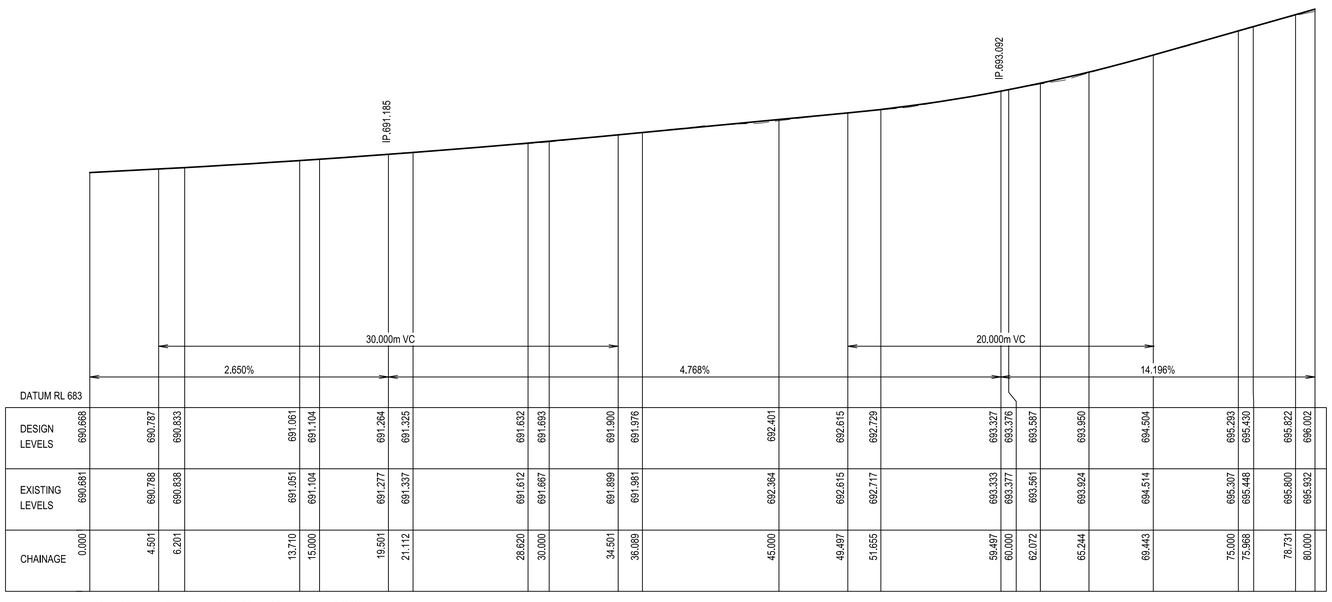
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2231
Revision: A



KR03 LAYOUT
SCALE 1:200



LONGITUDINAL SECTION - KR03
SCALES: HORIZ 1:200 VERTICAL 1:100

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

0 5 10 15 20m
SCALE 1:200 (A1), 1:400 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Web: www.cardno.com.au

		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

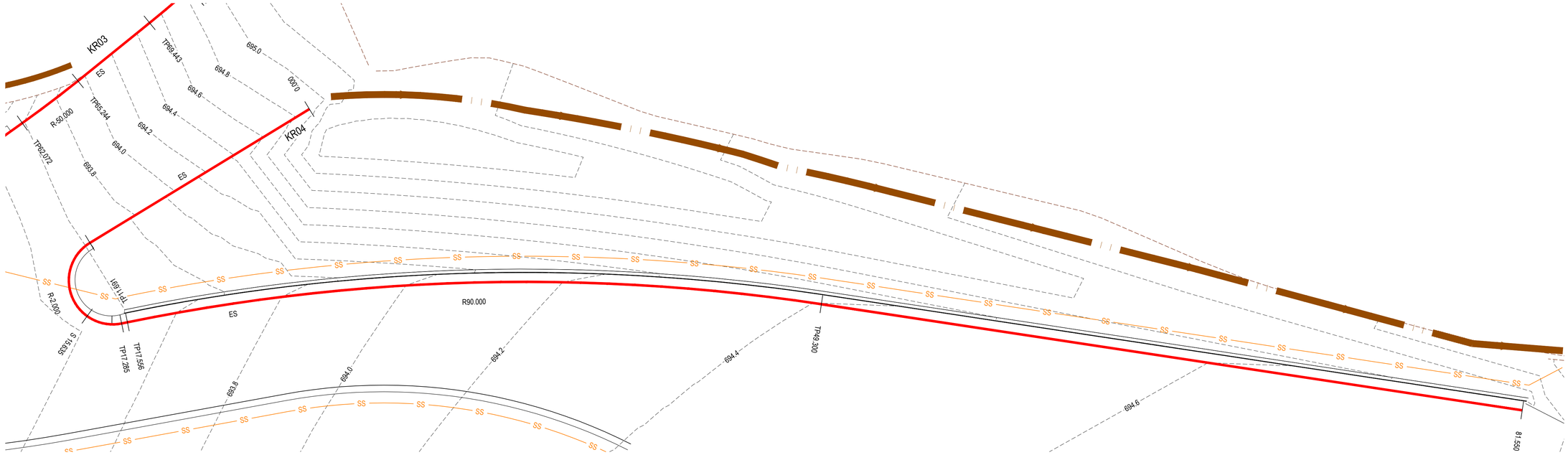
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 2 OF 7

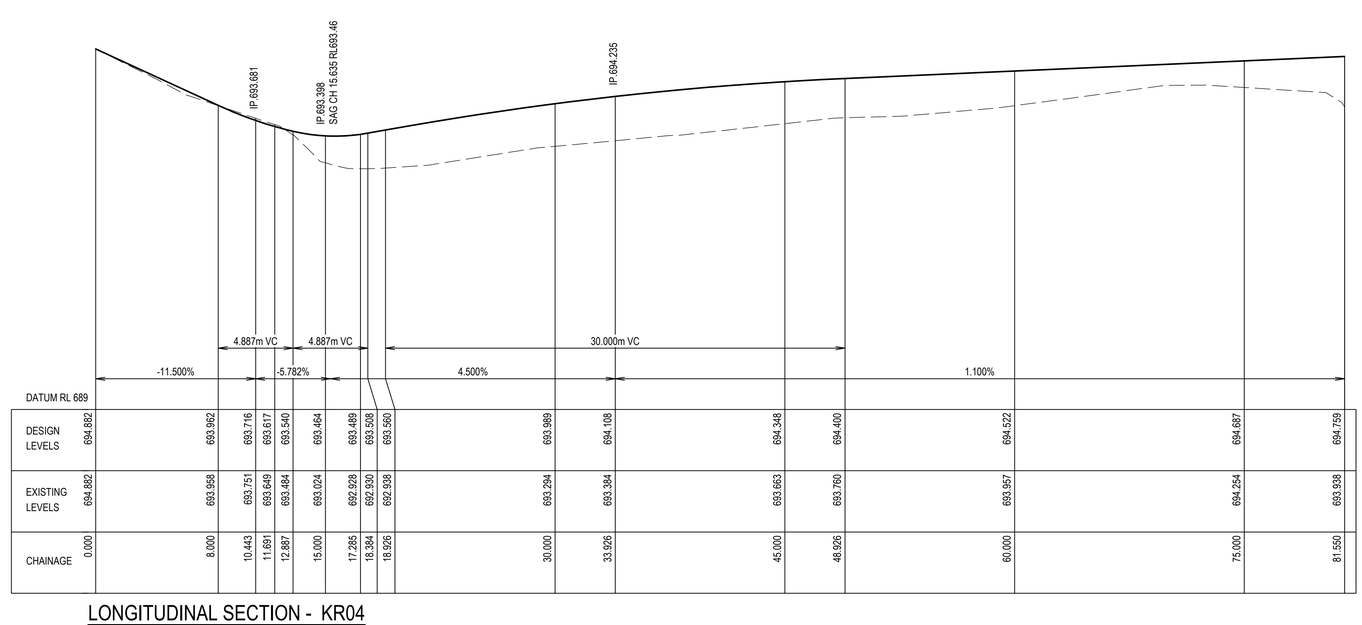
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2232
Revision: A



KR04 LAYOUT
SCALE 1:100



LONGITUDINAL SECTION - KR04
SCALES: HORIZ 1:200 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 3 4 5m
SCALE 1:50 (A1), 1:100 (A3)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

0 5 10 15 20m
SCALE 1:200 (A1), 1:400 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Drawn	MFN	Date 28/11/2018
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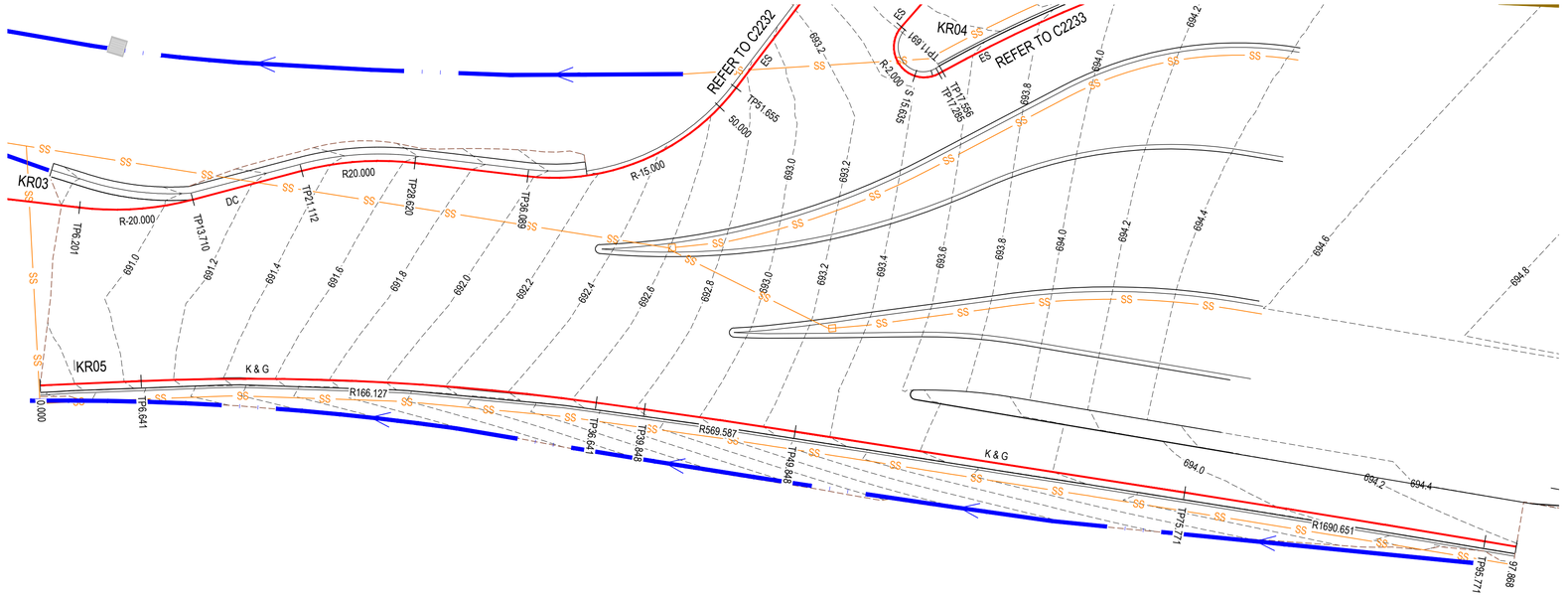
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 3 OF 7

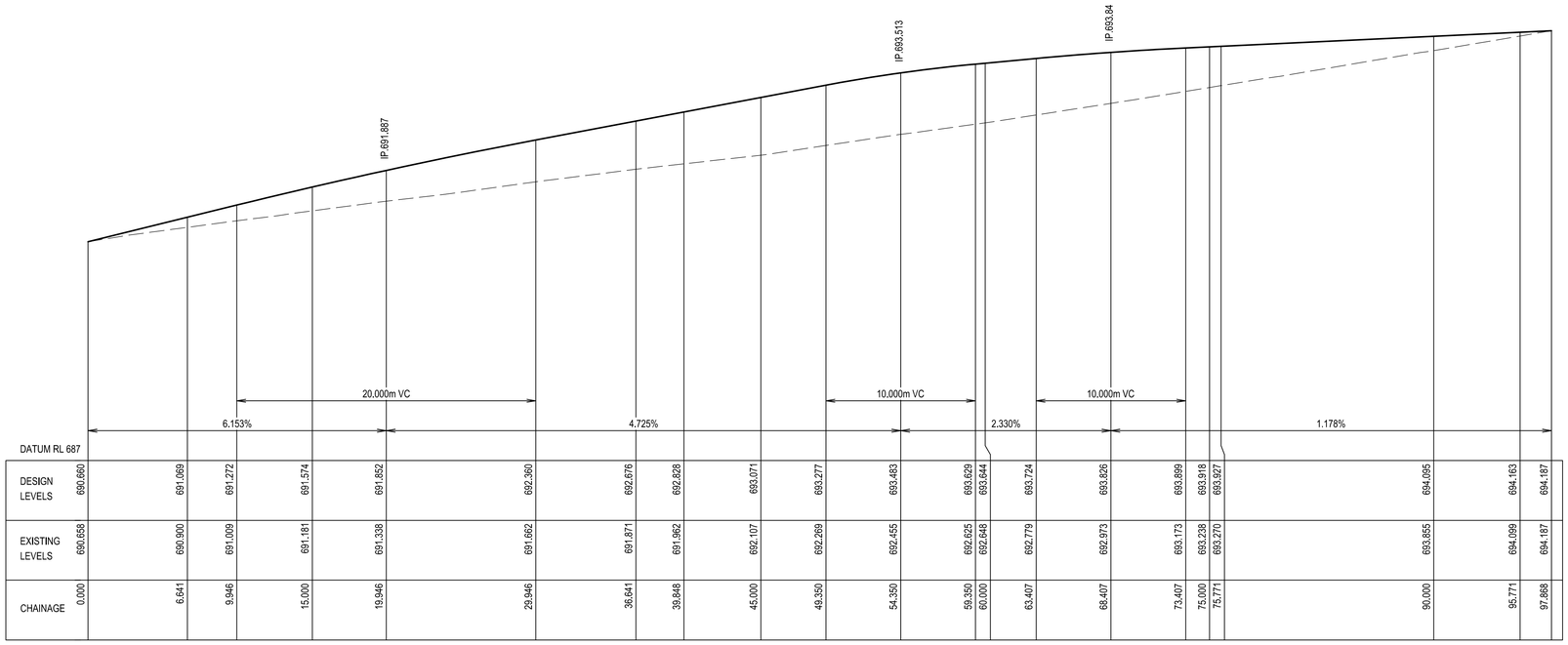
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2233
Revision: A



KR05 LAYOUT
SCALE 1:200



DATUM RL 687

DESIGN LEVELS	690.860	691.069	691.272	691.574	691.852	692.360	692.676	692.828	693.071	693.277	693.483	693.629	693.644	693.724	693.826	693.899	693.918	693.927	694.095	694.163	694.187			
EXISTING LEVELS	690.658	690.900	691.009	691.181	691.338	691.662	691.871	691.962	692.107	692.269	692.455	692.625	692.648	692.779	692.973	693.173	693.238	693.270	693.855	694.099	694.187			
CHAINAGE	0.000	6.641	9.946	15.000	19.946	29.946	36.641	39.848	45.000	49.350	54.350	59.350	60.000	63.407	68.407	73.407	75.000	75.771	90.000	95.771	97.868			

LONGITUDINAL SECTION - KR05
SCALES: HORIZ 1:200 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 3 4 5m
SCALE 1:50 (A1), 1:100 (A3)
0 5 10 15 20m
SCALE 1:200 (A1), 1:400 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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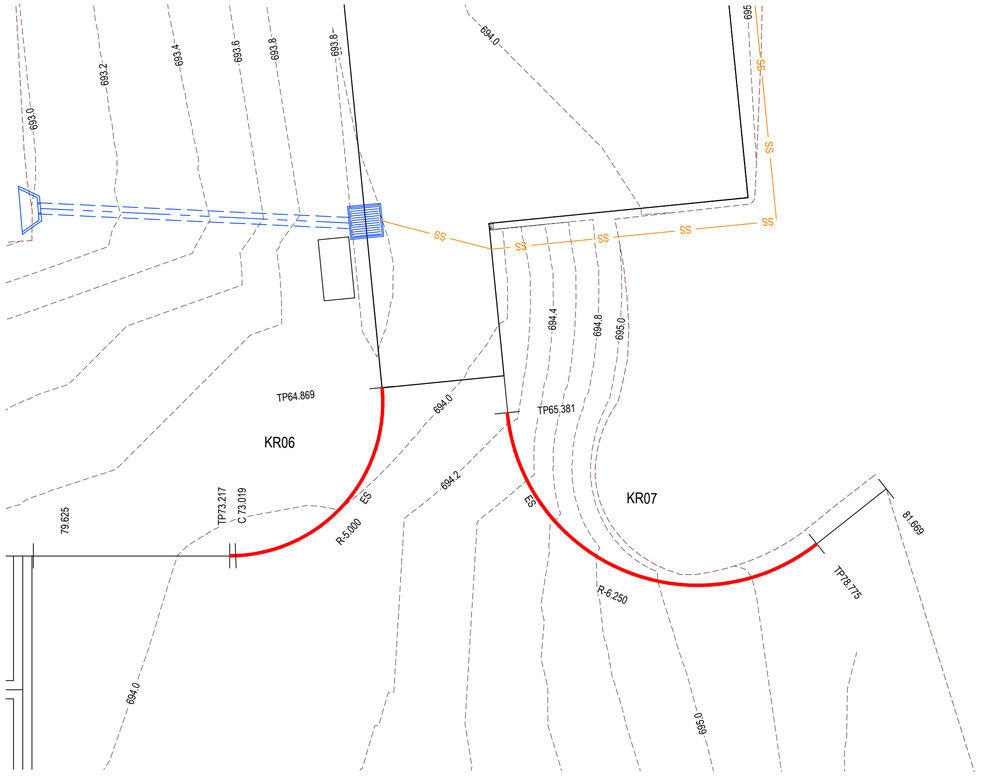
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 4 OF 7

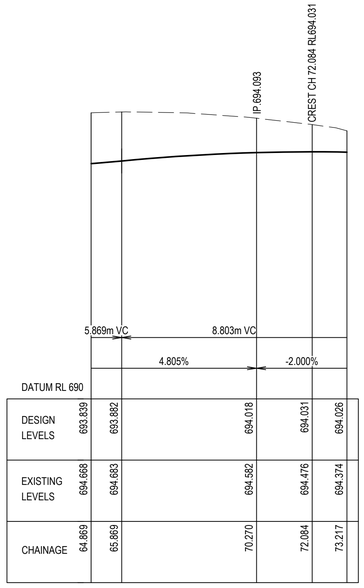
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

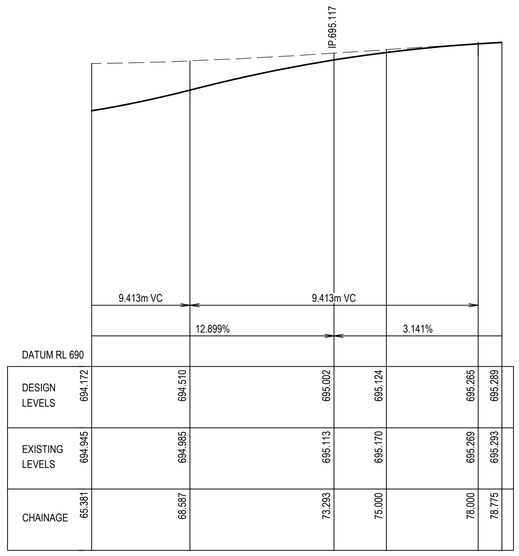
Drawing Number: 8201825301-DRG-CI-2234
Revision: A



KR06 & KR07 LAYOUT
SCALE 1:100



LONGITUDINAL SECTION - KR06
SCALES: HORIZ 1:100 VERTICAL 1:50



LONGITUDINAL SECTION - KR07
SCALES: HORIZ 1:100 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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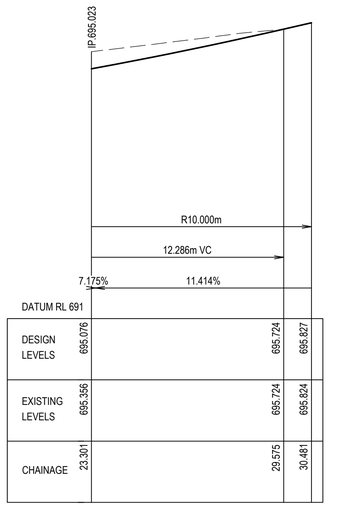
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 5 OF 7
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED
DATUM AHD | Scale AS SHOWN | Size A1
Drawing Number 8201825301-DRG-CI-2235 | Revision A

KR08 LAYOUT
SCALE 1:100



LONGITUDINAL SECTION - KR08
SCALES: HORIZ 1:100 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 3 4 5m
SCALE 1:50 (A1), 1:100 (A3)
0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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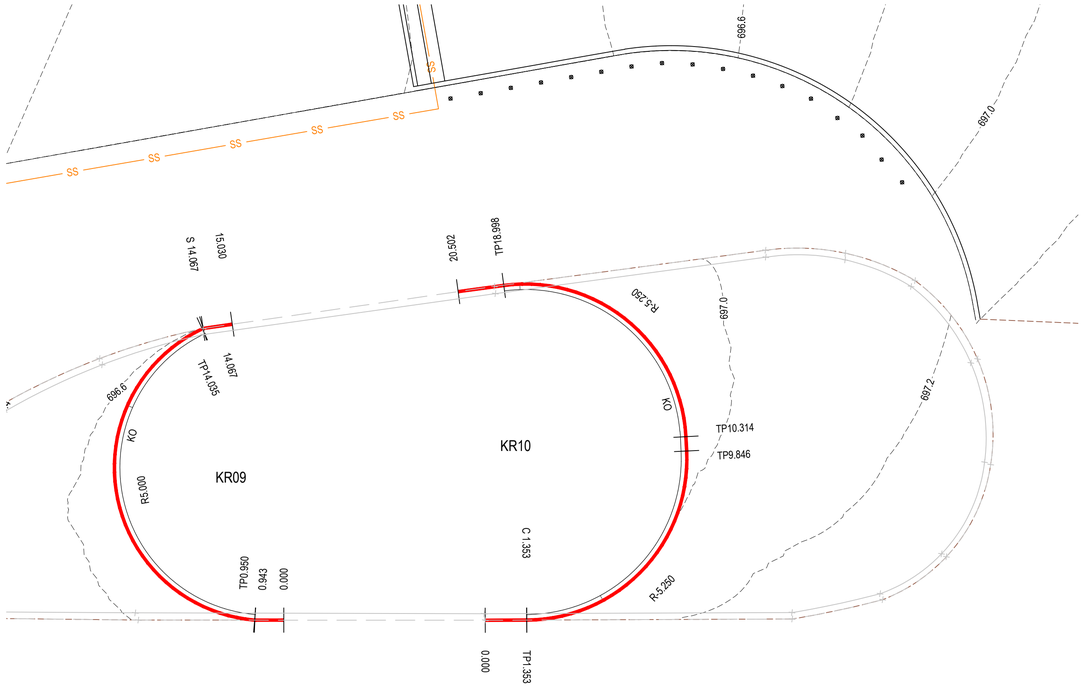
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 6 OF 7

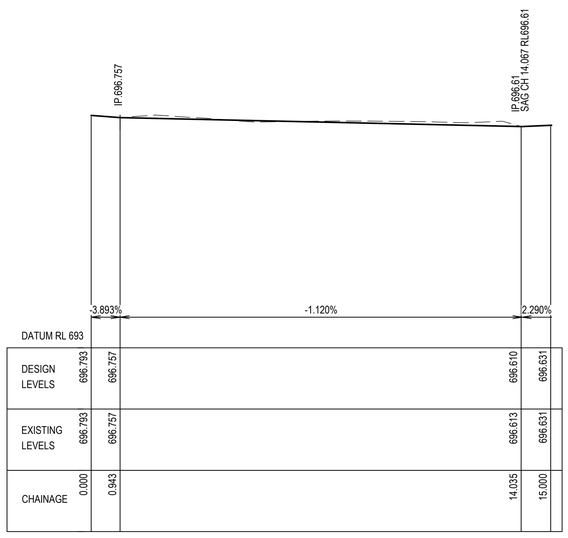
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2236
Revision: A

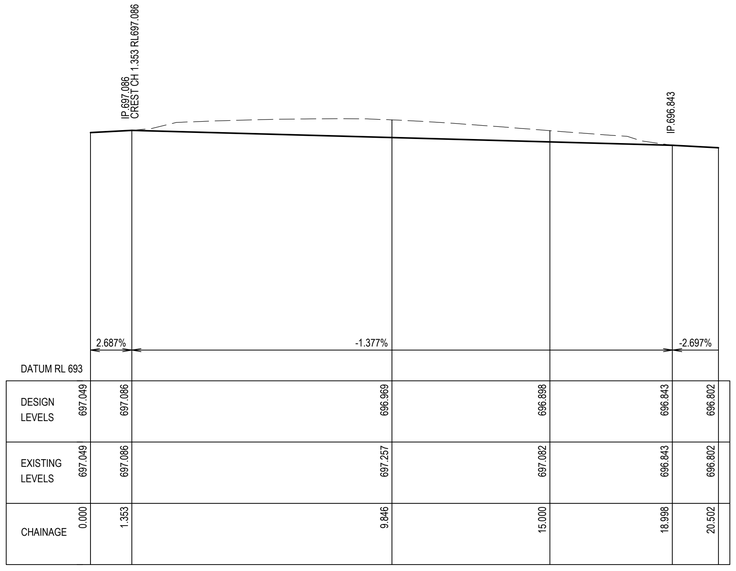


KR09 & KR10 LAYOUT
SCALE 1:100



DATUM RL 693						
DESIGN LEVELS	696.793	696.757			696.610	696.631
EXISTING LEVELS	696.793	696.757			696.613	696.631
CHAINAGE	0.000	0.943			14.035	15.000

LONGITUDINAL SECTION - KR09
SCALES: HORIZ 1:100 VERTICAL 1:50



DATUM RL 693						
DESIGN LEVELS	697.049	697.086		696.969	696.898	696.843	696.802
EXISTING LEVELS	697.049	697.086		697.257	697.082	696.843	696.802
CHAINAGE	0.000	1.353		9.846	15.000	18.998	20.502

LONGITUDINAL SECTION - KR10
SCALES: HORIZ 1:100 VERTICAL 1:50

LEGEND

KT	KERB WITH TOE
ES	EDGE STRIP
DC	DISH CROSSING
KO	KERB ONLY
K&G	KERB & GUTTER
	PROPOSED DIVERSION SWALE
	PROPOSED DIRTY WATER FLOWPATH
	PROPOSED CLEAN WATER FLOWPATH
SS	PROPOSED SUB SOIL
	KERB RETURN
30.0	DESIGN CONTOURS
	PROPOSED STORMWATER LINE
	PROPOSED STORMWATER STRUCTURES

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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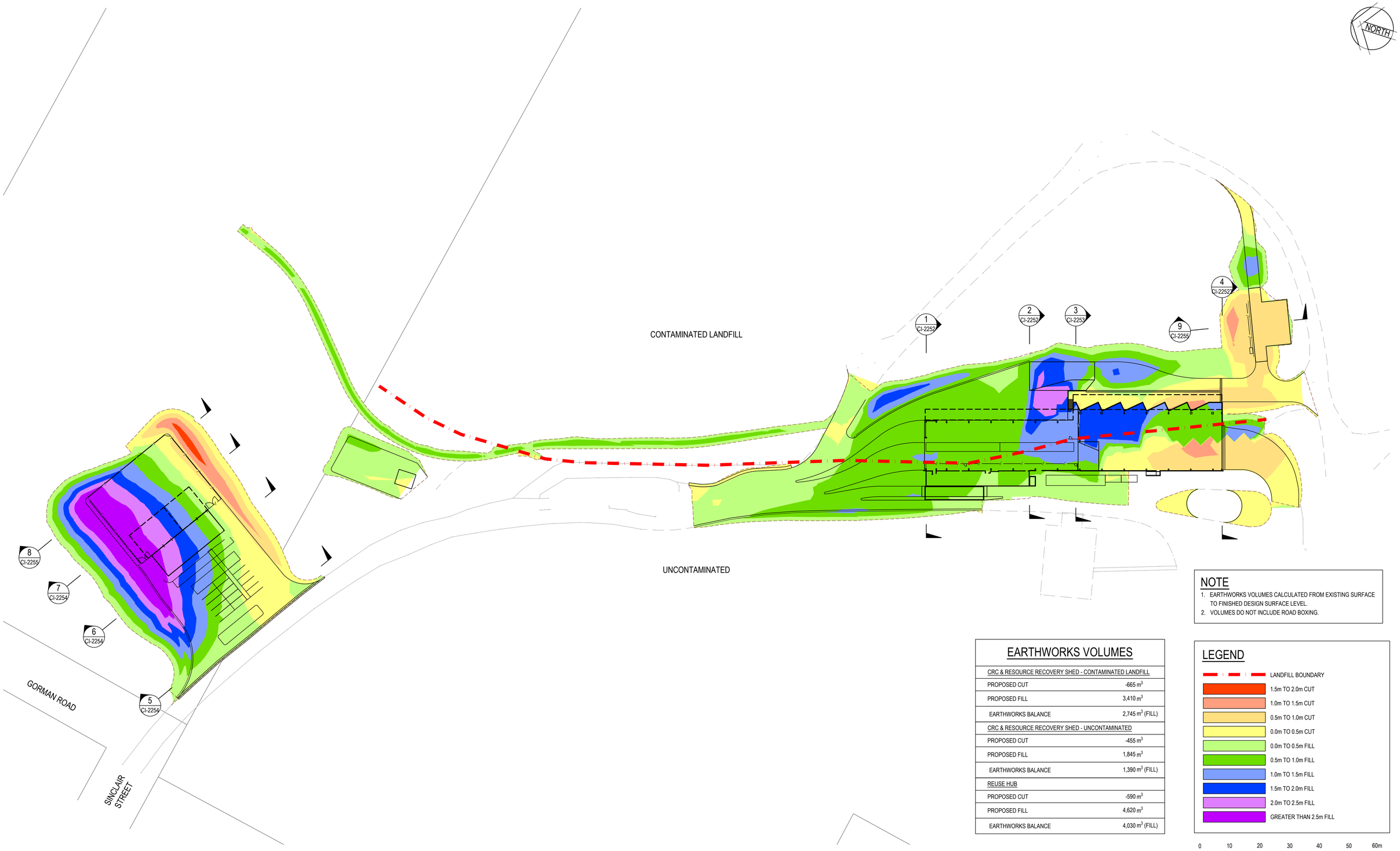
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
KERB RETURN LAYOUT PLAN
SHEET 7 OF 7

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2237
Revision: A



NOTE

1. EARTHWORKS VOLUMES CALCULATED FROM EXISTING SURFACE TO FINISHED DESIGN SURFACE LEVEL.
2. VOLUMES DO NOT INCLUDE ROAD BOXING.

EARTHWORKS VOLUMES

CRC & RESOURCE RECOVERY SHED - CONTAMINATED LANDFILL	
PROPOSED CUT	-665 m^3
PROPOSED FILL	3,410 m^3
EARTHWORKS BALANCE	2,745 m^3 (FILL)
CRC & RESOURCE RECOVERY SHED - UNCONTAMINATED	
PROPOSED CUT	-455 m^3
PROPOSED FILL	1,845 m^3
EARTHWORKS BALANCE	1,390 m^3 (FILL)
REUSE HUB	
PROPOSED CUT	-590 m^3
PROPOSED FILL	4,620 m^3
EARTHWORKS BALANCE	4,030 m^3 (FILL)

LEGEND

- LANDFILL BOUNDARY
- 1.5m TO 2.0m CUT
- 1.0m TO 1.5m CUT
- 0.5m TO 1.0m CUT
- 0.0m TO 0.5m CUT
- 0.0m TO 0.5m FILL
- 0.5m TO 1.0m FILL
- 1.0m TO 1.5m FILL
- 1.5m TO 2.0m FILL
- 2.0m TO 2.5m FILL
- GREATER THAN 2.5m FILL

0 10 20 30 40 50 60m

SCALE 1:600 (A1), 1:1200 (A3)

EARTHWORKS LAYOUT

SCALE 1:600

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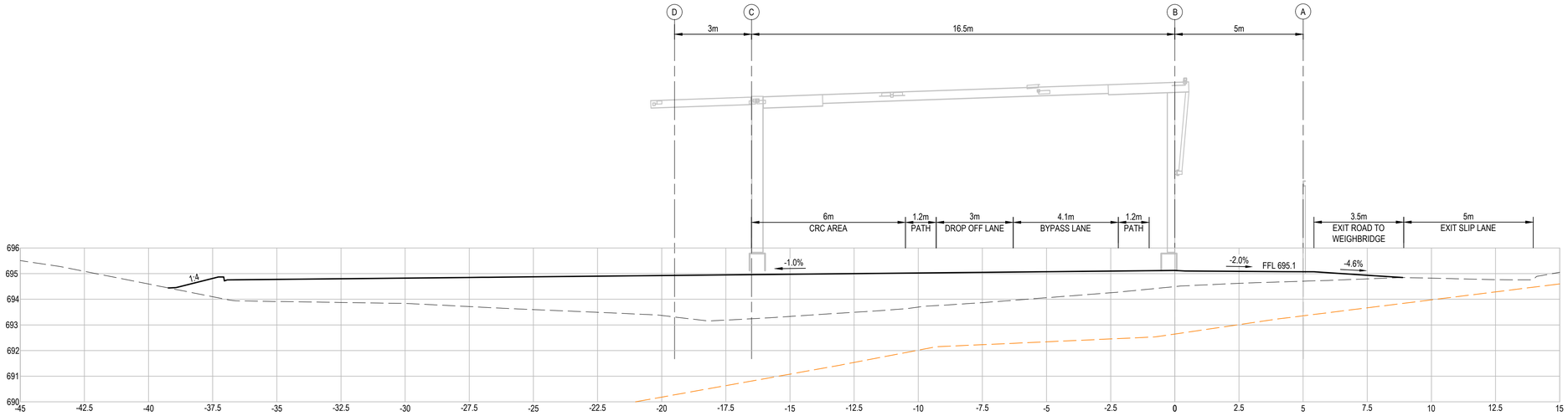
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
EARTHWORKS LAYOUT PLAN

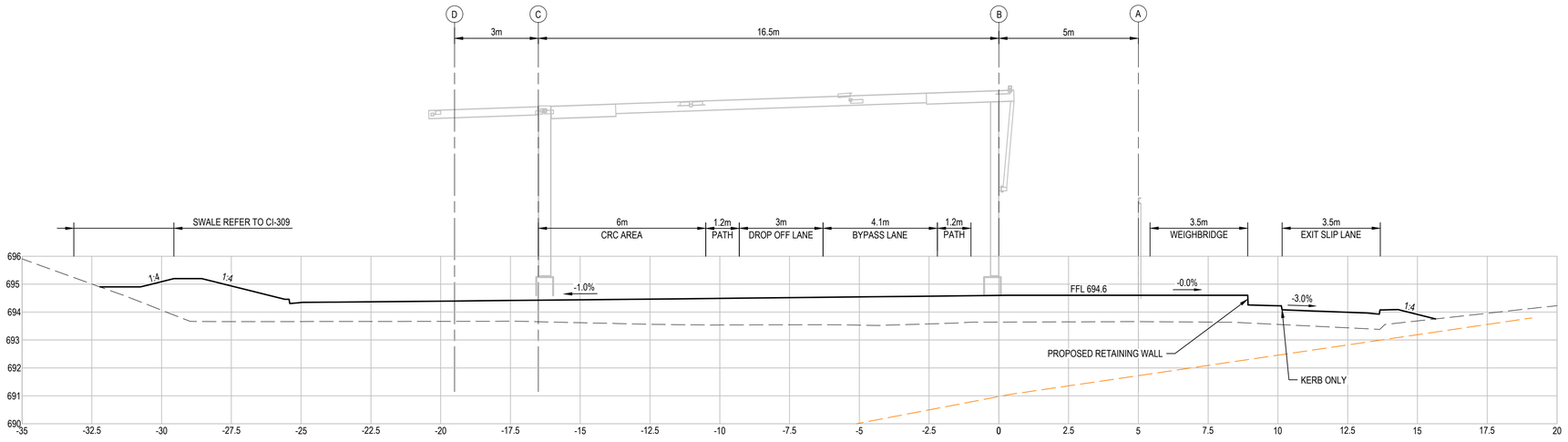
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-CI-2251
Revision: A



SECTION 2
SCALE 1:100
CI-2251



SECTION 1
SCALE 1:100
CI-2251

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- ROCK SURFACE (TBC)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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Client: GOULBURN MULWAREE COUNCIL

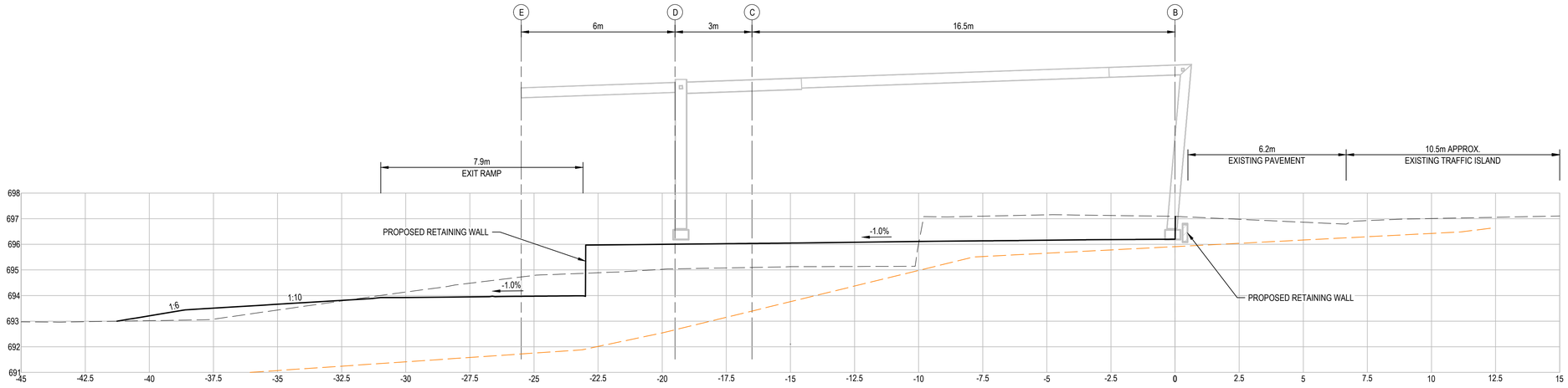
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
EARTHWORKS SITE SECTIONS
SHEET 1 OF 4

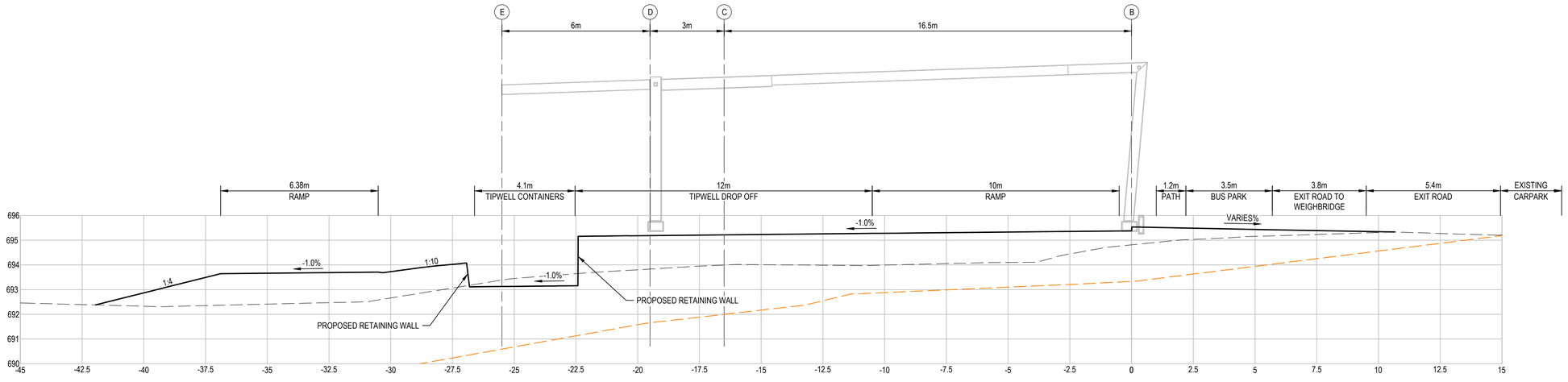
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

Drawing Number: 8201825301-DRG-CI-2252
Revision: A



SECTION 4
SCALE 1:100
CI-2251



SECTION 3
SCALE 1:100
CI-2251

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- ROCK SURFACE (TBC)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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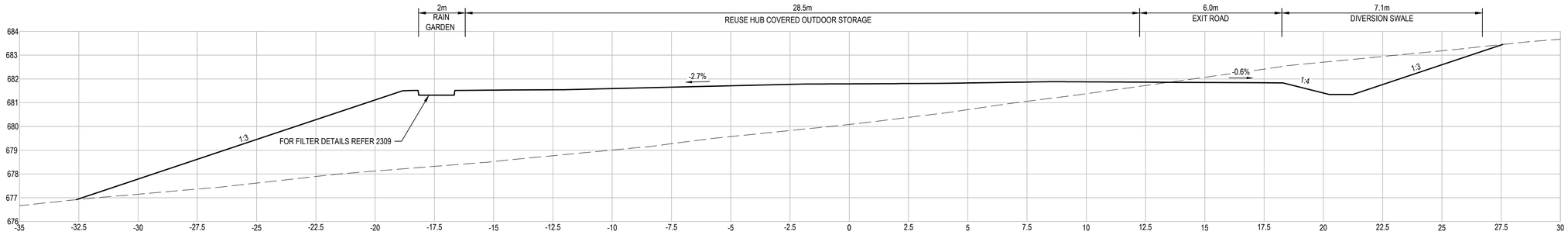
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
EARTHWORKS SITE SECTIONS
SHEET 2 OF 4

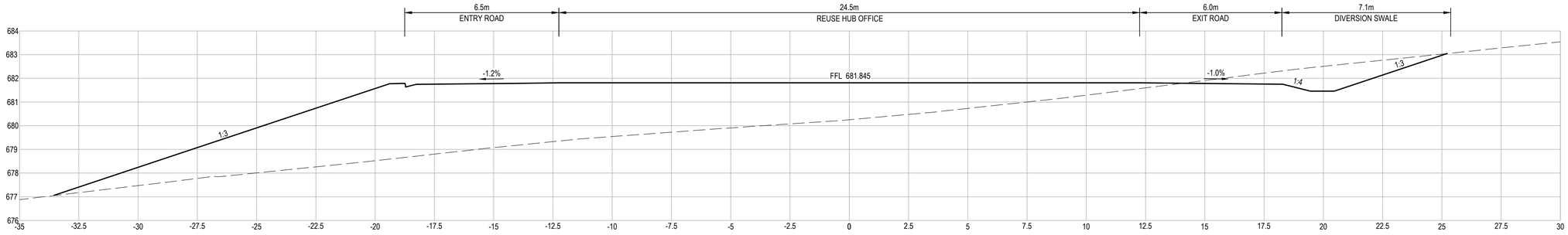
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

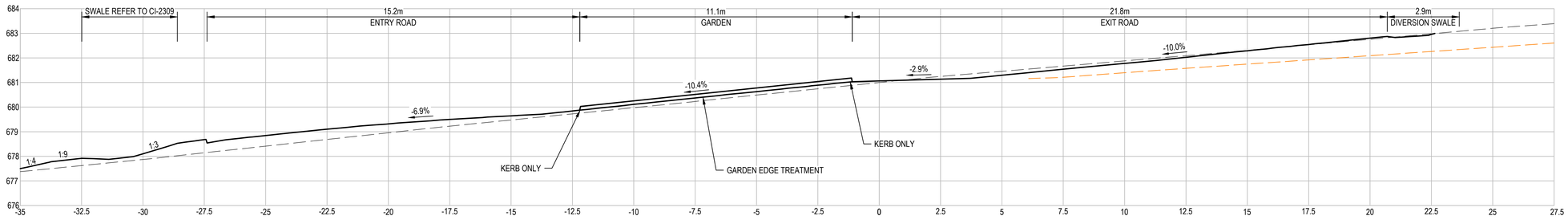
Drawing Number: 8201825301-DRG-CI-2253
Revision: A



SECTION 7 (CI-2251)
SCALE 1:100



SECTION 6 (CI-2251)
SCALE 1:100



SECTION 5 (CI-2251)
SCALE 1:100

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- ROCK SURFACE (TBC)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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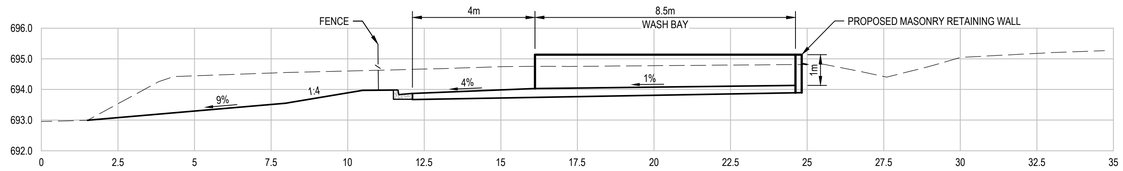
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RE-USE HUB
EARTHWORKS SITE SECTIONS
SHEET 3 OF 4

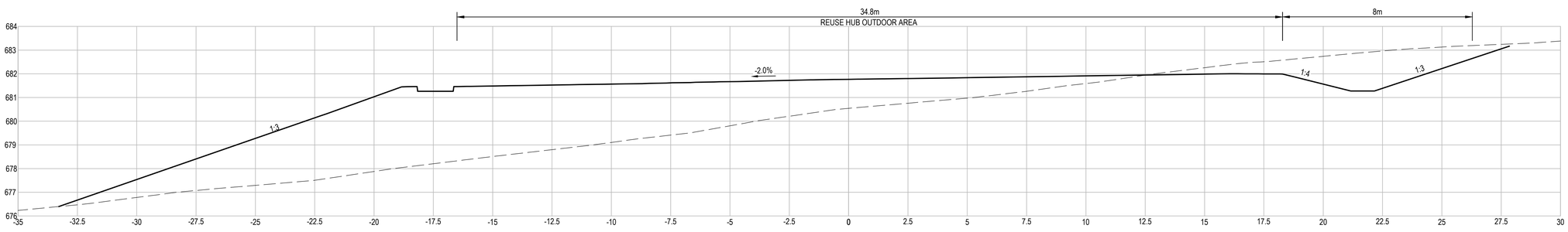
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

Drawing Number: 8201825301-DRG-CI-2254
Revision: A



SECTION 9
SCALE 1:100
CI-2251



SECTION 8
SCALE 1:100
CI-2251

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

LEGEND

- DESIGN SURFACE
- EXISTING SURFACE
- ROCK SURFACE (TBC)

0 1 2 4 6 8 10m
SCALE 1:100 (A1), 1:200 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Drawn	MFN	Date 28/11/2018
Checked	MPR	Date 19/12/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RE-USE HUB
EARTHWORKS SITE SECTIONS
SHEET 4 OF 4

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

Drawing Number: 8201825301-DRG-CI-2255
Revision: A

DATE PLOTTED: 20 December 2019 3:16 PM BY : JOEL MOY

XREFs: XR-82018253-01-G-TITLE; XR-82018253-01-E-SURVEY; XR-82018253-01-D-BASE; XR-82018253-01-G-LEGEND; XR-82018253-01-D-BE_XSEC

CAD File: \\AU\WOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\82018253\01\8253301-DRG-CI-2261.dwg

NORTH

STAIR RW

TIPWELL RW

WASH BAY RW

EXIT RAMP RW

WEIGH BRIDGE RW

RETAINING WALL LAYOUT

SCALE 1:250

LEGEND

PROPOSED RETAINING WALL

EXISTING FENCE

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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		Date
Drawn	MD	18/12/2019
Checked	MPR	19/12/2019
Designed	MFN	17/12/2019
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

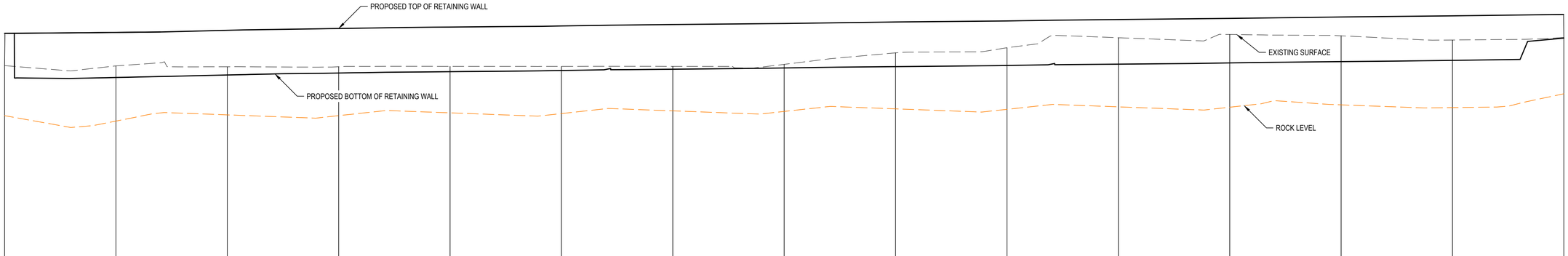
Title: RUG SITE
RETAINING WALLS LAYOUT PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2261

Revision: A



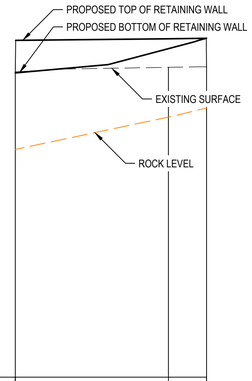
DATUM RL 685.000															
WALL TOP		695.150	695.207	695.362	695.427	695.475	695.540	695.588	695.653	695.701	695.766	695.814	695.879	695.932	695.993
WALL BOTTOM	695.146	693.164	693.276	693.365	693.424	693.478	693.537	693.591	693.650	693.704	693.763	693.817	693.875	693.930	694.929
DEPTH		1.986	1.930	1.998	2.003	1.998	2.003	1.998	2.003	1.998	2.003	1.998	2.003	2.002	1.063
EXISTING LEVELS	693.695	693.683	693.646	693.645	693.663	693.661	693.663	693.753	694.270	694.499	694.949	695.095	695.036	694.846	694.962
CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000

FOR CONTINUATION REFER BELOW

LONGITUDINAL SECTION - TIPWELL RW

SCALES: HORIZ 1:100 VERTICAL 1:100

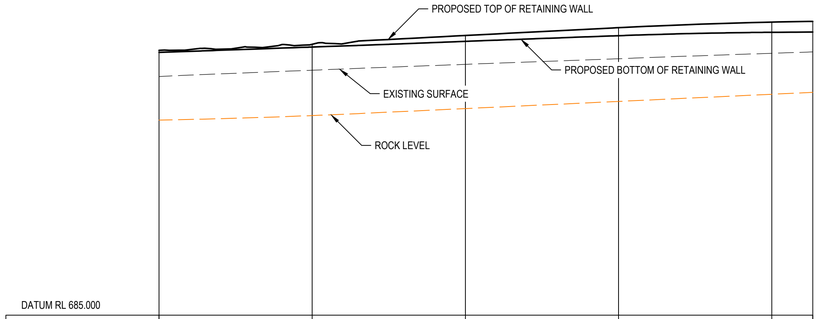
FOR CONTINUATION REFER ABOVE



DATUM RL 685.000				
WALL TOP	695.993	696.043	696.057	
WALL BOTTOM	694.929	695.720	696.057	
DEPTH	1.063	0.322		
EXISTING LEVELS	694.962	695.112	695.127	
CHAINAGE	70.000	75.000	76.245	

LONGITUDINAL SECTION - TIPWELL RW

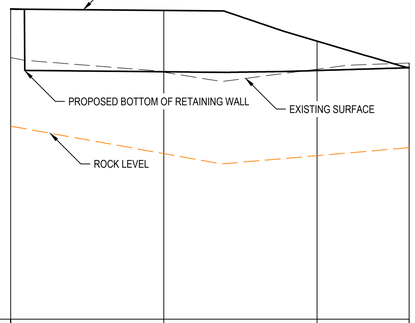
SCALES: HORIZ 1:100 VERTICAL 1:100



DATUM RL 685.000						
WALL TOP	693.641	693.840	694.126	694.381	694.564	694.587
WALL BOTTOM	693.574	693.750	693.935	694.120	694.231	694.237
DEPTH	0.067	0.090	0.191	0.261	0.333	0.349
EXISTING LEVELS	692.789	692.893	693.185	693.369	693.545	693.590
CHAINAGE	0.000	5.000	10.000	15.000	20.000	21.339

LONGITUDINAL SECTION - WEIGH BRIDGE RW

SCALES: HORIZ 1:100 VERTICAL 1:100



DATUM RL 685.000				
WALL TOP	695.118	695.075	694.073	693.209
WALL BOTTOM	695.121	693.073	693.114	693.204
DEPTH	-0.003	2.002	0.959	0.004
EXISTING LEVELS	693.537	693.058	693.156	693.359
CHAINAGE	0.000	5.000	10.000	13.006

LONGITUDINAL SECTION - STAIR RW

SCALES: HORIZ 1:100 VERTICAL 1:100

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

H: 0 1 2 4 6 8 10m
V: 0 1 2 4 6 8 10m
SCALE: H:1:100 V:1:100 @A1

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Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

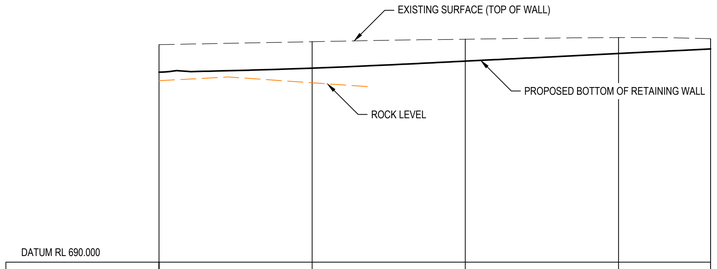
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
RETAINING WALLS LONG SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

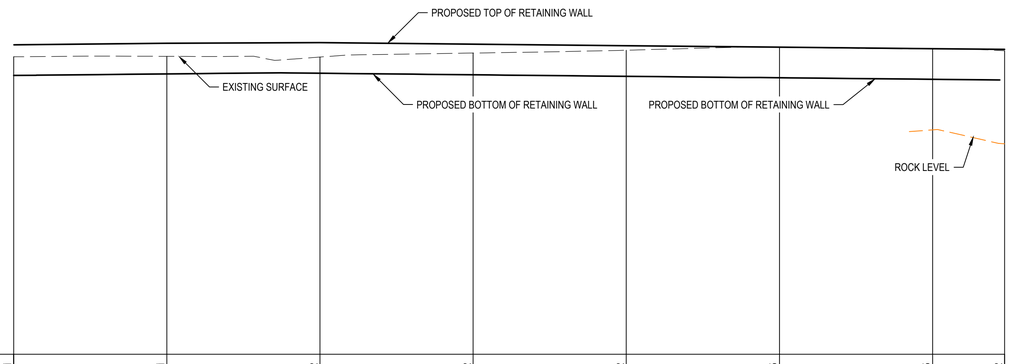
Drawing Number: 8201825301-DRG-CI-2265
Revision: A



DATUM RL 690.000						
WALL TOP	697.101	697.198	697.277	697.332	697.296	
WALL BOTTOM	696.204	696.335	696.564	696.813	696.962	
DEPTH	0.897	0.863	0.713	0.520	0.334	
EXISTING LEVELS	697.101	697.198	697.277	697.332	697.296	
CHAINAGE	0.000	5.000	10.000	15.000	18.007	

LONGITUDINAL SECTION - EXIT RAMP RW

SCALES: HORIZ 1:100 VERTICAL 1:100



DATUM RL 685.000							
WALL TOP	695.101	695.151	695.172	695.122	695.072	695.025	694.975	694.952
WALL BOTTOM		694.151	694.172	694.122	694.072	694.025	693.975	
DEPTH		1.000	1.000	1.000	1.000	0.999	1.000	
EXISTING LEVELS	694.710	694.724	694.700	694.832	694.924	695.017	694.963	694.905
CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	32.350

LONGITUDINAL SECTION - WASH BAY RW

SCALES: HORIZ 1:100 VERTICAL 1:100

NOTE

1. ROCK LEVELS INDICATIVE ONLY. TO BE CONFIRMED PRIOR TO CONSTRUCTION.

H: 0 1 2 4 6 8 10m
V: 0 1 2 4 6 8 10m
SCALE: H:1:100 V:1:100 @A1

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
RETAINING WALLS LONG SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:100	A1

Drawing Number: 8201825301-DRG-CI-2266
Revision: A

STORMWATER CATCHMENT

SCALE 1:1000

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Checked	MPR	Date 19/12/2019
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

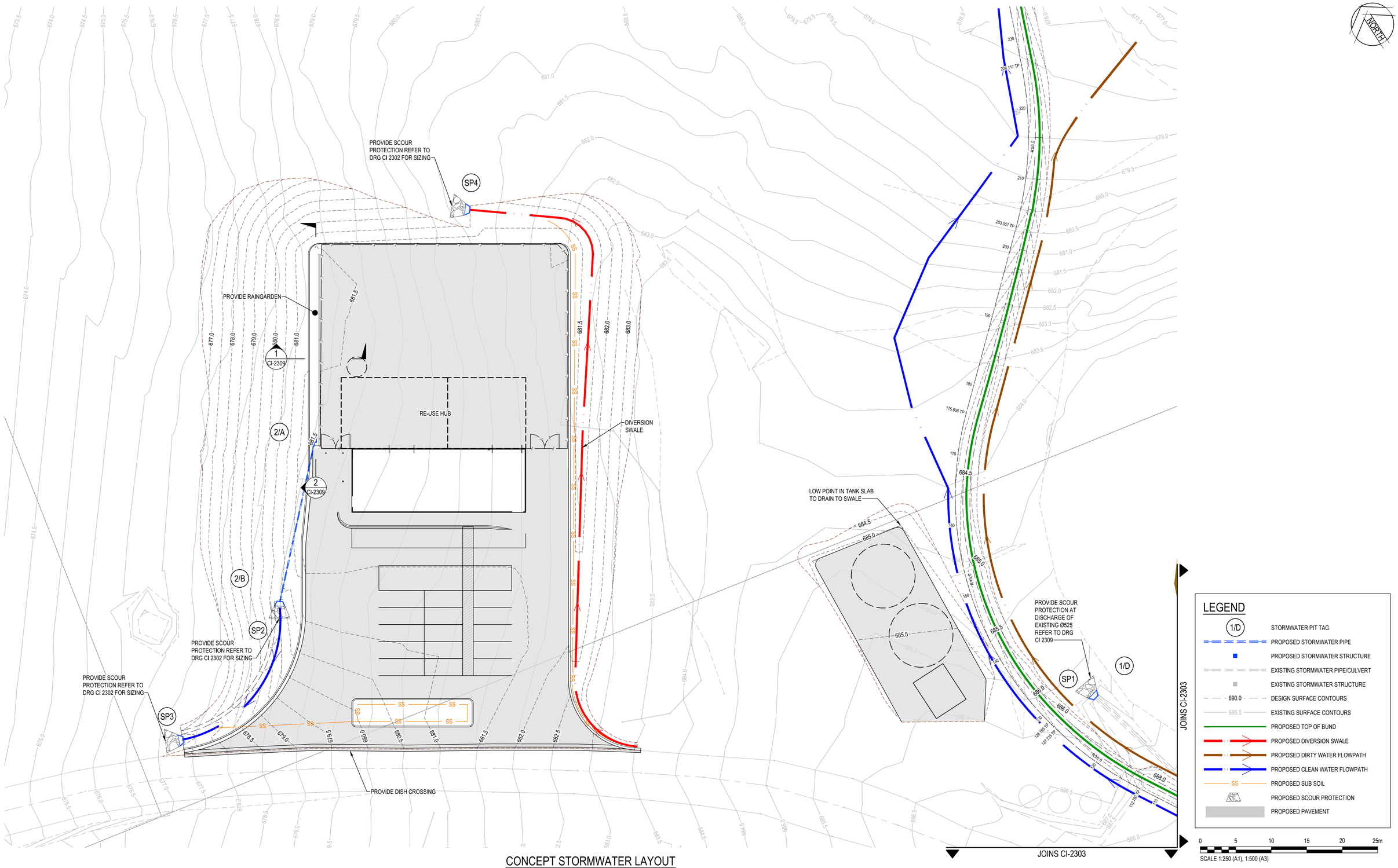
Title: RUG SITE
STORMWATER CATCHMENT PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	1:1000	A1

Drawing Number: 8201825301-DRG-CI-2301

Revision: A



CONCEPT STORMWATER LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

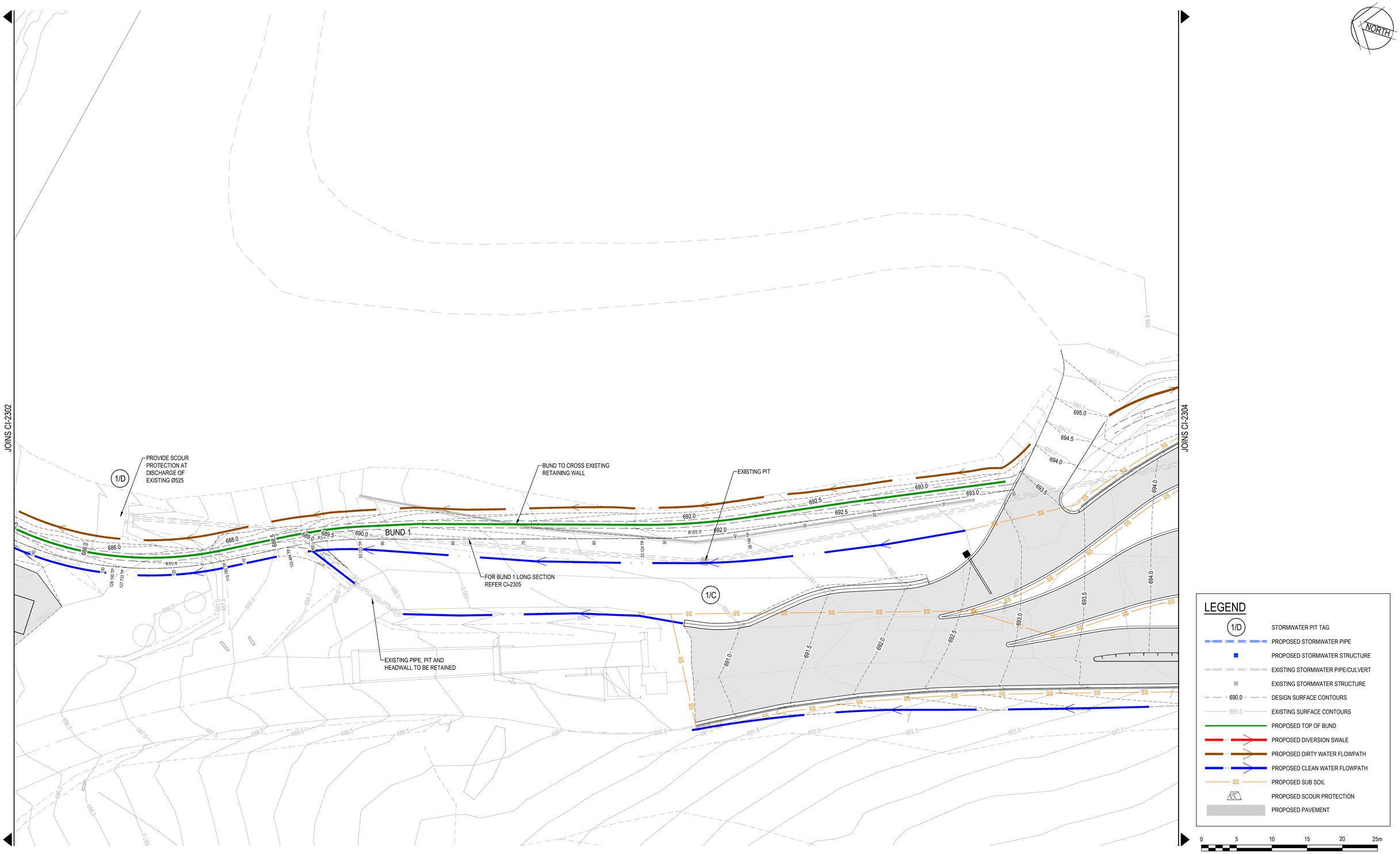
Title: RUG SITE
STORMWATER LAYOUT PLAN
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2302

Revision: A



CONCEPT STORMWATER LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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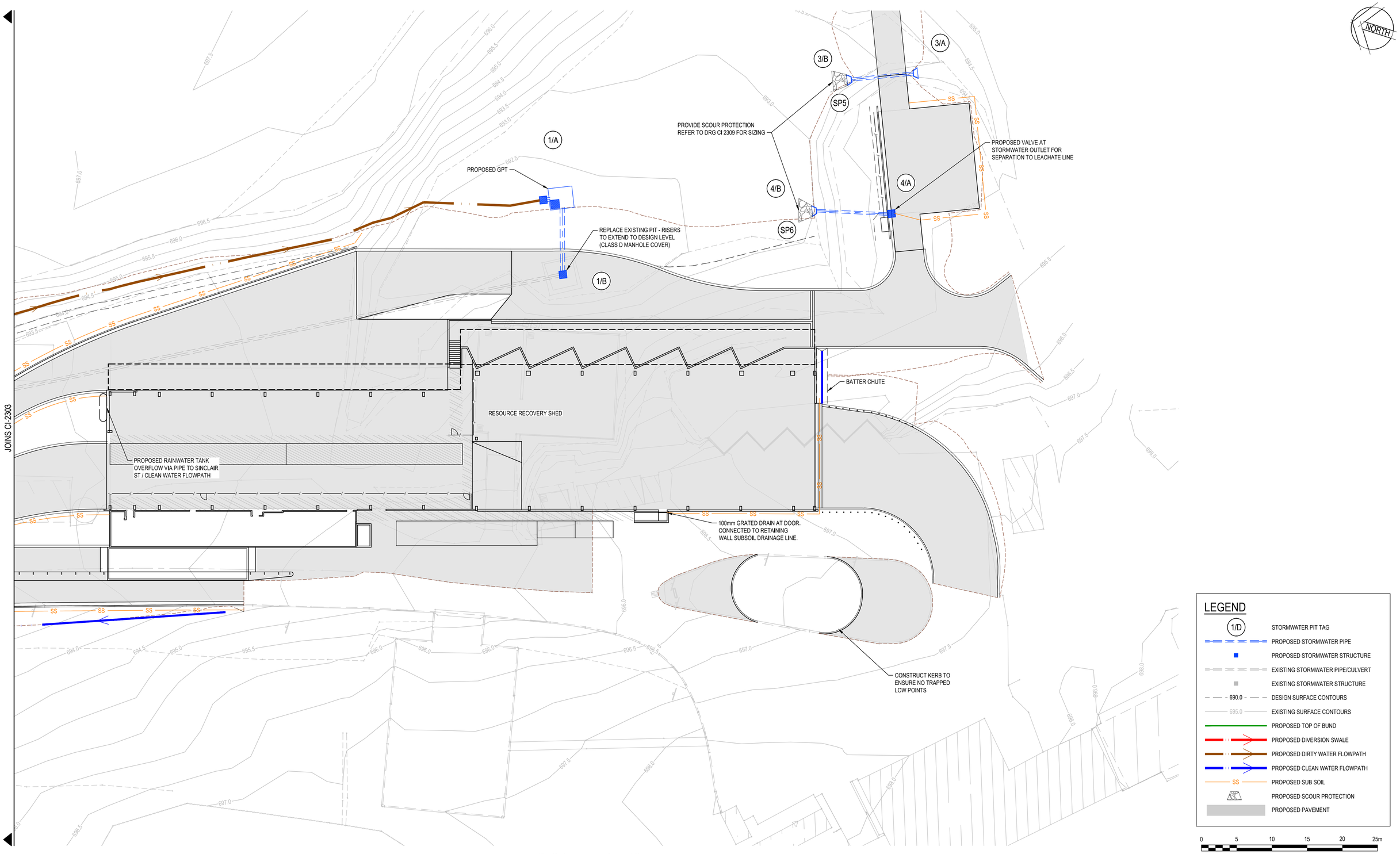
Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
STORMWATER LAYOUT PLAN
SHEET 2 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2303
Revision: A



STORMWATER LAYOUT

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

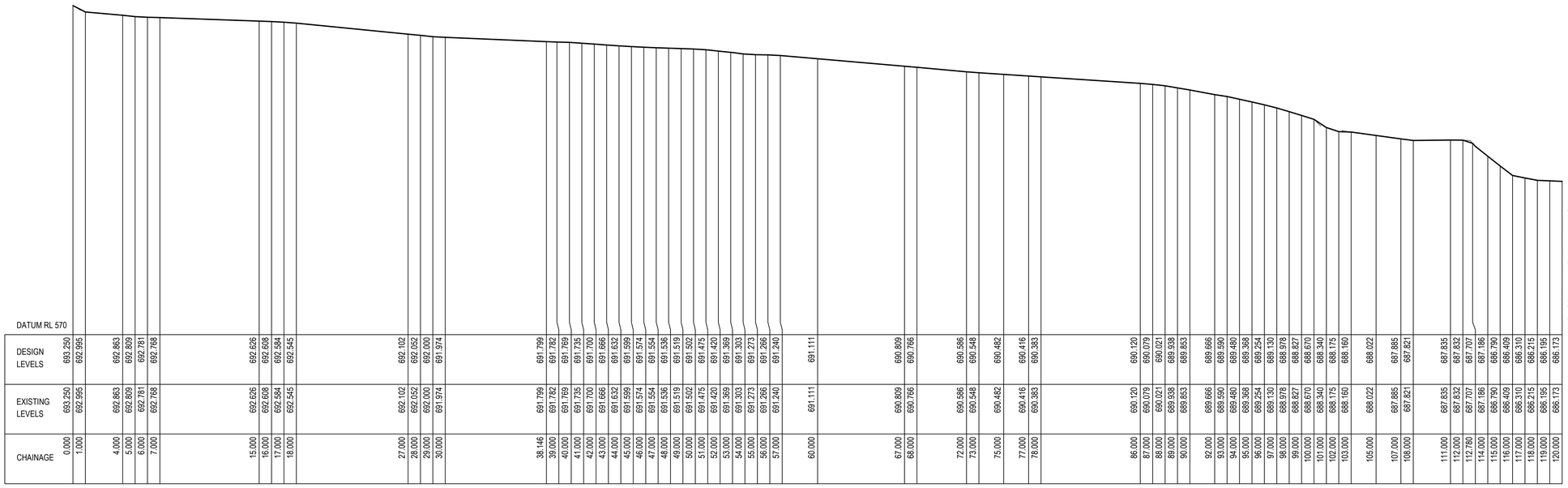
Title: RUG SITE
STORMWATER LAYOUT PLAN
SHEET 3 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	1:250	A1

Drawing Number: 8201825301-DRG-CI-2304

Revision: A



	CHAINAGE	EXISTING LEVELS	DESIGN LEVELS
	0.000	693.250	693.250
	1.000	692.995	692.995
	4.000	692.863	692.863
	5.000	692.809	692.809
	6.000	692.781	692.781
	7.000	692.768	692.768
	15.000	692.626	692.626
	16.000	692.608	692.608
	17.000	692.584	692.584
	18.000	692.545	692.545
	27.000	692.102	692.102
	28.000	692.052	692.052
	29.000	692.000	692.000
	30.000	691.974	691.974
	38.146	691.799	691.799
	39.000	691.782	691.782
	40.000	691.769	691.769
	41.000	691.735	691.735
	42.000	691.700	691.700
	43.000	691.666	691.666
	44.000	691.632	691.632
	45.000	691.599	691.599
	46.000	691.574	691.574
	47.000	691.554	691.554
	48.000	691.536	691.536
	49.000	691.519	691.519
	50.000	691.502	691.502
	51.000	691.475	691.475
	52.000	691.420	691.420
	53.000	691.369	691.369
	54.000	691.303	691.303
	55.000	691.273	691.273
	56.000	691.266	691.266
	57.000	691.240	691.240
	60.000	691.111	691.111
	67.000	690.809	690.809
	68.000	690.766	690.766
	72.000	690.586	690.586
	73.000	690.548	690.548
	75.000	690.482	690.482
	77.000	690.416	690.416
	78.000	690.383	690.383
	86.000	690.120	690.120
	87.000	690.079	690.079
	88.000	690.021	690.021
	89.000	689.938	689.938
	90.000	689.853	689.853
	92.000	689.666	689.666
	93.000	689.590	689.590
	94.000	689.480	689.480
	95.000	689.368	689.368
	96.000	689.254	689.254
	97.000	689.130	689.130
	98.000	688.978	688.978
	99.000	688.827	688.827
	100.000	688.670	688.670
	101.000	688.340	688.340
	102.000	688.175	688.175
	103.000	688.160	688.160
	105.000	688.022	688.022
	107.000	687.885	687.885
	108.000	687.821	687.821
	111.000	687.835	687.835
	112.000	687.832	687.832
	112.780	687.707	687.707
	114.000	687.186	687.186
	115.000	686.790	686.790
	116.000	686.409	686.409
	117.000	686.310	686.310
	118.000	686.215	686.215
	119.000	686.195	686.195
	120.000	686.173	686.173

LONGITUDINAL SECTION - BUND 1

SCALES: HORIZ 1:200 VERTICAL 1:100

	CHAINAGE	EXISTING LEVELS	DESIGN LEVELS
	120.000	686.173	686.173
	121.000	686.150	686.150
	122.000	686.119	686.119
	123.000	686.087	686.087
	124.000	686.058	686.058
	125.000	686.029	686.029
	126.000	685.998	685.998
	127.000	685.966	685.966
	127.733	685.942	685.942
	129.000	685.832	685.832
	130.000	685.747	685.747
	131.000	685.661	685.661
	132.000	685.583	685.583
	133.000	685.503	685.503
	134.000	685.426	685.426
	135.000	685.414	685.414
	136.000	685.421	685.421
	137.000	685.416	685.416
	138.000	685.328	685.328
	139.000	685.234	685.234
	140.000	685.136	685.136
	141.000	685.050	685.050
	142.000	685.019	685.019
	143.000	684.993	684.993
	144.000	684.960	684.960
	145.000	684.927	684.927
	146.000	684.894	684.894
	147.000	684.862	684.862
	148.000	684.831	684.831
	149.000	684.800	684.800
	150.000	684.769	684.769
	151.000	684.740	684.740
	152.000	684.759	684.759
	153.000	684.764	684.764
	154.000	684.543	684.543
	155.000	684.494	684.494
	156.000	684.445	684.445
	157.000	684.395	684.395
	158.000	684.345	684.345
	159.000	684.295	684.295
	160.000	684.245	684.245
	161.000	684.194	684.194
	162.000	684.143	684.143
	163.000	684.112	684.112
	164.000	684.076	684.076
	165.000	684.037	684.037
	166.000	683.999	683.999
	167.000	683.961	683.961
	168.000	683.924	683.924
	169.000	683.887	683.887
	170.000	683.851	683.851
	171.000	683.838	683.838
	172.000	683.827	683.827
	173.000	683.817	683.817
	174.000	683.788	683.788
	175.000	683.754	683.754
	175.906	683.725	683.725
	180.000	683.595	683.595
	181.000	683.563	683.563
	182.000	683.528	683.528
	183.000	683.493	683.493
	184.000	683.406	683.406
	185.000	683.302	683.302
	186.000	683.199	683.199
	189.000	682.890	682.890
	190.000	682.765	682.765
	195.000	681.790	681.790
	196.000	681.594	681.594
	197.000	681.396	681.396
	198.000	681.215	681.215
	200.000	680.889	680.889
	201.000	680.730	680.730
	203.057	680.408	680.408
	204.000	680.260	680.260
	205.000	680.103	680.103
	206.000	679.946	679.946
	207.000	679.808	679.808
	208.000	679.709	679.709
	209.000	679.611	679.611
	210.000	679.513	679.513
	211.000	679.415	679.415
	212.000	679.330	679.330
	213.000	679.245	679.245
	214.000	679.160	679.160
	215.000	679.075	679.075
	216.000	678.987	678.987
	217.000	678.920	678.920
	218.000	678.870	678.870
	219.000	678.829	678.829
	220.000	678.799	678.799
	221.000	678.769	678.769
	222.000	678.741	678.741
	223.000	678.713	678.713
	224.000	678.687	678.687
	225.000	678.646	678.646
	226.000	678.584	678.584
	229.000	678.399	678.399
	230.000	678.330	678.330
	234.000	678.047	678.047
	235.000	677.954	677.954
	236.000	678.170	678.170
	237.000	678.097	678.097
	238.000	678.026	678.026
	238.905	678.000	678.000

LONGITUDINAL SECTION - BUND 1

SCALES: HORIZ 1:200 VERTICAL 1:100

0 1 2 4 6 8 10m

SCALE 1:100 (A1), 1:200 (A3)

0 5 10 15 20m

SCALE 1:200 (A1), 1:400 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
BUND LONG SECTION

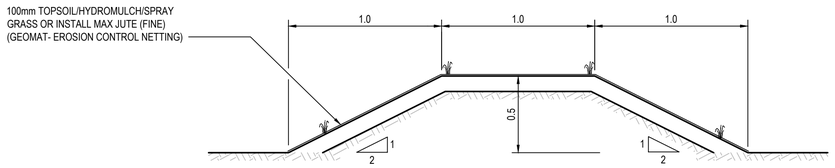
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

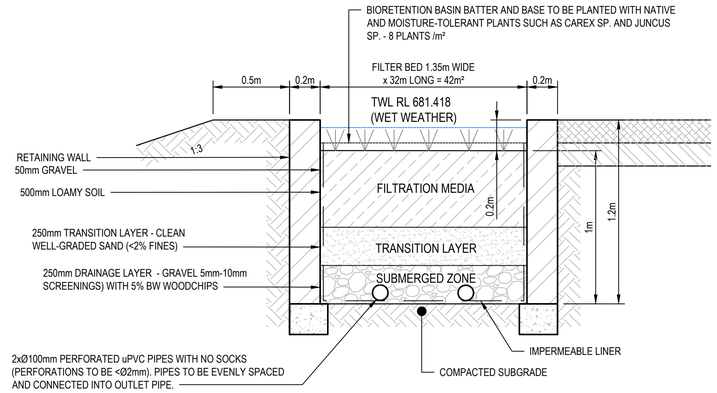
Drawing Number: 8201825301-DRG-CI-2305

Revision: A

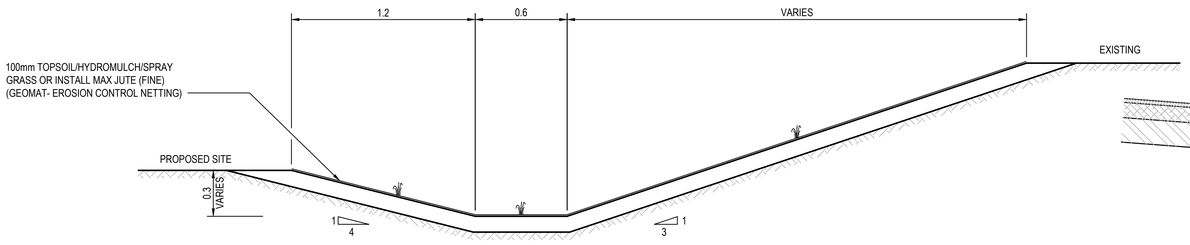
SCOUR PROTECTION AT STORMWATER OUTLETS (RIP RAP)						
ID	1	2	3	4	5	6
LENGTH, L (m)	3.59	0.32	1.22	2.7	2.42	0.92
WIDTH A, WA (m)	1.49	1.42	1.42	3.18	1.42	1.42
WIDTH B, WB (m)	2.93	1.54	1.90	4.26	2.38	1.78
RIP RAP SIZE, D50 (mm)	400	200	300	200	300	200



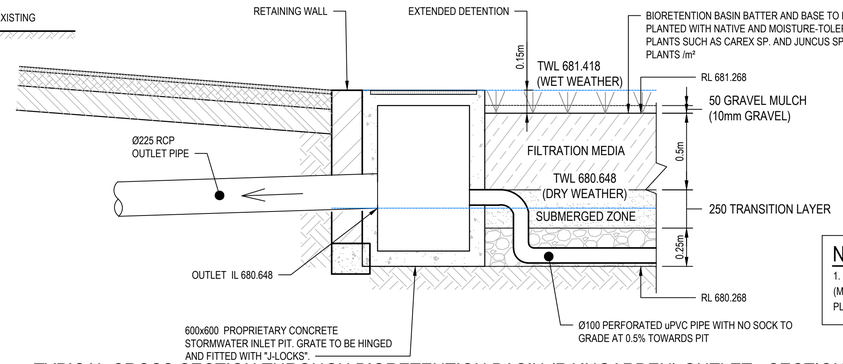
TYPICAL BUND DETAIL
SCALE 1:20



TYPICAL CROSS SECTION THROUGH RAINGARDEN - SECTION 01
SCALE 1:20



DIVERSION SWALE
SCALE 1:20



TYPICAL CROSS SECTION THROUGH BIORETENTION BASIN (RAINGARDEN) OUTLET - SECTION 02
SCALE 1:20

NOTE:
1. ENSURE RAINGARDEN IS WATERERED EVERY 4 WEEKS (MINIMUM) DURIGN DRY WEATEHR PERIODS TO MAINTAIN PLANT HEALTH

STORMWATER PIT SCHEDULE					
NAME	TYPE	PIT TYPE	DESCRIPTION	PIT DIMENSIONS	DEPTH TO INVERT
1/A	SAG	SURFACE INLET PIT	900 x 900 CLASS B GALVANISED FLUSH GRATE AND FRAME	900 x 900	1.795
1/B	ON GRADE	JUNCTION PIT	CLASS D RISER ON TOP OF EXISTING PIT	N/A	2.833
1/C	ON GRADE	JUNCTION PIT	EXISTING PIT	N/A	2.730
1/D	HEADWALL	HW OUT	EXISTING HW	N/A	0.525
2/A	ON GRADE	SURCHARGE PIT	600 x 600 CLASS A GALVANISED GRATE AND FRAME	600 x 600	0.620
2/B	ON GRADE	HW OUT	225 DIA HEADWALL	N/A	0.225
3/A	ON GRADE	HW IN	375 DIA HEADWALL	N/A	0.427
3/B	ON GRADE	HW OUT	375 DIA HEADWALL	N/A	0.375
4/A	SAG	STANDARD ROAD PIT	1.8m LINTEL SAG	950 x 900	0.563
4/B	ON GRADE	HW OUT	375 DIA HEADWALL	N/A	0.375

0 0.5 1 1.5 2m
SCALE 1:20 (A1), 1:40 (A3)

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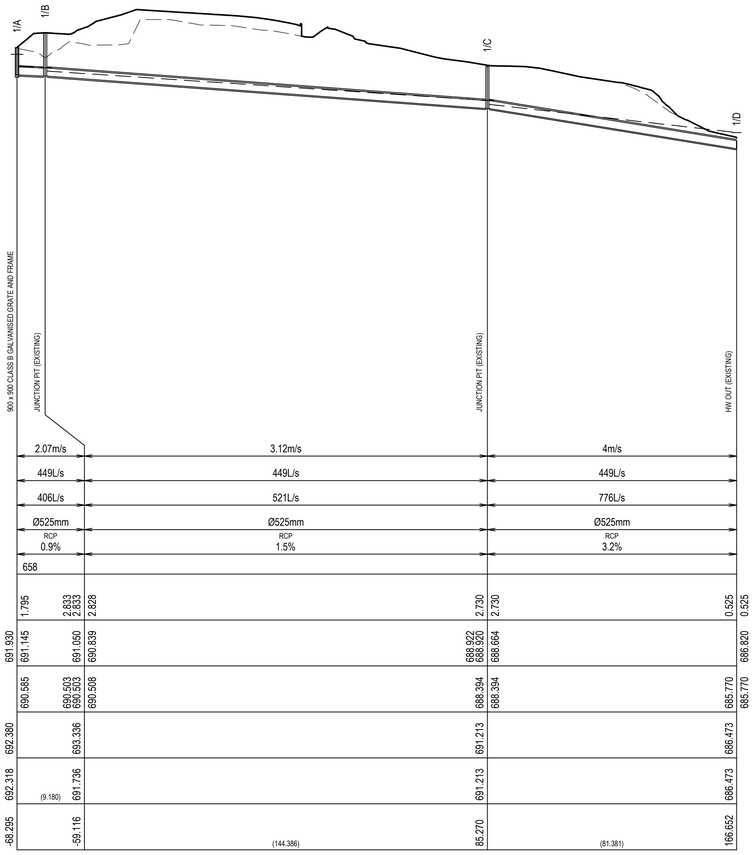
Approved	RJK	Date 20/12/2019

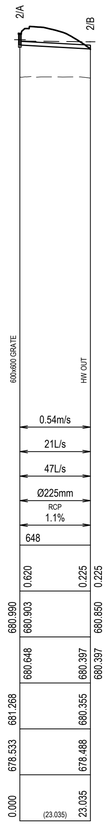
Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
STORMWATER TYPICAL SECTIONS & DETAILS

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED
DATUM: AHD | Scale: 1:20 | Size: A1
Drawing Number: 8201825301-DRG-CI-2309 | Revision: A



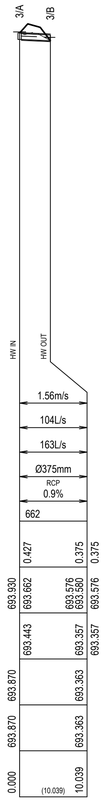
VELOCITY	2.07m/s	3.12m/s	4m/s
PIPE FLOW	449L/s	449L/s	449L/s
PIPE CAPACITY	406L/s	521L/s	776L/s
SIZE/TYPE	Ø525mm	Ø525mm	Ø525mm
	RCP	RCP	RCP
GRADE	0.9%	1.5%	3.2%
DATUM RL	658		
DEPTH TO INVERT	1.795 / 2.833	2.828 / 2.730	2.730 / 0.525
HGL	691.930 / 691.145	691.050 / 688.922	688.920 / 686.820
INVERT LEVEL	690.585 / 690.503	690.503 / 688.394	688.394 / 685.770
SURFACE LEVEL	692.380	693.336 / 691.213	686.473
EXISTING LEVEL	692.318	(9.180) 691.736 / 691.213	686.473
CHAINAGE (LENGTH)	68.295	59.116 (144.386)	85.270 (81.381) 166.652

LINE1
SCALE: H 1:1000 V 1:200



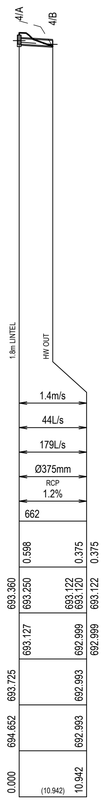
VELOCITY	0.54m/s	
PIPE FLOW	21L/s	
PIPE CAPACITY	47L/s	
SIZE/TYPE	Ø225mm	
	RCP	
GRADE	1.1%	
DATUM RL	648	
DEPTH TO INVERT	0.620	0.225
HGL	680.990 / 680.903	680.850
INVERT LEVEL	680.648	680.397 / 680.397
SURFACE LEVEL	681.268	680.355
EXISTING LEVEL	678.533	678.488
CHAINAGE (LENGTH)	0.000	(23.035) 23.035

LINE2
SCALE: H 1:1000 V 1:200



VELOCITY	1.56m/s	
PIPE FLOW	104L/s	
PIPE CAPACITY	163L/s	
SIZE/TYPE	Ø375mm	
	RCP	
GRADE	0.9%	
DATUM RL	662	
DEPTH TO INVERT	0.427	0.375
HGL	693.930 / 693.662	693.576 / 693.580 / 693.576
INVERT LEVEL	693.443	693.357 / 693.357
SURFACE LEVEL	693.870	693.363
EXISTING LEVEL	693.870	693.363
CHAINAGE (LENGTH)	0.000	(10.039) 10.039

LINE3
SCALE: H 1:1000 V 1:200



VELOCITY	1.4m/s	
PIPE FLOW	44L/s	
PIPE CAPACITY	179L/s	
SIZE/TYPE	Ø375mm	
	RCP	
GRADE	1.2%	
DATUM RL	662	
DEPTH TO INVERT	0.598	0.375
HGL	693.360 / 693.250	693.122 / 693.120 / 693.122
INVERT LEVEL	693.127	692.999 / 692.999
SURFACE LEVEL	693.725	692.993
EXISTING LEVEL	694.652	692.993
CHAINAGE (LENGTH)	0.000	(10.942) 10.942

LINE4
SCALE: H 1:1000 V 1:200

H: 0 20 40 60 80 100m
V: 0 4 8 10 12 12m
SCALE: H:1:1000 V:1:200 @A1

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Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

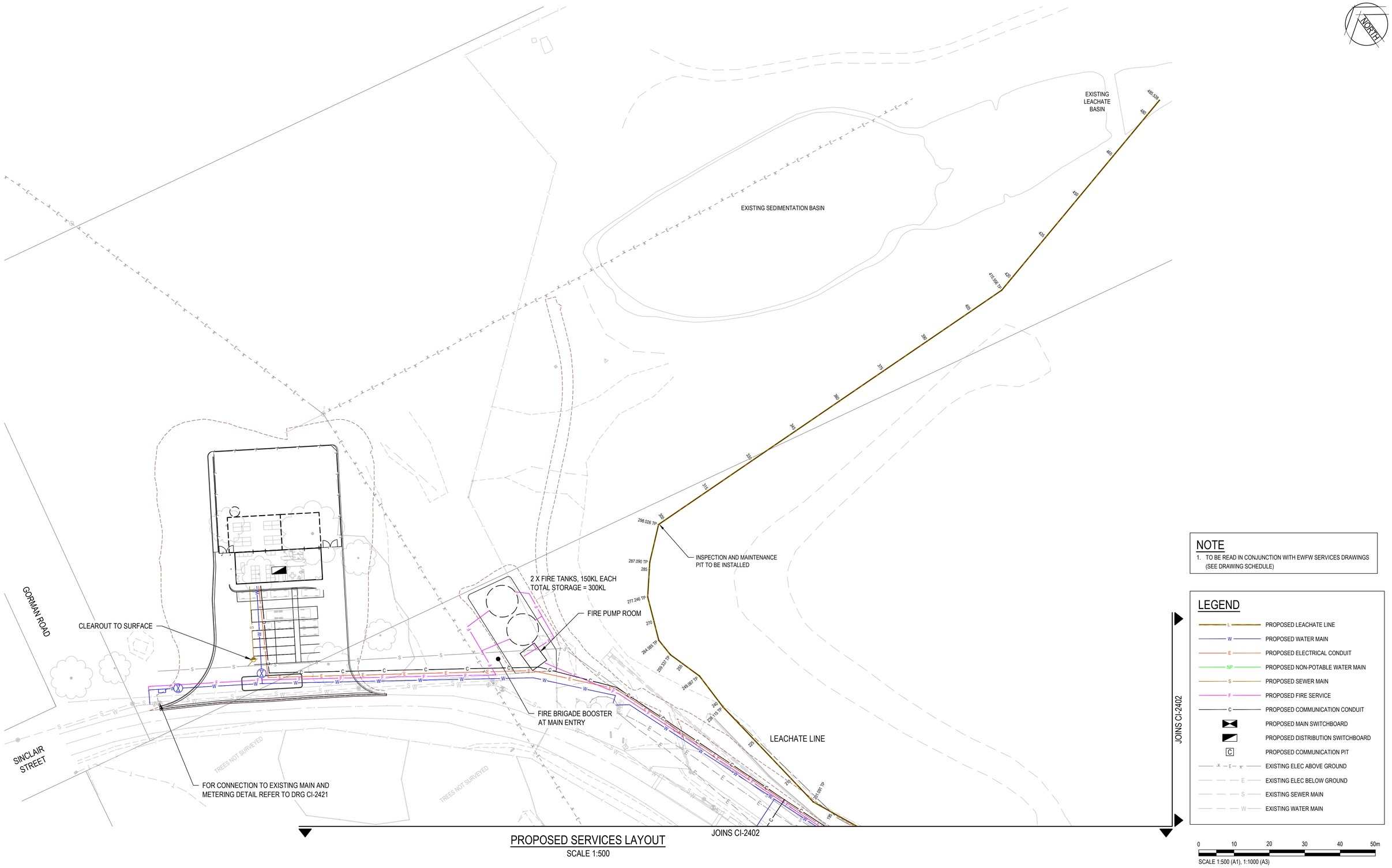
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
STORMWATER LONG SECTIONS

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2310
Revision: A



PROPOSED SERVICES LAYOUT
SCALE 1:500

NOTE
1. TO BE READ IN CONJUNCTION WITH EWFW SERVICES DRAWINGS (SEE DRAWING SCHEDULE)

LEGEND
- L — PROPOSED LEACHATE LINE
- W — PROPOSED WATER MAIN
- E — PROPOSED ELECTRICAL CONDUIT
- NP — PROPOSED NON-POTABLE WATER MAIN
- S — PROPOSED SEWER MAIN
- F — PROPOSED FIRE SERVICE
- C — PROPOSED COMMUNICATION CONDUIT
- PROPOSED MAIN SWITCHBOARD
- PROPOSED DISTRIBUTION SWITCHBOARD
- C — PROPOSED COMMUNICATION PIT
- EXISTING ELEC ABOVE GROUND
- E — EXISTING ELEC BELOW GROUND
- S — EXISTING SEWER MAIN
- W — EXISTING WATER MAIN

0 10 20 30 40 50m
SCALE 1:500 (A1), 1:1000 (A3)

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Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

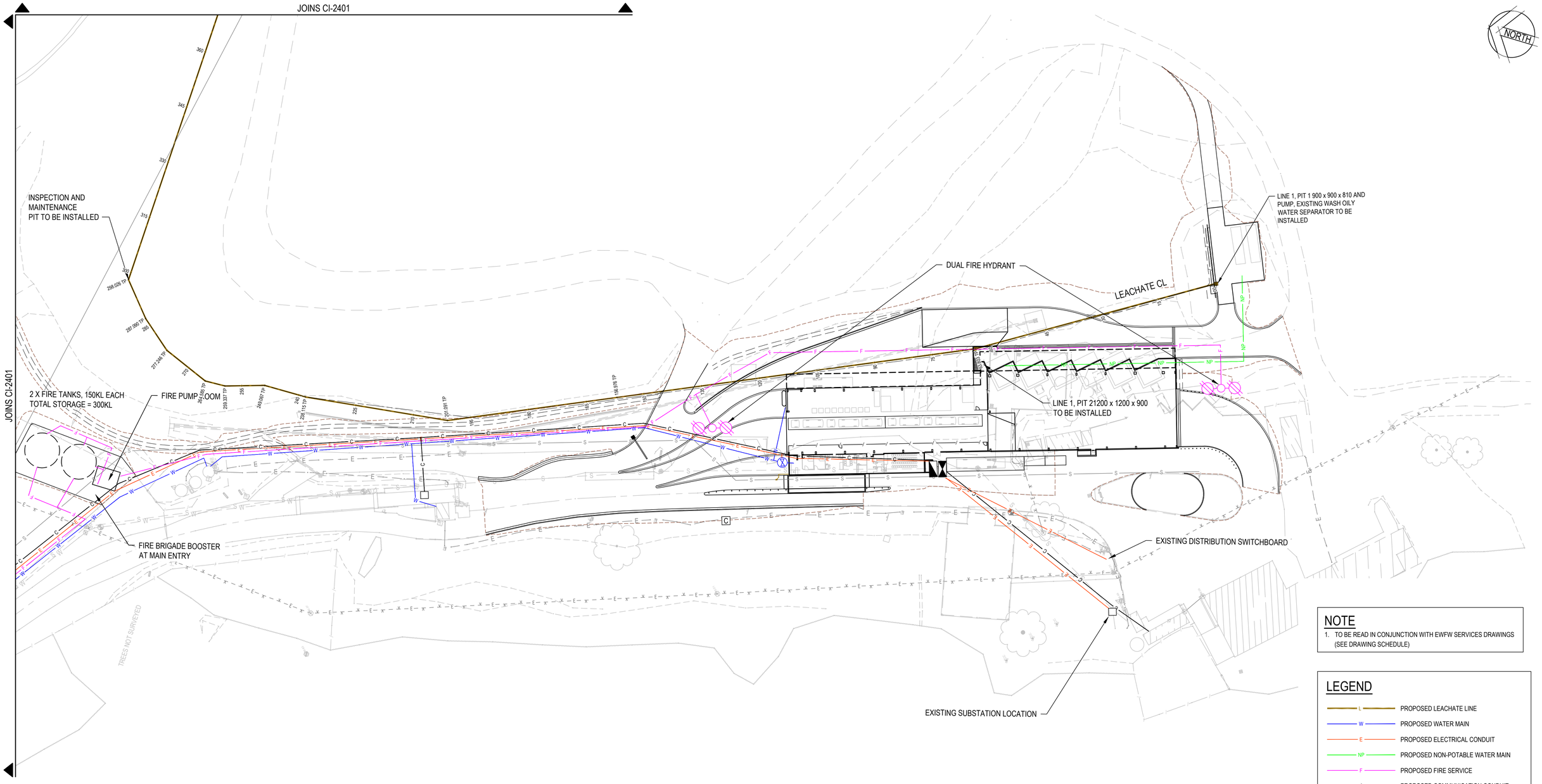
Title: RUG SITE
PROPOSED SERVICES LAYOUT PLAN
SHEET 1 OF 2

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:500	A1

Drawing Number: 8201825301-DRG-CI-2401
Revision: A

JOINS CI-2401



NOTE

1. TO BE READ IN CONJUNCTION WITH EWFW SERVICES DRAWINGS (SEE DRAWING SCHEDULE)

LEGEND

- PROPOSED LEACHATE LINE
- PROPOSED WATER MAIN
- PROPOSED ELECTRICAL CONDUIT
- PROPOSED NON-POTABLE WATER MAIN
- PROPOSED FIRE SERVICE
- PROPOSED COMMUNICATION CONDUIT
- PROPOSED MAIN SWITCHBOARD
- PROPOSED DISTRIBUTION SWITCHBOARD
- PROPOSED COMMUNICATION PIT
- EXISTING ELEC ABOVE GROUND
- EXISTING ELEC BELOW GROUND
- EXISTING SEWER MAIN
- EXISTING WATER MAIN

0 10 20 30 40 50m

SCALE 1:500 (A1), 1:1000 (A3)

PROPOSED SERVICES LAYOUT

SCALE 1:500

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Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

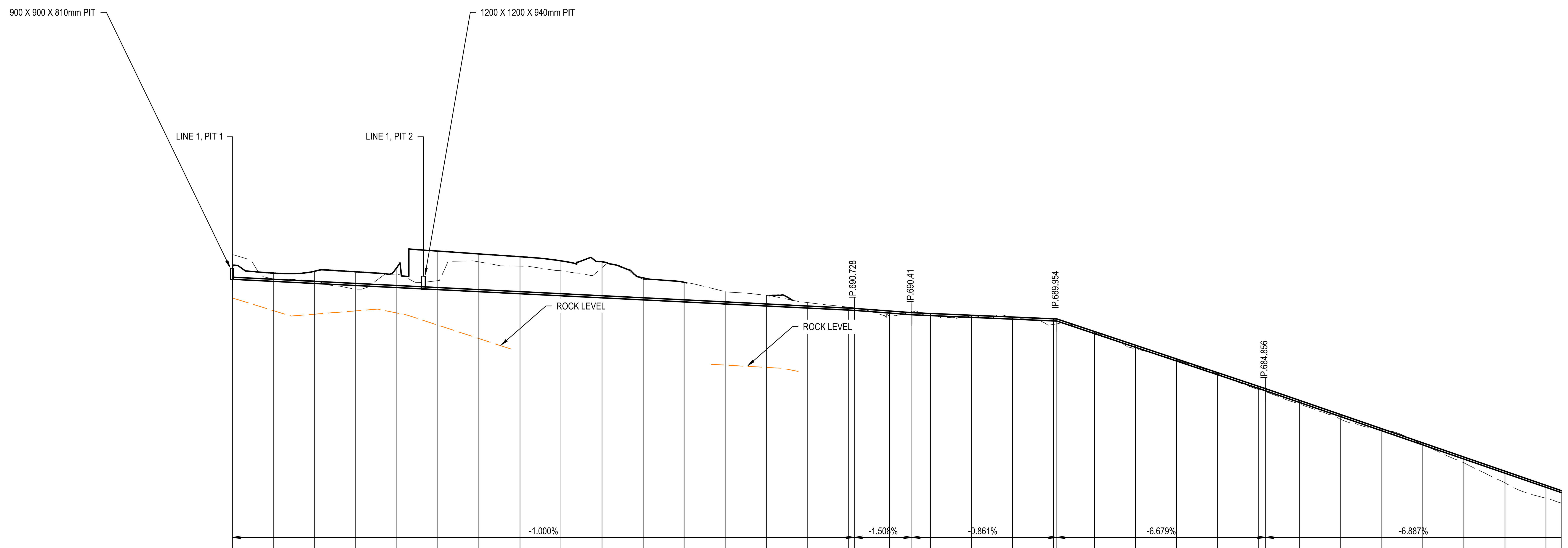
Title: RE-USE HUB
PROPOSED SERVICES LAYOUT PLAN
SHEET 2 OF 2

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:500	A1

Drawing Number: 8201825301-DRG-CI-2402

Revision: A



DATUM RL 672

CHAINAGE	PIPE OBVERT LEVELS	ROCK	EXIST	DESIGN LEVELS
0.000	693.000	691.480	694.653	693.736
15.000	692.850	690.557	692.871	693.303
30.000	692.700	690.304	692.743	693.443
45.000	692.550	690.546	692.128	693.398
60.000	692.400	690.390	693.241	693.711
75.000	692.250	689.503	692.750	694.912
90.000	692.100	688.522	694.124	694.707
105.000	691.950		693.818	694.502
120.000	691.800		693.474	694.198
135.000	691.650		693.703	694.133
150.000	691.500		692.854	692.957
165.000	691.350		692.614	692.634
180.000	691.200	686.584	691.949	
195.000	691.050	686.415	691.675	
210.000	690.900		691.149	
225.000	690.750		690.817	
227.177	690.728		690.769	
240.000	690.535		690.169	
248.282	690.410		690.480	
255.000	690.352		690.246	
270.000	690.223		690.179	
285.000	690.094		690.108	
300.000	689.965		689.561	
301.219	689.954		689.594	
315.000	689.034		688.918	
330.000	688.032		687.759	
345.000	687.030		686.950	
360.000	686.028		685.940	
375.000	685.026		684.794	
377.560	684.856		684.638	
390.000	683.999		683.738	
405.000	682.966		682.621	
420.000	681.933		681.852	
435.000	680.900		680.786	
450.000	679.867		679.439	
465.000	678.834		677.980	
480.000	677.801		676.858	
485.538	677.419		676.500	

LONGITUDINAL SECTION - LEACHATE

SCALES: HORIZ 1:1000 VERTICAL 1:200

0 20 40 60 80 100m
SCALE 1:1000 (A1), 1:2000 (A3)

0 5 10 15 20m
SCALE 1:200 (A1), 1:400 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
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GOULBURN MULWAREE COUNCIL

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
PROPOSED LEACHATE LONG SECTIONS

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM: AHD | Scale: AS SHOWN | Size: A1

Drawing Number: 8201825301-DRG-CI-2411 | Revision: A

NOTES

GENERAL

1. ALL LEVELS ARE IN METRES TO AHD71. ALL COORDINATES ARE IN METRES TO MGA ZONE 56.
2. NO VEGETATION SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT UNLESS NOTED ON THE DRAWINGS OR SCHEDULED IN THE REVIEW OF ENVIRONMENTAL FACTORS
3. THE IMPACT ON THE ENVIRONMENT SHALL BE MINIMISED BY OBSERVING THE FOLLOWING MINIMUM CONSTRUCTION PRACTICES:
    a. AREAS DISTURBED BY CONSTRUCTION TRAFFIC AND PROCEDURES SHALL BE MINIMISED.
    b. HYDROMULCHING (OR ALTERNATIVE APPROVED TREATMENT) FOR SLOPE STABILISATION SHALL BE CARRIED OUT SOON AFTER THE COMPLETION OF TOPSOIL PLACEMENT
    c. FLOW DIVERSION SHALL BE CARRIED OUT BY EARLY INSTALLATION OF DRAINS ALONG TOPS OF BATTERS WITH APPROPRIATE SILTATION CONTROL DEVICES IN ACCORDANCE WITH STANDARD DRAWING ASD602.
4. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION VOLUME 1 (LANDCOM, 2004)
5. WORKS SHALL NOT BE UNDERTAKEN WITHOUT CONSIDERATION OF THE REF.

NOTES

WATER MAIN EXTENSION

1. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE COUNCIL'S WATER AND SEWER CONSTRUCTION STANDARDS, WATER SUPPLY CODE OF AUSTRALIA (WSA 03-2011 VERSION 3.1) AND NSW CODE OF PRACTICE FOR PLUMBING AND DRAINAGE AND AS/NZS 3500. WHERE DIFFERENCES EXIST BETWEEN THE PLANS AND THE STANDARD REQUIREMENTS, THESE PLANS SHALL TAKE PRECEDENCE
2. CONTRACTOR TO POSITIVELY LOCATE ALL SERVICES IMPACTED BY THE WORKS PRIOR TO COMMENCING EXCAVATION, EVEN SERVICES PREVIOUSLY LOCATED BY SURVEY.
3. THE CONSTRUCTOR IS TO:
    a. VERIFY ALL LEVELS PRIOR TO CONSTRUCTION.
    b. VERIFY THE POSITIONS AND LEVELS OF ALL EXISTING AND PROPOSED BOUNDARIES, SERVICES, PIPES, CABLES AND CONDUITS.
    c. PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROLS IN COMPLIANCE WITH MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION VOLUME 1 (LANDCOM, 2004)
4. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED. THE ENGINEER'S DRAWINGS SHALL NOT BE SCALED. CONSTRUCTION SHALL NOT COMMENCE UNTIL FULL DETAILS OF INSTALLED EQUIPMENT ARE AVAILABLE AND THE DRAWINGS ARE AMENDED AS NECESSARY.
5. THE CONTRACTOR SHALL CONFIRM BY SURVEY AND/OR CERTIFIED WORK AS EXECUTED DRAWINGS THAT THE ABOVE DESIGNS HAVE BEEN CARRIED OUT IN ACCORDANCE WITH THE ABOVE DRAWINGS.

NOTE - TRENCH DETAIL

1. NOTES TO BE READ IN CONJUNCTION WITH POTABLE WATER - CONNECTION AND TRENCH DETAILS

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Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

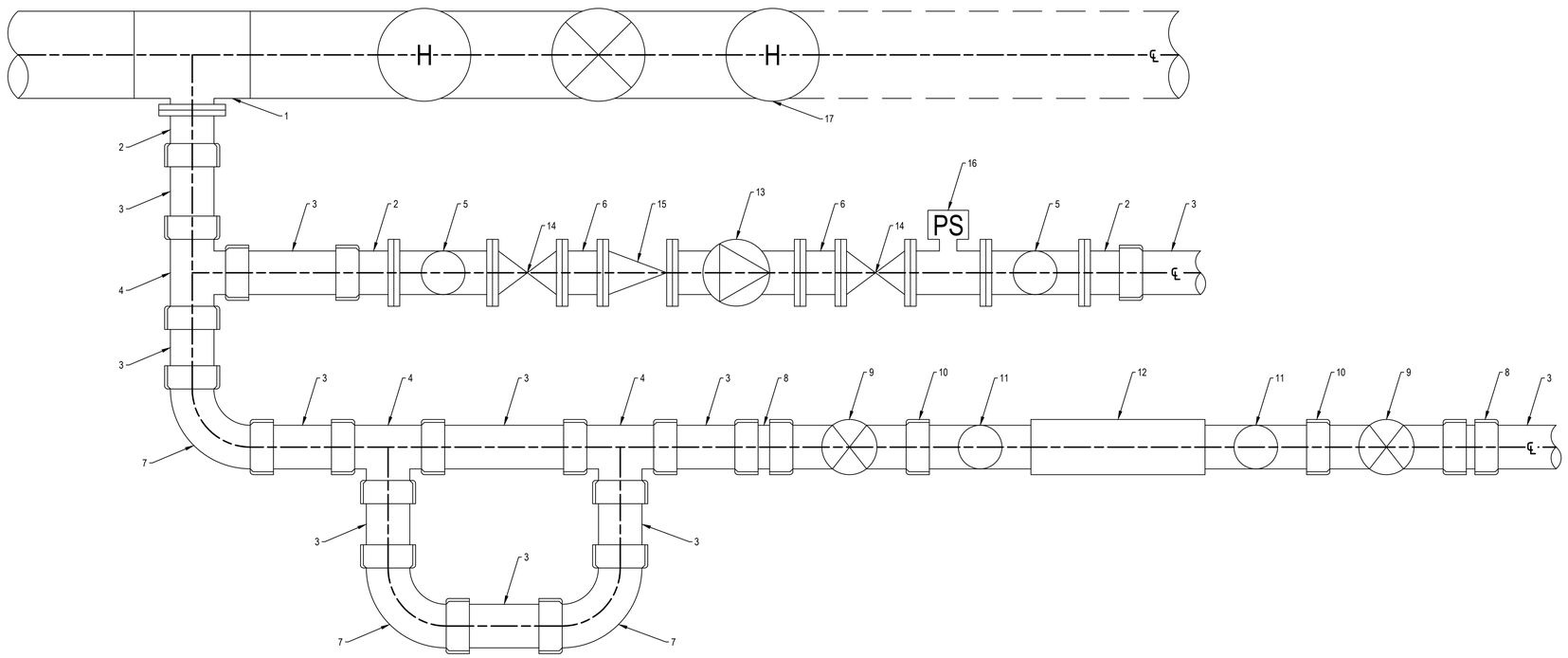
Title: RUG SITE
GENERAL & POTABLE WATER NOTES

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		NTS	A1

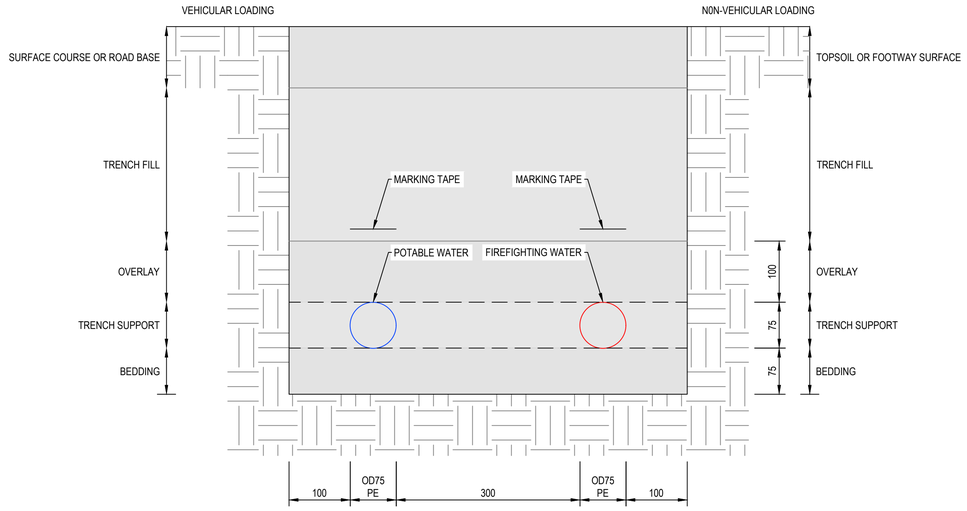
Drawing Number: 8201825301-DRG-CI-2420

Revision: A



PROPOSED CONNECTION TO EXISTING MAIN AND METERING DETAIL

SCALE N.T.S.



TRENCH DETAIL

SCALE 1:5

VALVES AND FITTINGS	
ITEM	DESCRIPTION
1	TAPPING SADDLE DN150 x DN65 (INCLUDE REDUCER TO DN65 IF REQUIRED) (ALTERNATIVELY CUT-IN CONNECTION COULD BE USED)
2	OD75 PE STUB FLANGE (COMPRESSION FITTING FLANGED JOINTS WITH METAL FLANGE AS 2129 TABLE E)
3	OD75 PE100 PIPE PN16
4	OD75 x OD75 PE TEE (COMPRESSION FITTING)
5	DN65 RISER INLET FLANGED CONNECTED (COPPER OR APPROVED EQUIVALENT)
6	DN65 FLANGED PIPE LENGTH TO SUIT (COPPER OR APPROVED EQUIVALENT)
7	OD75 PE 90° BEND (COMPRESSION FITTING)
8	OD75-OD63 REDUCER
9	63mm NOM VALVE
10	MALE END CONNECTOR POL x MI BSP (63mm NOM. x 2")
11	RISER INLET 50mm NOM. (IF METER INSTALLED ABOVE GROUND, ALTERNATIVELY IN PUT WITHOUT RISERS)
12	50mm METER ASSEMBLY WITH ISOLATION VALVES, DIRT BOX AND METER
13	BOOSTER PUMP (TEFC, 415 VOLT, ELECTRIC MOTOR, 7.5 KW, 13.9 AMP FLC RUNNING AT 2 POLE SPEED MOUNTED ON A MILD STEEL BASE) WITH BLEED VALVE
14	DN65 ISOLATION VALVE
15	DN65 NON-RETURN VALVE
16	DN65 x 0.5" (INCH) TEE WITH PRESSURE SERVICE VALVE (PS)
17	DN150 BLANK FLANGE OR HYDRANT BEND

TRENCH DETAIL - VEHICULAR LOADING		
MATERIAL		ZONE
ROAD SURFACE	VERGE AND TRACK	
ROAD SURFACE LAYER	TO MATCH EXISTING	SURFACE COURSE
TO MATCH EXISTING ROAD BASE OR TO ROAD OWNERS REQUIREMENTS	TO ROAD OWNERS REQUIREMENTS OR INORGANIC FILL WITH MAXIMUM 75 STONE SIZE	ROAD BASE
TO ROAD OWNERS REQUIREMENTS OR INORGANIC FILL WITH 75 MAXIMUM STONE SIZE		TRENCH FILL
EMBEDMENT MATERIAL IN ACCORDANCE WITH DESIGN DRAWINGS AND WATER AGENCY REQUIREMENTS. BEDDING MAY BE OMITTED IF TRENCH BASE IS GRANULAR SAND	OVERLAY	EMBEDMENT
	SIDE SUPPORT	
	BEDDING	
	OVER-EXCAVATION	

TRENCH DETAIL - NON-VEHICULAR LOADING		
ZONE		MATERIAL
TOPSOIL OR FOOTWAY SURFACE		INORGANIC MATERIAL OR IMPORTED MATERIAL OF EQUAL QUALITY
TRENCH FILL		INORGANIC FILL WITH 75 MAXIMUM STONE SIZE
EMBEDMENT	OVERLAY	EMBEDMENT MATERIAL IN ACCORDANCE WITH DESIGN DRAWINGS AND WATER AGENCY REQUIREMENTS. BEDDING MAY BE OMITTED IF TRENCH BASE IS GRANULAR SAND
	SIDE SUPPORT	
	BEDDING	
OVER-EXCAVATION		

MINIMUM PIPE COVER	
LOCATION	MINIMUM COVER #
NON ROADWAY - GENERAL	450
NON ROADWAY - INDUSTRIAL / COMMERICAL	600
SEALED ROAD	600
MAJOR ROADWAYS	750
FREEWAYS	1200

NOTE - TRENCH DETAIL

1. ALL DIMENSIONS IN MILLIMETRES
2. BEDDING - SPECIAL BEDDING SHALL BE SPECIFIED TO SUIT THE CONDITIONS IF THE TRENCH FLOOR HAS
   - 2.1. IRREGULAR OUTCROPS OF ROCK
   - 2.2. AHBP OF < 50 kPa (SEE WAT-1200), OR
   - 2.3. UNCONTROLLED GROUND WATER HAS DISTURBED THE FLOOR OF THE TRENCH
3. EMBEDMENT, TRENCH FILL AND COMPACTION TO MEET THE REQUIREMENTS OF WSA-03 PART 3 AND THE RELEVANT WATER AGENCY
4. SIDES OF EXCAVATION TO BE KEPT VERTICAL TO AT LEAST 150 ABOVE THE PIPE

0 0.02 0.04 0.06 0.08 0.1m

SCALE 1:5 (A1), 1:10 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	MM	RJK

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Web: www.cardno.com.au

Drawn	MD	Date 18/12/2019
Checked	MPR	Date 19/12/2019
Designed	MFN	Date
Verified	MM	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

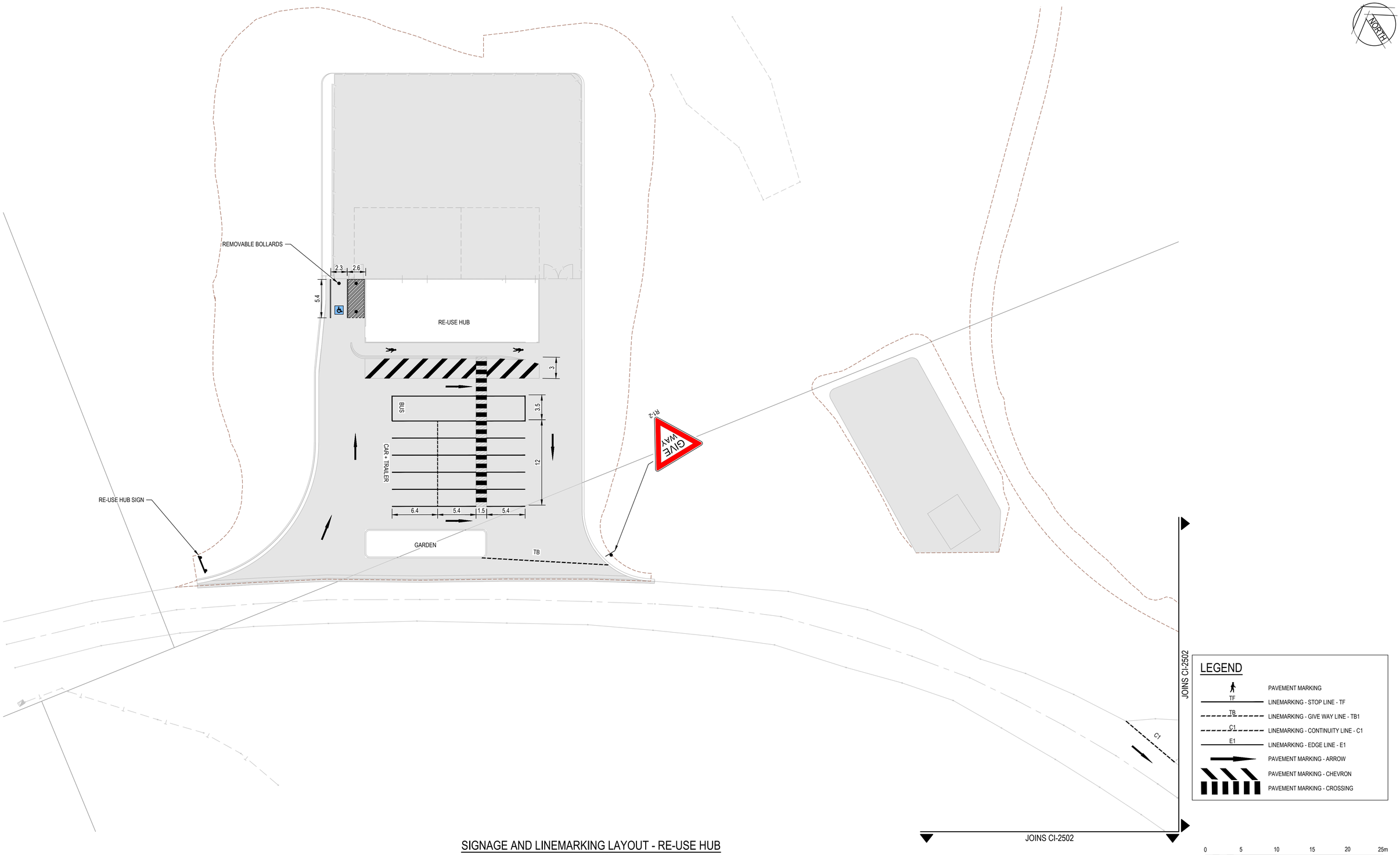
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
POTABLE WATER - CONNECTION AND TRENCH DETAILS

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	1:5	A1

Drawing Number: 8201825301-DRG-CI-2421
Revision: A



SCALE 1:250 (A1), 1:500 (A3)

SIGNAGE AND LINEMARKING LAYOUT - RE-USE HUB

SCALE 1:250

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RE-USE HUB
SIGNAGE AND LINEMARKING LAYOUT PLAN
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2501
Revision: A

DATE PLOTTED: 20 December 2019 3:28 PM BY - JOEL MOY

XREF's: XR-82018253-01-G-TITLE; XR-82018253-01-G-LEGEND; XR-82018253-01-D-BASE; XR-82018253-01-E-SURVEY; XR-82018253-01-D-PAVE; XR-82018253-01-E-PAVE; XR-82018253-01-D-SIGN_LMRK

CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\82018253301-DRG-CI-2502.dwg

JOINS CI-2501

JOINS CI-2503

NORTH

BLUE LINEMARKING
OPERATIONS
BACK OF HOUSE ACCESS

SIGN LEFT TO TIPFACE
RIGHT TO RESOURCE RECOVERY

RED LINEMARKING
ACCESS TO TIP FACE

OPERATIONAL VEHICLES ONLY

C1

C1

EXISTING WEIGHBRIDGE

E1

E1

TB

GIVE WAY
R1-2

GREEN LINEMARKING
PUBLIC ACCESS TO CRC & RESOURCE RECOVERY SHED

LEGEND

- PAVEMENT MARKING
- TF — LINEMARKING - STOP LINE - TF
- TB — LINEMARKING - GIVE WAY LINE - TB1
- C1 — LINEMARKING - CONTINUITY LINE - C1
- E1 — LINEMARKING - EDGE LINE - E1
- PAVEMENT MARKING - ARROW
- PAVEMENT MARKING - CHEVRON
- SIGN POST
- ACCESS TO TIP FACE
- ACCESS TO BACK OF HOUSE
- ACCESS TO CRC AND RESOURCE RECOVERY SHED

SIGNAGE AND LINEMARKING LAYOUT - SITE ENTRY

SCALE 1:250

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: CRC & RESOURCE RECOVERY SHED
SIGNAGE AND LINEMARKING LAYOUT PLAN
SHEET 2 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

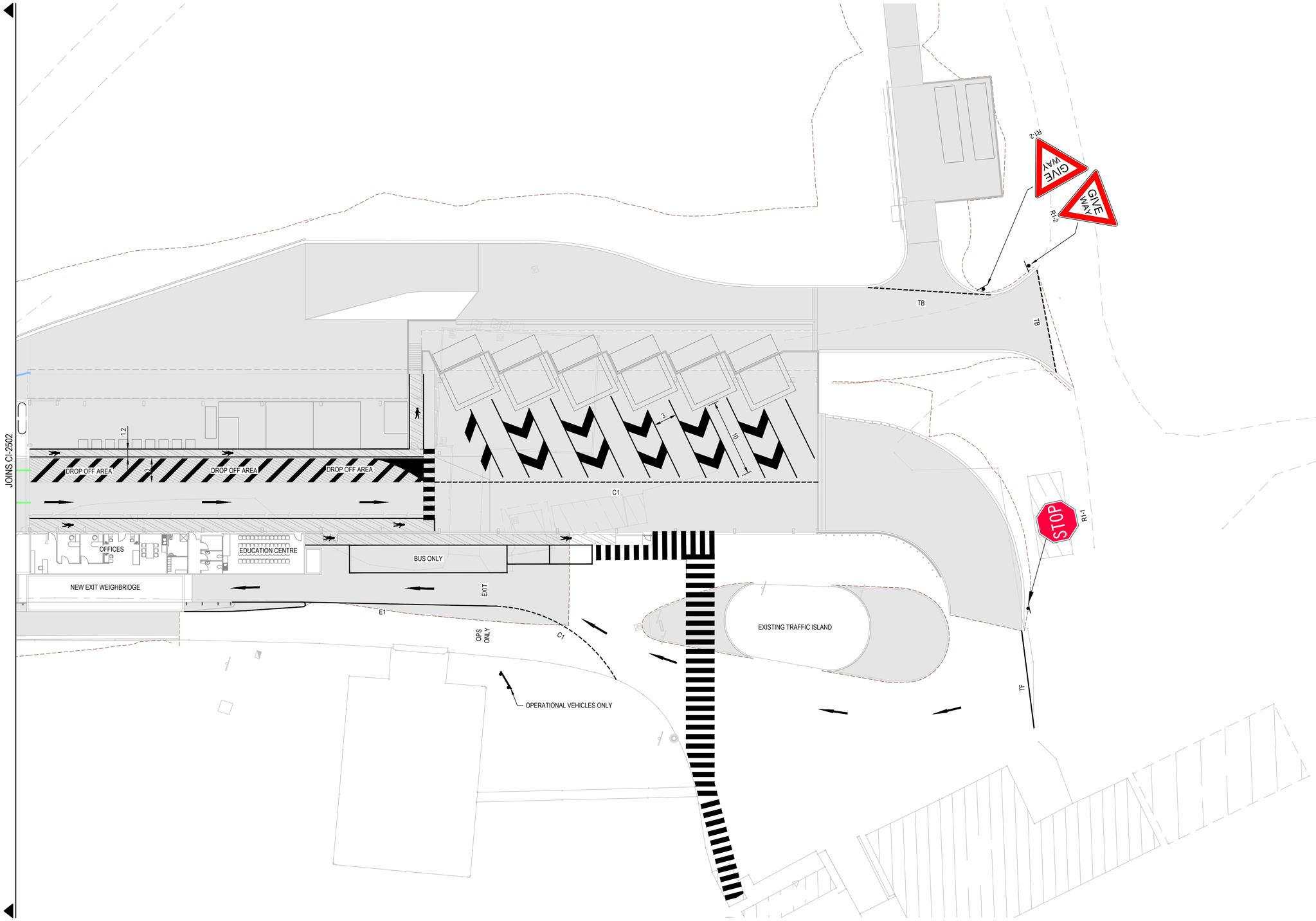
DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2502

Revision: A

DATE PLOTTED: 20 December 2019 3:29 PM BY : JOEL MOY

JOINS CI-2502



SIGNAGE AND LINEMARKING LAYOUT - RESOURCE RECOVERY SHED

SCALE 1:250

LEGEND

- PAVEMENT MARKING
- TF — LINEMARKING - STOP LINE - TF
- TB — LINEMARKING - GIVE WAY LINE - TB1
- C1 — LINEMARKING - CONTINUITY LINE - C1
- E1 — LINEMARKING - EDGE LINE - E1
- PAVEMENT MARKING - ARROW
- PAVEMENT MARKING - CHEVRON
- PAVEMENT MARKING - CROSSING
- ACCESS TO BACK OF HOUSE
- ACCESS TO CRC AND RESOURCE RECOVERY SHED

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

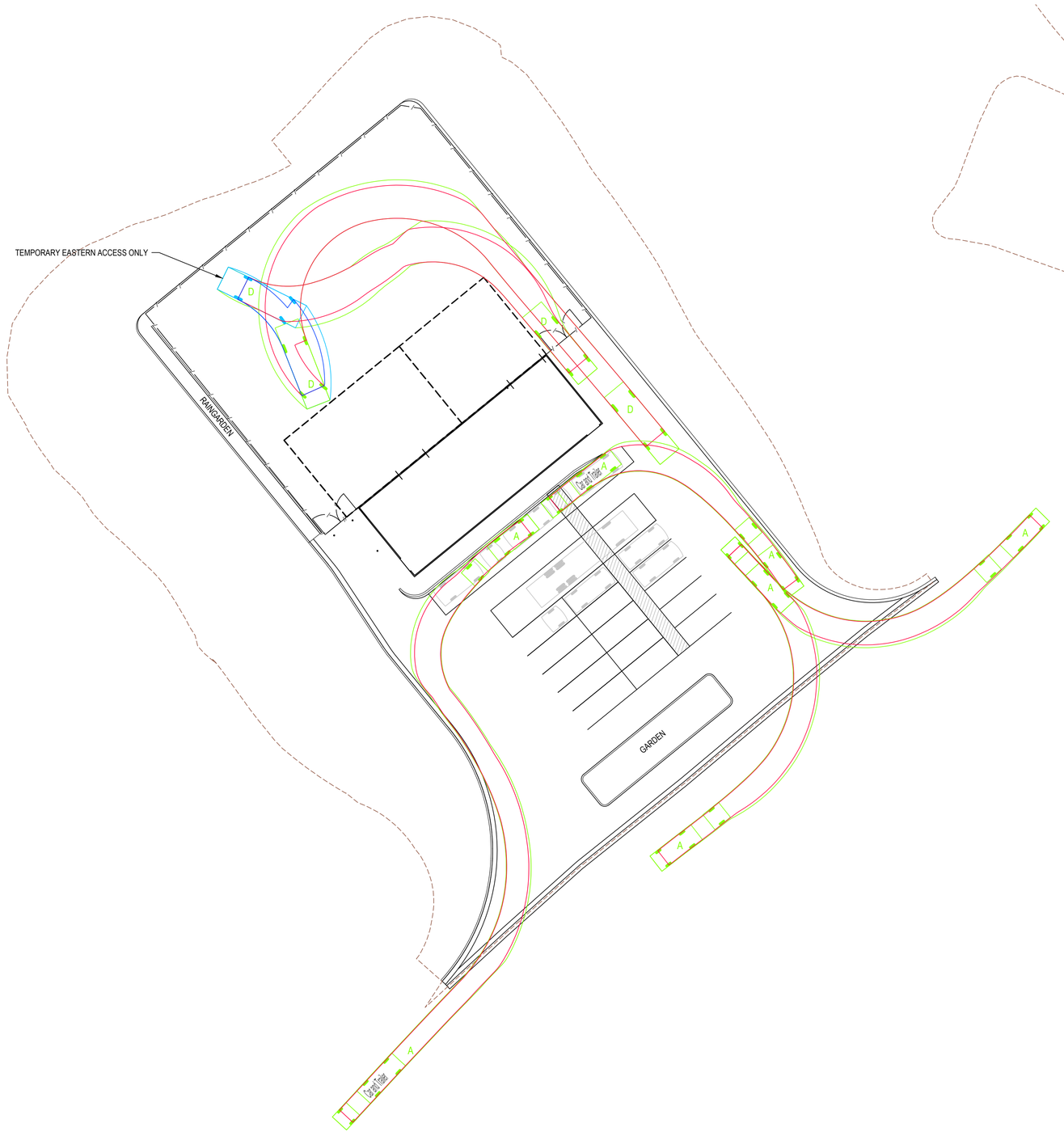
Title: CRC & RESOURCE RECOVERY SHED
SIGNAGE AND LINEMARKING LAYOUT PLAN
SHEET 3 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

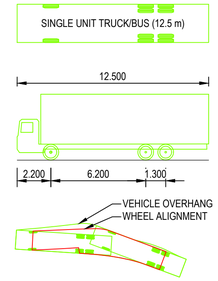
Drawing Number: 8201825301-DRG-CI-2503
Revision: A

XREFs: XR-82018253-01-G-TITLE; XR-82018253-01-G-LEGEND; XR-82018253-01-D-BASE; XR-82018253-01-E-SURVEY; XR-82018253-01-D-PAVE; XR-82018253-01-E-PAVE; XR-82018253-01-D-SIGN_LMRK
CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\82018253301-DRG-CI-2503.dwg



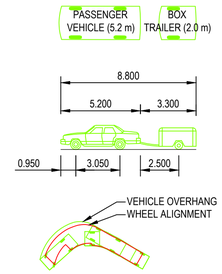
RE-USE HUB TURNING PATH PLAN
SCALE 1:250

LEGEND - TYPE C



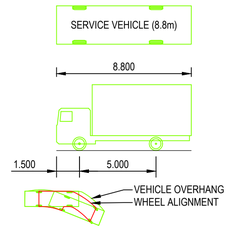
SINGLE UNIT TRUCK/BUS (12.5 m)	
OVERALL LENGTH	12.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.490m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE A



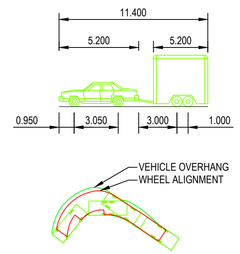
CAR AND TRAILER	
OVERALL LENGTH	8.800m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	1.804m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND - TYPE D



SERVICE VEHICLE (8.8m)	
OVERALL LENGTH	8.800m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE B



CAR AND HORSE TRAILER	
OVERALL LENGTH	11.400m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	2.600m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND

- A — 5.2m DESIGN VEHICLE AND TRAILER
- B — 5.2m DESIGN VEHICLE AND HORSE TRAILER
- C — 12.5m DESIGN VEHICLE
- D — 8.8m DESIGN VEHICLE

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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	Date
Drawn MFN	28/11/2018
Checked MPR	19/12/2019
Designed MFN	6/12/2018
Verified CH	20/12/2019
Approved RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RE-USE HUB
VEHICLE TURN PATH LAYOUT PLAN
SHEET 1 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2521
Revision: A

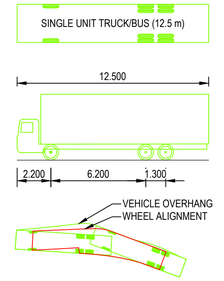
DATE PLOTTED: 20 December 2019 3:30 PM BY - JOEL MOY

XREF's: XR-82018253-01-E-SURVEY; XR-82018253-01-D-BASE; XR-82018253-01-G-TITLE; XR-82018253-01-D-VPATH; XR-82018253-01-G-LEGEND
CAD File: \\AUWOLCFS03\Projects\FY18\253_GMC Reuse Design\Drawings\Build\C2000\82018253301-DRG-CI-2522.dwg

RE-USE HUB TURNING PATH PLAN
SCALE 1:250

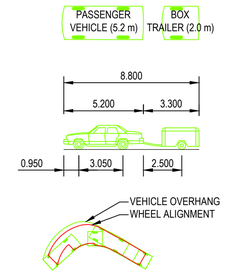
NORTH

LEGEND - TYPE C



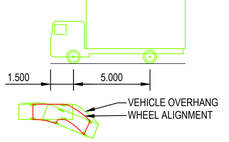
SINGLE UNIT TRUCK/BUS (12.5 m)	
OVERALL LENGTH	12.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.490m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE A



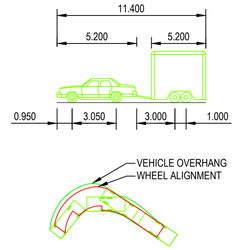
CAR AND TRAILER	
OVERALL LENGTH	8.800m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	1.804m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND - TYPE D



SERVICE VEHICLE (8.8m)	
OVERALL LENGTH	8.800m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE B



CAR AND HORSE TRAILER	
OVERALL LENGTH	11.400m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	2.600m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND

- A — 5.2m DESIGN VEHICLE AND TRAILER
- B — 5.2m DESIGN VEHICLE AND HORSE TRAILER
- C — 12.5m DESIGN VEHICLE
- D — 8.8m DESIGN VEHICLE

0 5 10 15 20 25m
SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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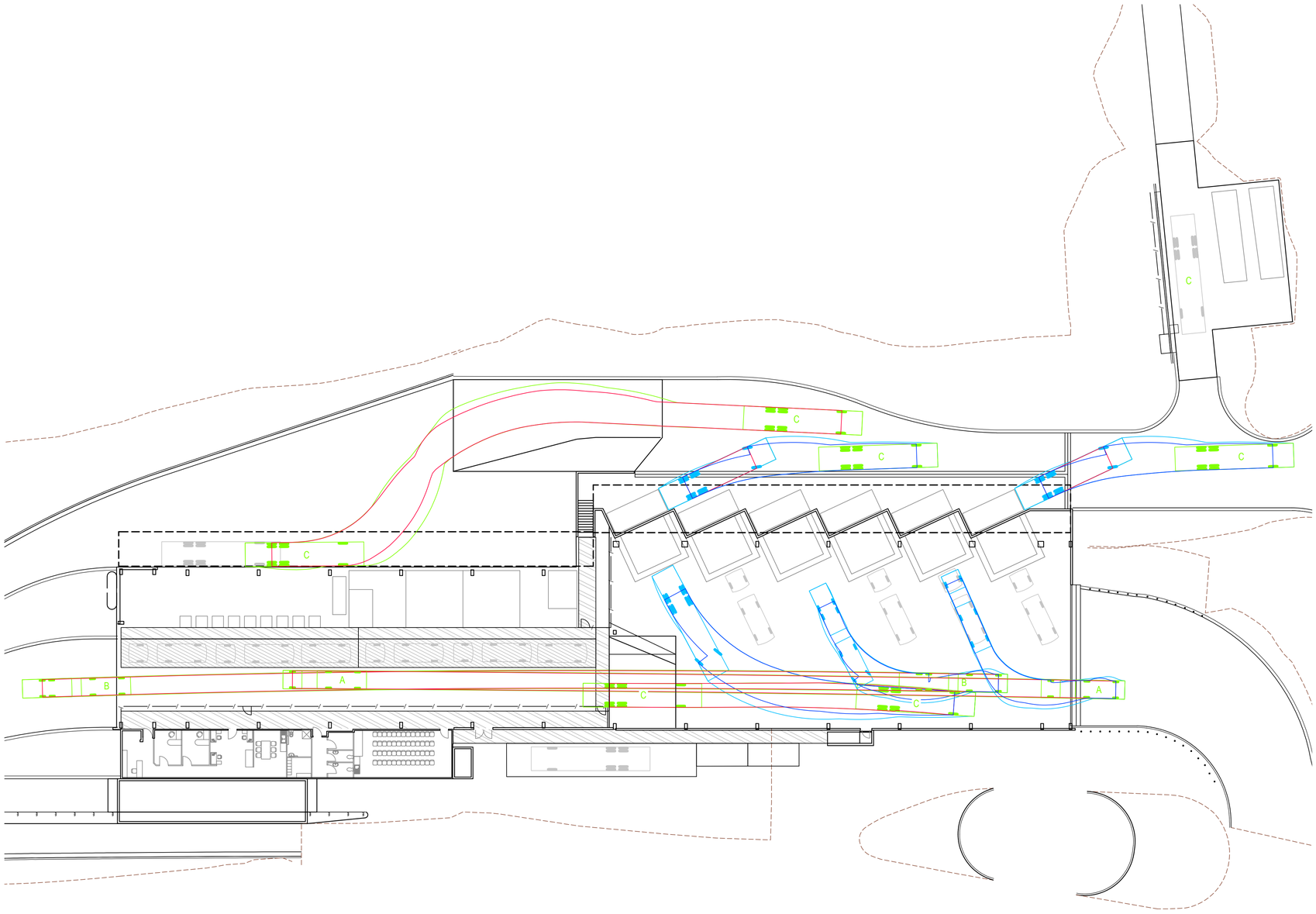
		Date
Drawn	MFN	28/11/2018
Checked	MPR	19/12/2019
Designed	MFN	6/12/2018
Verified	CH	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RE-USE HUB
VEHICLE TURN PATH LAYOUT PLAN
SHEET 2 OF 3

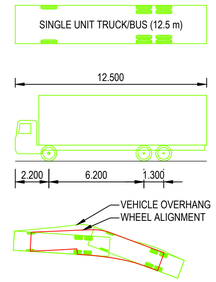
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2522
Revision: A

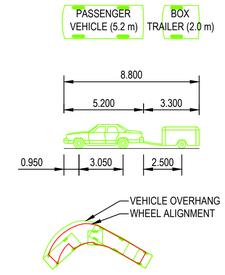


LEGEND - TYPE C



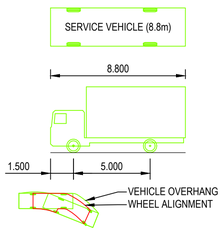
SINGLE UNIT TRUCK/BUS (12.5 m)	
OVERALL LENGTH	12.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.490m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE A



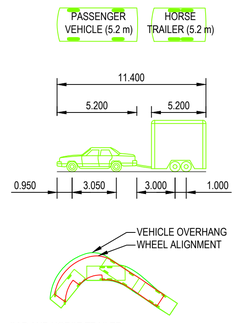
CAR AND TRAILER	
OVERALL LENGTH	8.800m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	1.804m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND - TYPE D



SERVICE VEHICLE (8.8m)	
OVERALL LENGTH	8.800m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.427m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	12.500m

LEGEND - TYPE B



CAR AND HORSE TRAILER	
OVERALL LENGTH	11.400m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	2.600m
MIN BODY GROUND CLEARANCE	0.181m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.300m

LEGEND

A	5.2m DESIGN VEHICLE AND TRAILER
B	5.2m DESIGN VEHICLE AND HORSE TRAILER
C	12.5m DESIGN VEHICLE
D	8.8m DESIGN VEHICLE

RESOURCE RECOVERY SHED TURNING PATH PLAN

SCALE 1:250

0 5 10 15 20 25m

SCALE 1:250 (A1), 1:500 (A3)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	CH	RJK

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Designed	MFN	Date 6/12/2018
Verified	CH	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

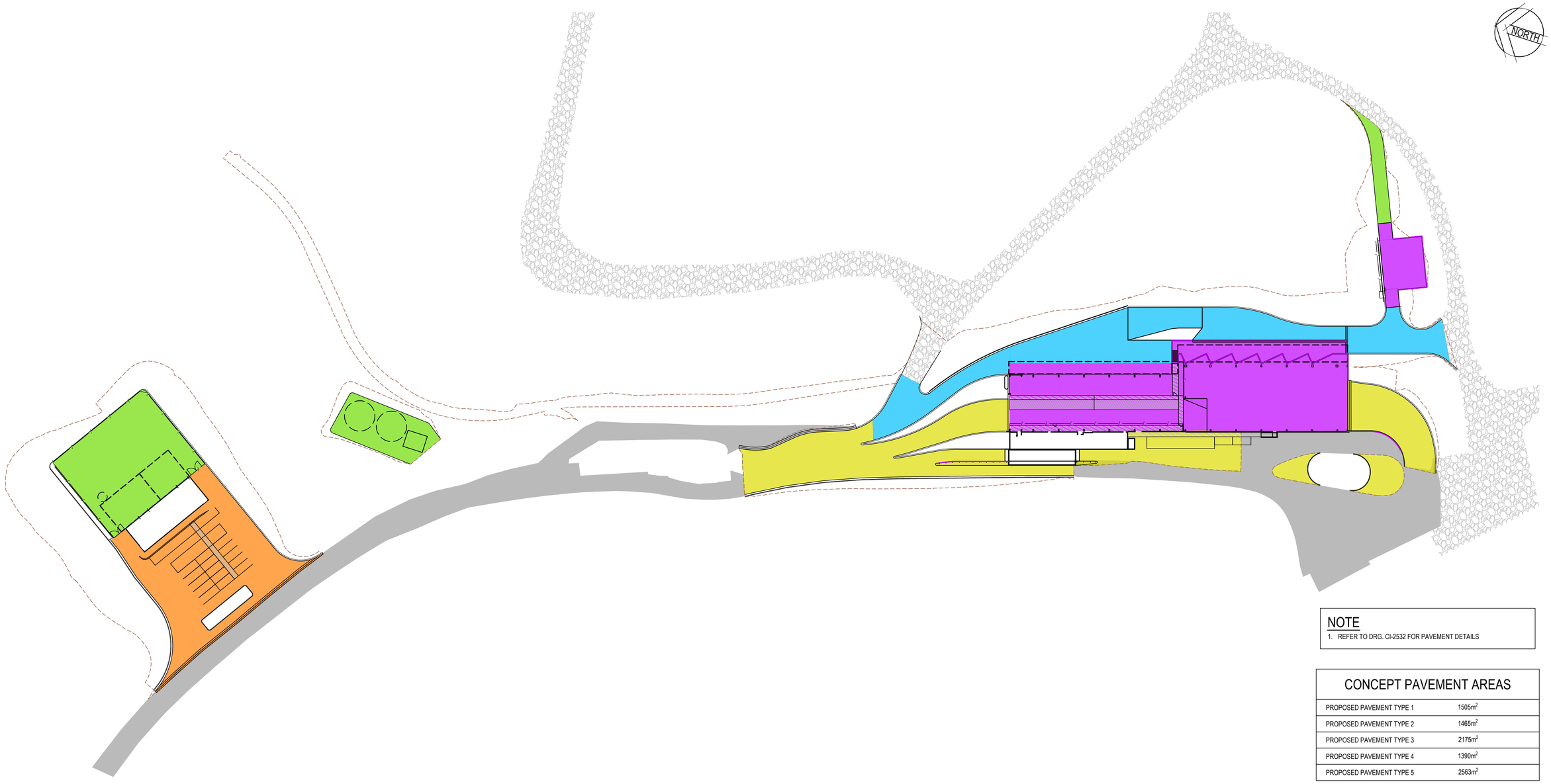
Title: CRC & RESOURCE RECOVERY SHED
VEHICLE TURN PATH LAYOUT PLAN
SHEET 3 OF 3

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:250	A1

Drawing Number: 8201825301-DRG-CI-2523

Revision: A



NOTE
1. REFER TO DRG. CI-2532 FOR PAVEMENT DETAILS

CONCEPT PAVEMENT AREAS

PROPOSED PAVEMENT TYPE 1	1505m^2
PROPOSED PAVEMENT TYPE 2	1465m^2
PROPOSED PAVEMENT TYPE 3	2175m^2
PROPOSED PAVEMENT TYPE 4	1390m^2
PROPOSED PAVEMENT TYPE 5	2563m^2

LEGEND

- PROPOSED PAVEMENT TYPE 1
- PROPOSED PAVEMENT TYPE 2
- PROPOSED PAVEMENT TYPE 3
- PROPOSED PAVEMENT TYPE 4
- PROPOSED PAVEMENT TYPE 5
- EXISTING PAVEMENT
- EXISTING DIRT TRACK

0 10 20 30 40 50 60m

SCALE 1:600 (A1), 1:1200 (A3)

PAVEMENT LAYOUT

SCALE 1:600

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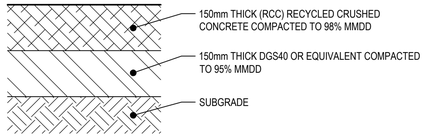
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: RUG SITE
PAVEMENT LAYOUT PLAN

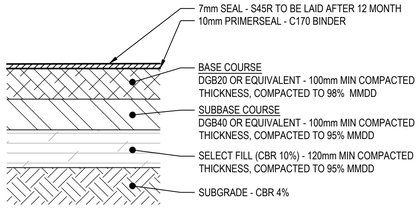
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		1:600	A1

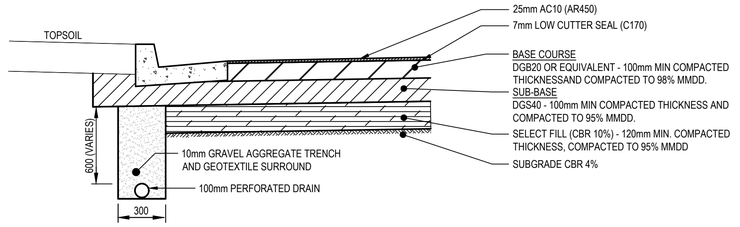
Drawing Number: 8201825301-DRG-CI-2531
Revision: A



PAVEMENT TYPE 1: UNBOUND GRANULAR
SCALE 1:10

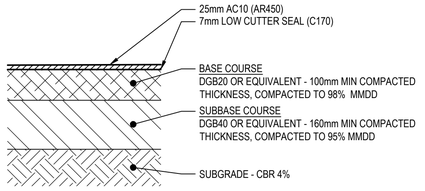


PAVEMENT TYPE 2: UNBOUND GRANULAR WITH SPRAY SEAL SURFACING
SCALE 1:10

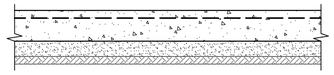


PAVEMENT TYPE 3: UNBOUND GRANULAR WITH ASPHALT SURFACING
SCALE : N.T.S.

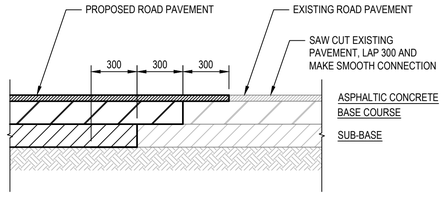
NOTE:
FINAL DESIGN SUBJECT TO SUBGRADE TESTING AND GEOTECHNICAL PAVEMENT DESIGN REPORT



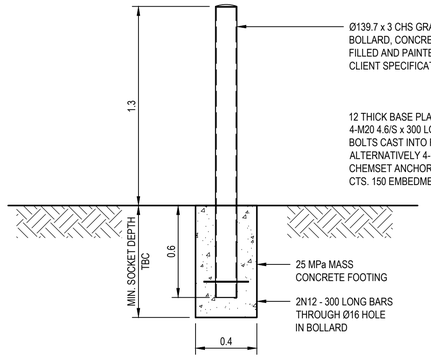
PAVEMENT TYPE 4: UNBOUND GRANULAR WITH SPRAY SEAL SURFACING
SCALE 1:10



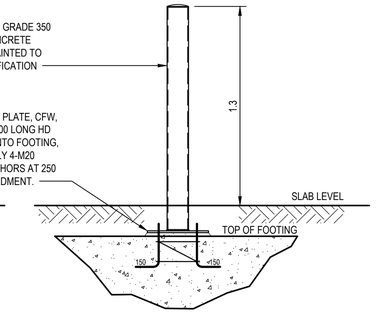
PAVEMENT TYPE 5: CONCRETE PAVEMENT (REFER TO STRUCTURAL SLAB DETAILS)
SCALE: N.T.S.



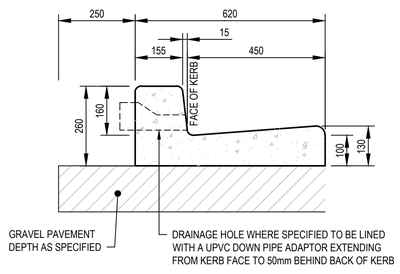
TYPICAL PAVEMENT CONNECTION TO EXISTING
SCALE 1:20



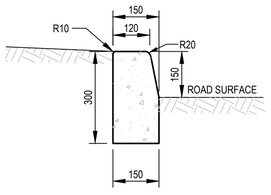
BOLLARD CAST INTO FOOTING
SCALE 1:20



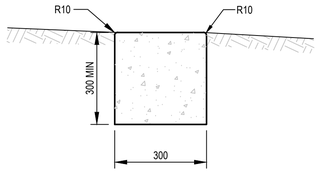
BOLLARD FIXED TO TOP OF FOOTING
SCALE 1:20



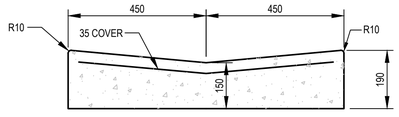
150mm BARRIER KERB AND GUTTER (KG)
SCALE 1:10



KERB ONLY (KO)
SCALE 1:10



EDGE STRIP
SCALE 1:10



DISH CROSSING
SCALE 1:10

NOTE
1. ALL DIMENSIONS ON PAVEMENT ARE IN MILLIMETRES.
2. PAVEMENT DESIGN BASED ON AN ASSUMED MINIMUM SUBGRADE CBR=5%.
3. BASE AND SUB BASE MATERIALS FROM APPROVED UNBOUND NATURAL GRAVELS.

0 0.2 0.4 0.6 0.8 1m
SCALE 1:10 (A1), 1:20 (A3)
0 0.5 1 1.5 2m
SCALE 1:20 (A1), 1:40 (A3)

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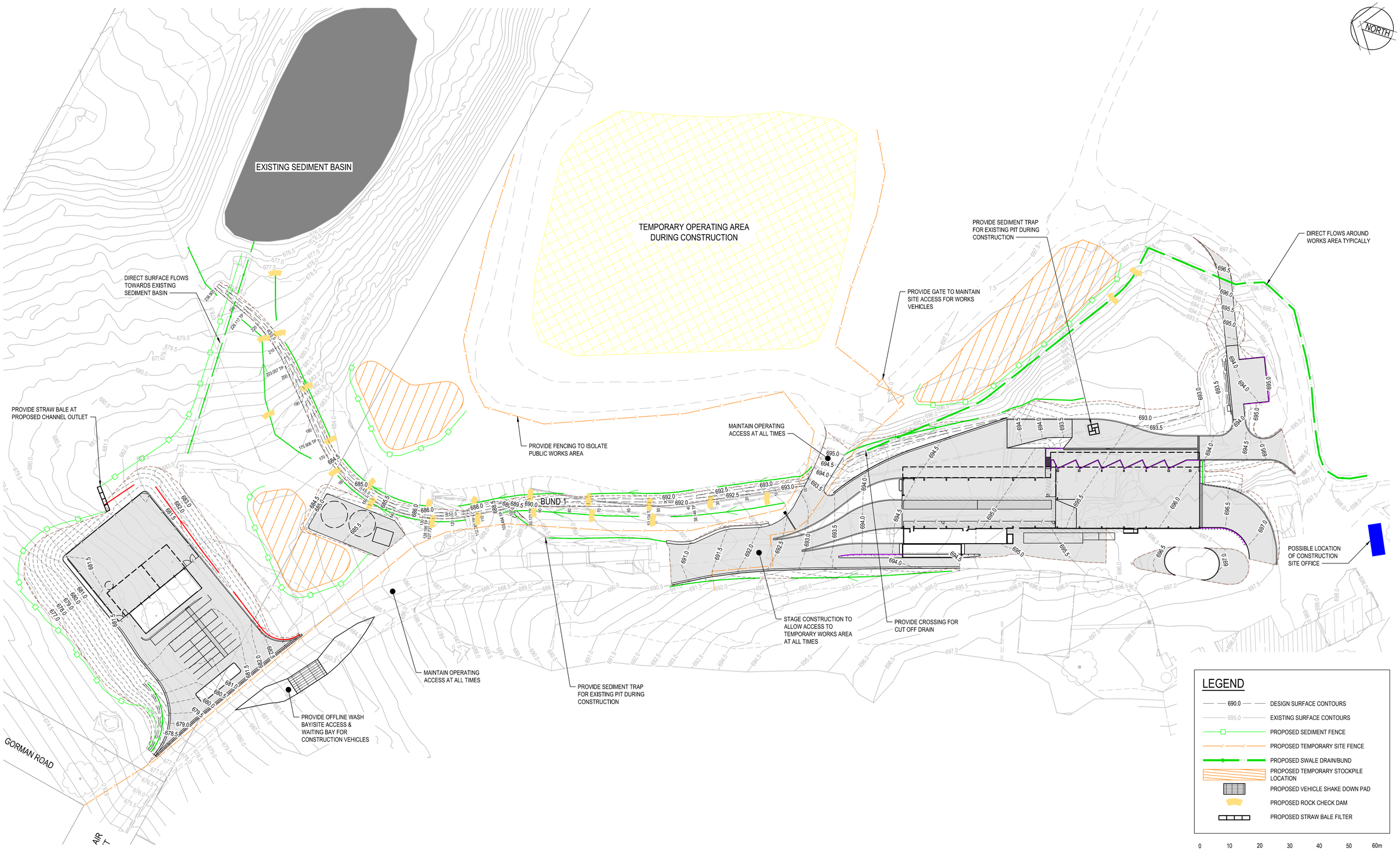
Client: GOULBURN MULWAREE COUNCIL
Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: RUG SITE
PAVEMENT DETAILS
Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED
DATUM: AHD
Scale: AS SHOWN
Size: A1
Drawing Number: 8201825301-DRG-CI-2532
Revision: A



SOIL AND WATER MANAGEMENT LAYOUT

SCALE 1:600

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RUG PROJECT

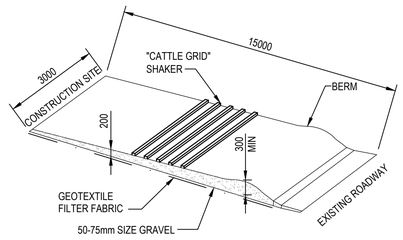
Title: RUG SITE
SOIL AND WATER MANAGEMENT LAYOUT PLAN

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

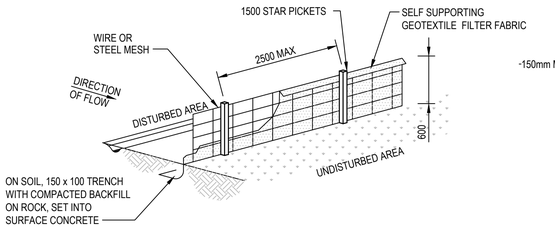
DATUM		Scale	Size
AHD		1:600	A1

Drawing Number: 8201825301-DRG-CI-2601

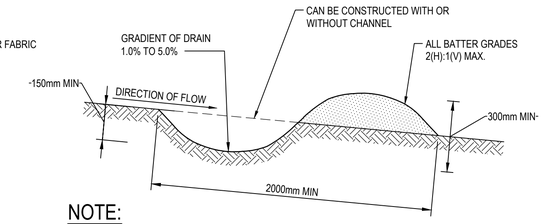
Revision: A



VEHICLE SHAKE DOWN PAD
SCALE: N.T.S.

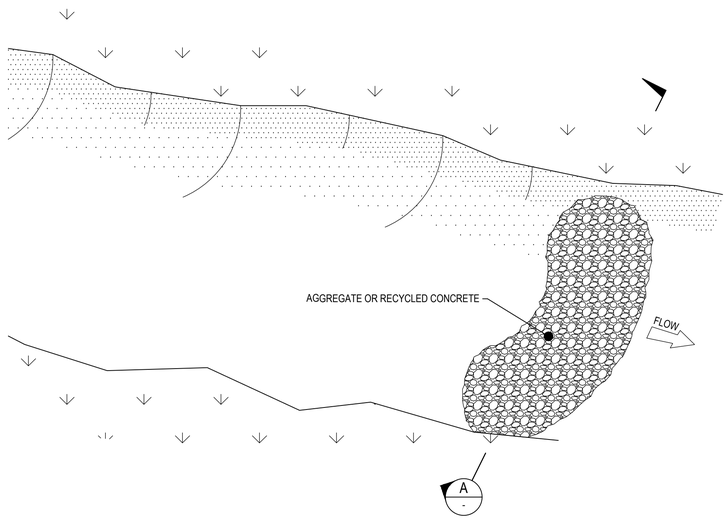


SEDIMENT FENCE
SCALE: N.T.S

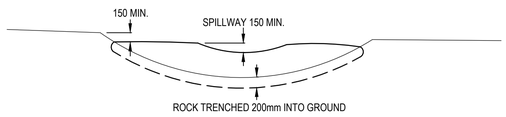


NOTE:
ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

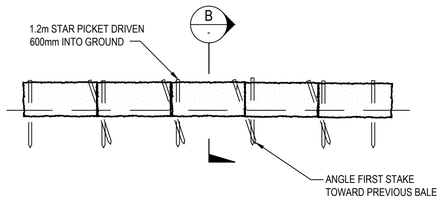
TYPICAL EARTH BANK (LOW FLOW) DETAIL SD 5-5
SCALE N.T.S.



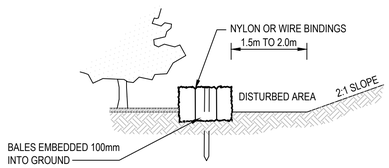
TYPICAL ROCK CHECK DAM DETAIL
SCALE: N.T.S



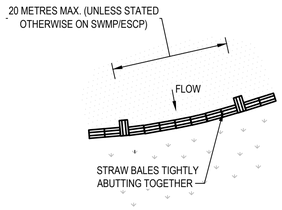
SECTION A - A
SCALE - N.T.S.



TYPICAL STRAW BALE FILTER DETAIL SD 6-7
SCALE - N.T.S



SECTION B - B
SCALE - N.T.S.



PLAN VIEW
SCALE N.T.S.

STAGING OF THE WORKS

IMPLEMENTATION
1. CONSTRUCT STABILISED SITE ACCESS & SHAKE DOWN PAD.
2. INSTALLATION OF BARRIER & SEDIMENT FENCE TO PERIMETER OF SITE AND AS INDICATED ON SWMP.
3. CONSTRUCTION OF TEMPORARY SEDIMENT CONTROL STRUCTURES DOWNSTREAM OF THE SEDIMENT BASINS.
4. CONSTRUCTION OF THE SEDIMENT BASINS.
5. CONSTRUCTION OF DIVERSION DRAINS AND ROCK CHECK DAMS UPSTREAM OF THE SEDIMENT BASINS.

REMOVAL
1. ENSURE ALL SOILS ARE STABILISED TO THE SATISFACTION OF THE SUPERINTENDENT.
2. COMMISSION PIPED STORMWATER SYSTEM.
3. REMOVE REMAINING TEMPORARY DIVERSION DRAINS AND ROCK CHECK DAMS.
4. REMOVE SEDIMENT FROM THE SEDIMENT BASINS, FILL IN AND RESTABILISE TO THE SATISFACTION OF THE SUPERINTENDENT.
5. DECOMMISSION OTHER TEMPORARY SOIL CONSERVATION WORKS.

GENERAL NOTES

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH "MANAGING STORMWATER, SOIL & CONSTRUCTION" PRODUCED BY THE NSW DEPARTMENT OF HOUSING. (THE BLUE BOOK)
2. ALL SURFACE WATER AND EROSION AND SEDIMENT CONTROL MEASURES AS DETAILED ON THE APPROVED MANAGEMENT PLANS MUST BE IN PLACE BEFORE THE COMMENCEMENT OF CONSTRUCTION AND CONTINUE TO OPERATE AFTER COMPLETION OF THE CONSTRUCTION UNTIL THE VEGETATION IS ESTABLISHED.
3. MEASURES USED TO MANAGE EROSION AND SEDIMENT CONTROL WILL INCLUDE:
   a. BASIN TO POND DIRTY RUNOFF FROM DISTURBED AREAS AND EXISTING UPSTREAM CATCHMENT. SEDIMENT WILL SETTLE OUT OF SUSPENSION IN THESE PONDS.
   b. SEDIMENT CONTROL FENCES TO FILTER RUNOFF FROM DISTURBED AREAS AND STOCKPILES.
   c. CHECK DAMS TO FILTER LARGER FLOWS OF SEDIMENT LADEN RUNOFF TO TRAP SEDIMENT.
4. ALL SITE RUNOFF SHOULD BE DISCHARGED INTO GRASSED FIELDS, SEDIMENTATION TRAPS, OR CHECK DAMS DOWN SLOPE OF DISTURBED AREAS TO COLLECT, CONVEY AND TREAT SEDIMENT-LADEN RUNOFF.
5. SEDIMENT FENCES SHOULD BE INSTALLED ON THE DOWNSLOPE SIDE OF ALL STOCKPILES.
6. MEASURES SHALL BE TAKEN TO MINIMISE THE RISK OF EROSION TO DISTURBED AREAS. BARE AREAS SHOULD BE STABILISED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION ACTIVITIES. TEMPORARY STABILISATION TECHNIQUES SUCH AS EROSION MATTING, SEDIMENT SCREENS, HAY BALE ENERGY DISSIPATERS, MULCHING, HYDROSEEDING AND GRASS SPECIES ESTABLISHMENT SHOULD BE IMPLEMENTED ON DISTURBED AREAS AS REQUIRED.
7. WEEKLY INSPECTION AND MAINTENANCE OF ALL WORKS AND REHABILITATED AREAS SHALL BE UNDERTAKEN.
8. FOLLOWING SUCCESSFUL REVEGETATION AND AFTER INSPECTION BY THE SUPERINTENDENT'S WATER QUALITY REPRESENTATIVE, TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED. THIS MAY INVOLVE CLEANING AND REMOVAL OF DIVERSION WORKS, SEDIMENT TRAPS AND CHECK DAMS.
9. EROSION AND SEDIMENT CONTROL STRUCTURES TO BE INSPECTED WEEKLY AND IMMEDIATELY AFTER EVERY STORM AND RUNOFF EVENT TO CHECK THEY ARE OPERATING SATISFACTORILY AND TO SCHEDULE ANY MAINTENANCE WORK AND REPAIRS THAT MAY BE REQUIRED. WEEKLY MAINTENANCE WILL INCLUDE:
   a. SEDIMENT REMOVAL FROM DRAINS AND CHECK DAMS.
   b. REPLACEMENT AS REQUIRED.
10. DUST SUPPRESSION EQUIPMENT TO BE AVAILABLE AT ALL TIMES (INCLUDING WEEKENDS, ROSTER DAYS AND PUBLIC HOLIDAYS) TO REDUCE THE EMISSION OF DUST FROM SITE.
11. ANY INCIDENTS ON SITE LIKELY TO CAUSE POLLUTION (FUEL, CHEMICALS, STORMWATER ETC) MUST BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT.
12. THIS PLAN SHOWS TYPICAL SOIL & WATER MANAGEMENT MEASURES THAT WILL BE REQUIRED BUT IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ANY PARTICULAR CONSTRUCTION METHODOLOGY. ANY CHANGES ARE TO BE APPROVED BY COUNCIL OR PCA.
13. PERMANENT BATTERS TO BE TOPSOILED (MIN. 100mm) AND HYDROMULCHED WITH APPROVED SEED MIX.
14. ALL DISTURBED AREAS TO BE HYDROMULCHED IMMEDIATELY UPON COMPLETION WITH APPROVED SEED MIX .
15. HYDROMULCHED AREAS TO BE REGULARLY WATERED TO PROMOTE RAPID GROWTH.
16. ANY REVEGETATED AREAS WHICH FAIL TO ESTABLISH WITHIN THREE MONTHS MUST BE RE-SOWN.
17. EARTHWORKS AND TRENCHING TO BE STAGED TO KEEP WORK AREAS TO A MANAGEABLE SIZE
18. EXCAVATED MATERIAL FROM TRENCHES TO BE STOCKPILED UPHILL OF TRENCH UNTIL BACKFILLING CAN OCCUR.
19. PUBLIC ROADS TO BE KEPT CLEAR OF DEBRIS AT ALL TIMES. CONTRACTOR TO PROVIDE SHAKE DOWN PAD FOR VEHICLES ENTERING/LEAVING SITE.
20. HAULAGE VEHICLES TO REMAIN ON SEALED ROADS OR DEFINED TRACKS AT ALL TIMES WITHIN THE SITE.
21. SEDIMENT TRAPS ARE TO BE PROVIDED AROUND ALL PITS DURING AND FOLLOWING CONSTRUCTION. BARRIERS AND TRAPS CAN BE REMOVED UPON SUCCESSFUL REVEGETATION UPSTREAM AS DIRECTED BY THE SUPERINTENDENT.
22. ALL WORKS ENCLOSED AT ALL TIMES BY 1800mm HIGH CHAIN WIRE FENCE.
23. ALL WORKS ARE TO BE STAGED SUCH THAT TOTAL AMOUNT OF STRIPPED SURFACE IS LIMITED.
24. STOCKPILES ARE NOT TO EXTEND MORE THAN 2m IN HEIGHT.
25. IF SITE CONDITIONS NECESSITATE CHANGES TO THE PROPOSED DESIGN THE PRINCIPLE CERTIFYING AUTHORITY MUST GRANT APPROVAL.

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RUG PROJECT
Title: RUG SITE
SOIL AND WATER MANAGEMENT DETAILS

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	AS SHOWN	A1

Drawing Number: 8201825301-DRG-CI-2602
Revision: A

DATE PLOTTED: 20 December 2019 3:45 PM BY : JOEL MOY

1. PIPING SYMBOL LIST

NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL
GENERAL VALVE	2	ELECTRIC TRACE HEATER	6	FLEXIBLE HOSE	2
GATE VALVE	2	STEAM TRACE HEATER	6	HOSE END FLANGED	2,6
GLOBE VALVE	2	SILENCER INLINE OR EXHAUST	2,6	HOSE END SCREWED	2,6
BALL VALVE	1	PIPELINE AIR INLET	6	HOSE END QUICK COUPLING	2,6
3 WAY VALVE L &T PORT	4	IN LINE ACOUSTIC FILTER	8	HOSE COUPLING	
4 WAY VALVE L, T & DOUBLE L	4	WASH HOSE REEL	5,8	REDUCER (CONCENT.)	2
ANGLE VALVE	2	LOUVRE DAMPER	2,6	REDUCER (ECCENT.)	2
ANGLE CHECK VALVE	6	MULTI LOUVRE DAMPER	2,6	REDUCER (CONCENT.) DIMENSIONED	2 (200 / 100 / 200 / 100)
BUTTERFLY VALVE	2	GENERAL FILTER OR STRAINER	2	AIR COOLED FINNED TUBE	6
COMBINED ISOLATION VALVE & VENT	3	Y-TYPE STRAINER	2	SPRAY NOZZLE	2
THREE-WAY CHECK VALVE	6	BASKET STRAINER	6	SPOOL PIECE	6
THREE-WAY VALVE	3	FILTER SEPARATOR MANUAL DRAIN	1	EXPANSION JOINT	2
PLUG VALVE	2	SEPARATOR MANUAL DRAIN	1	TUNDISH	6
NEEDLE VALVE	2	SEPARATOR AUTOMATIC DRAIN	1	TURBINE OR PROPELLER METER	3
CHECK VALVE	2	LUBRICATOR	1	VORTEX SHEDDING METER	3
RPZ VALVE	6	AIR DRIER	1	PITOT TUBE OR ANNUBAR	3
PARALLEL SLIDE VALVE	6	FLANGE	2	VENTURI METER	3
KNIFE/SLIDE GATE OR SLUICE VALVE	6	BLIND FLANGE	2	SIGHT GLASS	3
ROTARY VALVE	6	SCREWED CAP	2,6	METERING ORIFICE	3,6
PINCH VALVE	6	DOME END (WELDED)	6	MASS FLOW METER	3
AXIAL VALVE	6	PLUG	6	ROTAMETER	3
STRAIGHT SAFETY VALVE	2	UNION	2	POSITIVE DISPLACEMENT METER	3
SAFETY VALVE OR RELIEF VALVE	2	GOGGLE VALVE OPEN	6	FLOW NOZZLE	3
DIAPHRAGM VALVE	2	GOGGLE VALVE CLOSED	6	MAGNETIC FLOW METER	3
JACKET VALVE	4	SLIP PLATE OPEN	6	TARGET METER	3
CONDENSATE TRAP	2,6	SLIP PLATE CLOSED	6	ULTRASONIC FLOW METER	3
AIR OR GAS TRAP	2,6	RESTRICTION ORIFICE	R	SENSOR	3
RUPTURE DISK	6	FLOW STRAIGHTENER	3	FLOW SWITCH	3
FOOT VALVE	2	STATIC MIXER INLINE	4	LEVEL ULTRASONIC	3
ELECTRIC MOTOR OPERATED VALVE	3	LINE HUMIDIFIER	2	LEVEL CAPACITANCE	3
SOLENOID OPERATED VALVE	3	FIRE BREAK / FLAME ARRESTOR	6	LEVEL FLOAT TYPE	3
AIR MOTOR OPERATED VALVE	3,6	ATMOSPHERIC GOOSE NECK VENT	6	LEVEL HYDROSTATIC	3
DIAPHRAGM TYPE CONTROL VALVE	3	SYPHON	6	WEIR	3
CONTROL V WITH MAX. MECH. STOP	3 (MAX)	DRAIN AND SYPHON BREAKER	6	POINT OF MEASUREMENT (EG. INTERNAL OR SURFACE)	6
CONTROL V WITH MIN. MECH. STOP	3,6 (MIN)	VENT WITH WEATHER HOOD	6	THERMOWELL	6 (T)
PNEUMATIC PISTON ACTUATED VALVE	3	DISCHARGE TO ATMOSPHERE	6	PIETZ PLUG OR EQUIV (EG. MINIMESS)	6 (P)
FLOAT VALVE	2	INTAKE FROM ATMOSPHERE	6	IGNITOR	6
SELF CONTAINED PRESSURE REGULATOR DOWNSTREAM P	3				
OPSO-UPSO VALVE MAY HAVE EITHER OR BOTH + MECH RESET	3 (OP / UP / R)				
SELF CONTAINED PRESSURE REGULATOR UPSTREAM P	3				
SELF CONTAINED PRESS-REG EXTERNAL TAP DOWNSTREAM P	3				
DIFFERENTIAL PRESSURE REGULATOR EXTERNAL TAPS	3				

SYMBOL REFERENCES

1 AS1101.1
2 AS1101.5
3 AS1101.6
4 BS ISO 14617
5 SAA HB20-1996 (AUST STD - FIRE PROTECTION)
6 OTHER (EITHER INDUSTRY STDS OR INTERNALLY DEVELOPED)

2. PROCESS EQUIPMENT SYMBOLS

(SYMBOLS MARKED ** MAY BE SCALED TO SUIT)

PUMP - GENERAL (4)
PUMP - CENTRIFUGAL (6)
PUMP - POSITIVE DISPLACEMENT (6)
PUMP - SCREW/MONO (6)
PUMP - GEAR (6)
PUMP - EJECTOR (6,4)
FAN - GENERAL/CENTRIFUGAL (2)
FAN - AXIAL (6)
AIR MOVER/EJECTOR (6)
COMPRESSOR (4)
VACUUM PUMP (4,6)
COMPRESSOR - POSITIVE DISPLACEMENT (2)
ROTARY LOBE COMPRESSOR (6)
HEAT EXCHANGER ** SHELL & TUBE (6)
FIN/FAN HEAT EXCHANGER (6)
PLATE HEAT ** EXCHANGER (4)
COOLING TOWER (6)
TANK HEATER (ELECT) (6) (TANK SHOWN FOR EXAMPLE)
SAFETY SHOWER (2)
EYEWASH (6)

PUMP - VANE
PUMP - SUBMERSIBLE
TANK
SUMP

3. SPECIALTY VALVES

(A) PRESSURE RELIEF VALVES

XXXX kPag / PZxx — RELIEF SETPOINT OPTIONAL; PRESSURE RELIEF OR SAFETY VALVE, ANGLE PATTERN

XXXX kPag / PRESS / VAC / PZxx — OPTIONAL; VACUUM AND PRESSURE RELIEF VALVE

XXXX kPag / PZxx — OPTIONAL; RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF

XXXX kPag / OP / R — OPSO (OVER PRESSURE SHUT OFF VALVE)

45 kPag / 3 kPag / OP / UP / R — Eg. COMBINED UPSO - OPSO (OVER AND UNDER PRESSURE SHUT OFF VALVE)

(B) DIRECTIONAL CONTROL VALVES (DCVs)

2 PORT, 2 POSITION SPOOL DCV
3 PORT, 2 POSITION SPOOL DCV
4 PORT, 2 POSITION SPOOL DCV
4 PORT, 3 POSITION SPOOL DCV
5 PORT, 2 POSITION SPOOL DCV
5 PORT, 3 POSITION SPOOL DCV
DCV OVERRIDE (SPRING RETURN)
DCV OVERRIDE WITH RETAIN
DCV SOLENOID
DCV SPRING
DCV HYDRAULIC PILOT
DCV PNEUMATIC PILOT

EXAMPLE

5/3 DCV SOLENOID OPERATED PNEUMATIC PILOT OPERATOR, SPRING CENTRED

4. LINE DEFINITIONS

Electrical Signal Line
Major Electrical Cable
Major Inside of PLC Connection
Air Line Connection
Main Process Line
Secondary Process Line
Underground / Concealed - Main Line
Underground / Concealed - Sec' Line
Open Channel (Pictorial form acceptable)
Future Piping
Thermal Insulation
Acoustic Insulation
Connections to Process or Mechanical Link
System Link
Capillary Tubing (Filled System)
Hydraulic Signal or Hydraulic Supply
Electromagnetic or Sonic Signal
Process Stream Number (88)
Location Boundary
XXXXXXXX A — Continuation Arrow (Other or Same Drawing) (A, B ... Continuation Identifier)
a / d / c — Line Continuation (Same Drawing) (a, b, c, d ... Continuation Identifier)

OR — Main (If all underground piping is on one P&ID) / Secondary

PRIMARY LINES	SECONDARY LINES	
NEW / EXISTING	NEW / EXISTING	Termination Point
XXX XXX	XXX XXX	Line Specification Break
NN NN	NN NN	Area Delineation
		Unconnected Piping (2mm gap each side on A1)
		Connected Piping
FALL	FALL	Direction Of Fall
TP / XXXX		Takeover Point

XREFs: XR-820182530-01-G-TITLE
CAD File: \\AUW\OLCFSO3\Projects\PY18053_GMC Reuse Design\Drawings\Build\PID\820182530-01-DRG-P-1000.dwg

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	RJK	RJK

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Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT
Title: P&ID STANDARD
EQUIPMENT & LINE SYMBOLOGY

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	NTS	A1

Drawing Number: 821825301-DRW-G-P-1000
Revision: A

5. INSTRUMENTATION SYMBOLS

LOCALLY MOUNTED

MAIN PANEL MOUNTED

MOUNTED BEHIND MAIN PANEL

LOCAL PANEL MOUNTED

MOUNTED BEHIND LOCAL PANEL

LIGHT TYPE INDICATOR

TWO FUNCTION INSTRUMENT

LOCALLY MOUNTED INTERFACE ACCESSIBLE TO THE OPERATOR

MAIN OR CENTRAL PANEL OR CONTROL ROOM ACCESSIBLE TO THE OPERATOR

LOCAL PANEL OR SCREEN AUXILIARY OPERATOR'S INPUT DEVICE

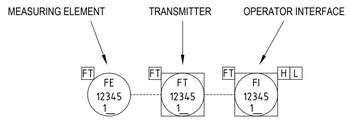
COMPUTER - INTERFACE LOCALLY MOUNTED ACCESSIBLE TO THE OPERATOR

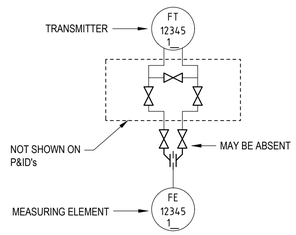
COMPUTER - MAIN OR CENTRAL PANEL OR CONTROL ROOM NORMALLY ACCESSIBLE TO THE OPERATOR

COMPUTER - MAIN OR CENTRAL PANEL OR CONTROL ROOM NOT NORMALLY ACCESSIBLE TO THE OPERATOR

NOTE - DASHED HORIZONTAL LINE IN ANY OF THE ABOVE MEANS NOT ACCESSIBLE TO THE OPERATOR.

COMMON IMPLEMENTATION





6. ANALYSER TYPES, ALARMS & FUNCTION MODIFIERS

HHH	HIGH HIGH HIGH
HH	HIGH HIGH
H	HIGH
L	LOW
LL	LOW LOW
LLL	LOW LOW LOW
A/M	AUTO/MANUAL
L/L	LEAD/LAG
DEL	DELAY
N	TYPE 'N' THERMOCOUPLE
J	TYPE 'J' THERMOCOUPLE
R	TYPE 'R' THERMOCOUPLE
K	TYPE 'K' THERMOCOUPLE
Ω	RESISTANCE TEMPERATURE ELEMENT
MF	MASS FLOW
AND	LOGICAL AND
OR	LOGICAL OR
OI	OPERATOR INPUT
SEL	SELECTOR
HAZ	INSTALLED IN CLASSIFIED HAZARDOUS AREA
VEL	VELOCITY
DIS	DISPLACEMENT
CV	CALORIFIC VALUE
CO	CARBON MONOXIDE
N_2	NITROGEN
O_2	OXYGEN
LEL	LOWER EXPLOSION LIMIT
O	OPEN
C	CLOSE
	START (POWER ON)
	STOP (POWER OFF)
	POWER ON/OFF SWITCH/BUTTON
+	ADD OR TOTALIZE (ADD AND SUBTRACT)
−	SUBTRACT
X	MULTIPLY
/	DIVIDE
±	BIAS
Δ	DIFFERENCE
√	EXTRACT SQUARE ROOT
X^n or $X^{1/n}$	RAISE TO POWER
AVE	AVERAGE
REV	REVERSE
% or XY	GAIN OR ATTENUATE (INPUT:OUTPUT)
1:1	BOOST
>	HIGH SELECT
<	LOW SELECT
E/P or P/I	FOR INPUT/OUTPUT SEQUENCES OF THE FOLLOWING - E VOLTAGE; H HYDRAULIC; I CURRENT (ELECTRICAL); O ELECTROMAGNETIC OR SONIC; P PNEUMATIC; R RESISTANCE (ELECTRICAL)
A/D or D/A	FOR INPUT/OUTPUT SEQUENCES OF THE FOLLOWING - A ANALOG; D DIGITAL
∫	INTEGRATE (TIME INTEGRAL)
D or d/dt	DERIVATIVE OR RATE
I/D	INVERSE DERIVATIVE
f(x)	UNSPECIFIED FUNCTION, NON LINEAR
u	OVERTRAVEL
M	MAJOR OR CRITICAL ACCIDENT CONTROL
S	SAFETY INSTRUMENTED FUNCTION (SIL)
I	INTERLOCK

7. INSTRUMENTATION LABELLING

ALL INSTRUMENTS SHALL BE LABELLED AS OUTLINED BELOW

INSTRUMENT TAG NAME = YY_ABXXXXX_C#

WHERE:

YY = PLC INSTRUMENT/SIGNAL REPORTS TO (E.G. FT=FUEL TERMINAL)

F = ANALYSER TYPE, ALARM OR FUNCTION MODIFIER (MULTIPLE ITEMS MAY BE SHOWN)

A = FIRST LETTER, MEASURED OR INITIATING VARIABLE (SEE TABLE BELOW)

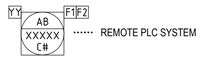
B = SECOND LETTER, DISPLAY OR OUTPUT FUNCTION (SEE TABLE BELOW)

XXXXX = EQUIPMENT NUMBER THAT INSTRUMENT IS ASSOCIATED WITH

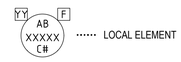
C = SWITCHING ELEMENT FUNCTION MODIFIER

NOTE: FOR NON SWITCHING ELEMENTS THIS IS REPLACED WITH AN UNDERSCORE [_]

= SEQUENTIAL INSTRUMENT NUMBER ASSOCIATED WITH EQUIPMENT ITEM



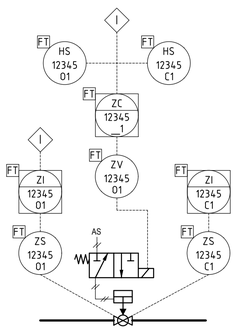
REMOTE PLC SYSTEM



LOCAL ELEMENT

LETTER	FIRST LETTER MEASURED OR INITIATING VARIABLE	SECOND LETTER DISPLAY OR OUTPUT FUNCTION	THIRD LETTER SWITCHING ELEMENT FUNCTION MODIFIER
A	ANALYSIS	ALARM	——
B	BURNER, FLAME	STATE OR STATUS DISPLAY	——
C	CONDUCTIVITY, CAPACITANCE	CONTROLLER	CLOSE
D	DENSITY	——	——
E	VOLTAGE	SENSING ELEMENT	——
F	FLOWRATE	——	LOCAL ISOLATOR
G	GAUGING POSITION OR LENGTH	GLASS	——
H	HAND OPERATED (MANUALLY INITIATED)	——	HIGH
HH	——	——	HIGH HIGH
I	CURRENT	INDICATING	——
J	POWER	——	——
K	TIME OR TIME PROGRAM	——	——
L	LEVEL	——	LOW
LL	——	——	LOW LOW
M	MOISTURE/HUMIDITY OR MOTOR	——	——
N	——	——	NORMAL
O	——	ORIFICE (RESTRICTION)	OPEN
P	PRESSURE OR VACUUM	TEST POINT CONNECTION	——
Q	QUANTITY	INTEGRATING OR SUMMATING	——
R	RADIATION	RECORDING	RUN
S	SPEED OR FREQUENCY	SWITCHING	STOP
T	TEMPERATURE	TRANSMITTING	——
U	MULTIVARIABLE	MULTIFUNCTION UNIT	——
V	VIBRATION	VALVE, DAMPER, LOUVRE, ACTUATING ELEMENT,UNSPECIFIED CORRECTING UNIT IGNITOR	——
W	WEIGHT OR FORCE	WELLS	——
X	UNCLASSIFIED VARIABLES, e.g. T.V. CAMERA	——	——
Y	USER'S CHOICE	COMPUTING RELAY, RELAY	——
Z	POSITION	EMERGENCY OR SAFETY ACTING	——

INSTRUMENT LABELLING EXAMPLE:



DSL-ASV-12345

EQUIPMENT & ASSOCIATED INSTRUMENTS:

DSL-ASV-12345 = DSL AUTOMATED SHUT OFF VALVE, EQUIPMENT NUMBER 12345

FT_ZV12345_O1 = OPEN SOLENOID 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_ZC12345__1 = VALVE POSITION CONTROL (ON HMI) ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_HS12345_O1 = OPEN PUSH BUTTON 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_HS12345_C1 = CLOSE PUSH BUTTON 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_ZS12345_O1 = OPEN LIMIT SWITCH 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_ZI12345_O1 = OPEN POSITION INDICATOR 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_ZS12345_C1 = CLOSE LIMIT SWITCH 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

FT_ZI12345_C1 = CLOSE POSITION INDICATOR 1 ASSOCIATED WITH EQUIPMENT ITEM 12345

CONTROL/FUNCTIONALITY

* ALL INSTRUMENTS REPORT TO PLC "FT"
* VALVE IS FAIL CLOSE (SPRING DRIVEN), AIR TO OPEN
* SOLENOID IS SPRING RETURNED AND MUST BE POWERED TO OPEN VALVE
* SOLENOID IS NORMALLY IN DEENERGISED STATE (I.E. VALVE IS NORMALLY CLOSED)
* ACTUATION OF THE VALVE IS INTERLOCKED
* THE OPEN LIMIT OF THE VALVE IS AN INTERLOCK FOR OTHER ITEMS/EQUIPMENT

8. ACTUATORS

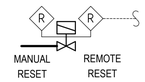
(A) ACTUATOR TYPES

HAND ACTUATED

FLOAT ACTUATED

WEIGHT ACTUATED

SOLENOID



LATCH TYPE ACTUATOR WITH RESET (SHOWN TYPICALLY FOR SOLENOID ACTUATOR)

DRIVEN ACTUATOR (GENERAL)

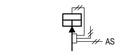
ELECTRIC ACTUATOR

HYDRAULIC ACTUATOR

PNEUMATIC ACTUATOR

SINGLE ACTING CYLINDER WITHOUT POSITIONER OR OTHER PILOT - (EG. FAIL OPEN)

DUAL ACTING CYLINDER WITHOUT POSITIONER OR OTHER PILOT - (EG. FAIL IN POSITION)



CYLINDER ACTUATOR WITH PNEUMATIC POSITIONER - (EG. FAIL OPEN)

DIAPHRAGM ACTUATOR WITH ELECTRO - PNEUMATIC POSITIONER - (EG. FAIL CLOSED)

DIAPHRAGM PRESSURE-BALANCED

DIAPHRAGM - SPRING OPPOSED (EG. FAIL CLOSED)

MOTORISED ACTUATOR WITH POSITIONER - (EG. FAIL IN POSITION)

MANUAL OVERIDE

(B) ACTUATOR FAILURE MODES

VALVE OPENS ON FAILURE OF ACTUATING ENERGY

VALVE CLOSES ON FAILURE OF ACTUATING ENERGY

VALVE RETAINS POSITION ON FAILURE OF ACTUATING ENERGY

THREE PORT SOLENOID VALVE ARROW SHOWS OPEN PORTS ON FAILURE OF ACTUATING ENERGY

NOTE - SYMBOLOGY USED ON THIS SHEET IS BASED ON AS1101.6 AND INTERNATIONAL STANDARDS

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Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: P&ID STANDARD
INSTRUMENTATION SYMBOLOGY & LABELLING

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

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CAD File: \\AUWOLCFS03\Projects$\FY18\253_GMC Reuse Design\Drawings\Build\PID\820181825301-DRG-P-1001.dwg

9. LINE NUMBERING

ALL PIPELINES & DUCTS SHALL BE LABELLED AS OUTLINED BELOW

DDDD-ZZZ-XXX-ABC

eg. 100-S-999-EB15

DDDD - Line Size (Nominal)

ZZZ - Fluid Code (See table on right)

XXX - Sequential Line Number (unique for each fluid code)

A - Flange Rating

Standard Flanges	Non-standard Flanges
E - BS. Table E	A - BS. Table A
L - 150 lb ANSI	F - BS. Table F
M - 300 lb ANSI	H - BS. Table H
	J - BS. Table J
	Z - Special

B - Material In Contact With Fluid

- A - Cast Iron
- B - Carbon Steel
- C - Low Alloy (C/Mo, Cr/Mo up to 3%)
- D - Intermeditate Alloy (5-9% Cr)
- E - Austentic Stainless Steel
- F - Special Steel (Hastelloy etc.)
- G - Non-Ferrous Metal
- H - Glass
- J - Plastic
- K - Cement (Includes Concrete)
- L - Rubber
- M - Miscellaneous
- N - Fibreglass
- P - Plastic Lined
- R - Rubber Lined
- S - SAF 2205 St St
- T - Galvanized Pipe

C - Piping Specification Reference Number (See table below)

FLUID CODE

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
UTILITIES / GENERAL		PROCESS FLUIDS		CHEMICALS	
CW	Cold Water (Potable	OIL	Waste Oil		
NPCW	Non Potable Cold Water	LCH	Leachate		
SW	Stormwater				

Piping Spec.	Design Cond.		Fluid	Flange & Rating	Material in Contact With Fluid	Pipe & Material	Remarks
	Press. kPaG	Temp. °C					
01	200kPag	25	Stormwater / Non Potable Cold Water	N/A	uPVC	uPVC	Socketed & glued joints
02	0kPag	25	Oil	N/A	HDPE	HDPE	Screwed compression fittings & joints
03	TBC	40	High Pressure Water / Stormwater / Leachate	Table E	Carbon Steel	Carbon Steel	Final design conditions to be confirmed once high pressure wash pump has been selected Nominally 1000kPa design pressure
04	TBC	25	Leachate	TBC	HDPE	HDPE	Final design conditions to be confirmed once high pressure wash pump has been selected Nominally 1000kPa design pressure
05	1000kPag	25	Cold Water	Table E	Copper	Copper	Brazed copper piping with flanges as required to relevant equipment items
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

10. EQUIPMENT NUMBERING

ALL ITEMS OF EQUIPMENT (EXCLUDING INSTRUEMENTS AND VALVES)
SHALL BE LABELLED AS OUTLINED BELOW
NOTE: FOR LABELLING OF INSTRUMENTS AND VALVES REFER TO ITEMS 7 & 11

YYY-XXXXX

eg. TK-00001

YYY - Equipment Type (See table below)

XXXXX - 5 Digit Unique Equipment No. (See table below for ranges)

EQUIPMENT TYPE

CODE	DESCRIPTION	CODE	DESCRIPTION
AB	AIR BLOWER	INJ	INJECTOR
AC	AIR CONDITIONER	LA	LAUNDER
ACF	ACOUSTIC FILTER	LU	LUBRICATION UNIT
AF	AIR FILTER	MLA	MARINE LOADING ARM
AI	PIPELINE AIR INLET	MS	MOISTURE TRAP
AG	AGITATOR	MT	MOTOR
BE	BUCKET ELEVATOR	PE	PRECIPITATOR
BN	BIN	PM	POINT OF MEASUREMENT
BLR	BOILER	PP	PUMP
BR	BURNER	PV	PRESSURE VESSEL
BW	BELT WEIGHER	QR	QUICK RELEASE COUPLING
CC	CONTROL PANEL/DCS CUBICLE	RO	RESTRICTION ORIFICE
CN	CRANE	RP	REMOVABLE SPOOL PIECE
CO	CONCENTRATOR	SB	SCRUBBER
CP	COMPRESSOR	SC	SCREEN/VIBRATING SCREEN
CR	CRUSHER	SE	SEAL POT
CS	CLASSIFIER/CLARIFIER	SG	SIGHT GLASS
CT	COOLING TOWER	SH	SHOWER/EYEWASH
CV	CONVEYOR	SJ	SILENCER
CY	CYCLONE	SK	STACK
DA	DAMPER	SM	STATIC MIXERS
DC	DUST COLLECTOR	SN	SEPARATOR
DE	DETECTOR	SR	STRAINER
DG	DEGASSER	ST	STEAM TRAP
DO	DOSING SYSTEM	SY	SPRAY SYSTEM
DR	DRIER	TD	TUNDISH
ED	EDUCTOR	TH	THICKENER
EJ	EXPANSION JOINT	TLA	TRUCK LOADING ARM
FA	FAN	TK	TANK
FB	FIRE BREAK/FLAME ARRESTOR	TS	TEMPORARY STRAINER
FD	FUME HOOD	TW	THERMOWELL
FE	FEEDER	VB	VIBRATOR
FH	FLEXIBLE HOSE	VG	VENTILATION GRILLE/LOUVRE
FL	FILTER	WR	WEIR
FS	FIRE SERVICES		
FT	FINNED TUBE		
FW	FLOW STRAIGHTENER		
GA	GATE		
GB	GEAR BOX		
GS	GAS ANALYSER		
HA	HOSE ASSEMBLY		
HE	HEATER		
HO	HOOD		
HP	HOPPER		
HR	HOSE REEL		
HT	HOIST		
HU	HUMIDIFIER		
HX	HEAT EXCHANGER		
HY	FIRE HYDRANT		

EQUIPMENT TYPE

EQUIPMENT NO. RANGE	EQUIPMENT TYPE & LABEL DISPLAY
00001 - 00099	EQUIPMENT AND VALVES
00001 - 00099	EQUIPMENT AND VALVES
00001 - 00099	EQUIPMENT AND VALVES
00001 - 00099	EQUIPMENT AND VALVES

11. VALVE NUMBERING

ALL VALVES SHALL BE LABELLED AS OUTLINED BELOW

ZZZ-VVV-XXXXX

eg. SME-FCV-10023

ZZZ - Fluid Code (see table Item 9)

VVV - Valve Function (See table below)

XXXXX - 5 Digit Unique Equipment No. (see table Item 10)

VALVE FUNCTION TYPE

CODE	DESCRIPTION
ADV	AUTOMATED DRAIN VALVE
AIV	AUTOMATED ISOLATION VALVE
ASV	AUTOMATED SHUTOFF VALVE
AVV	AUTOMATED VENT VALVE
CHV	CHECK VALVE
FCV	FLOW CONTROL VALVE
GV	GOGGLE VALVE
LCV	LEVEL CONTROL VALVE
MDV	MANUAL DRAIN VALVE
MIV	MANUAL ISOLATION VALVE
MSV	MANUAL SHUTOFF VALVE
MVV	MANUAL VENT VALVE
OPSO	OVER PRESSURE SHUTOFF VALVE
PCV	PRESSURE CONTROL VALVE
PRV	PRESSURE RELIEF VALVE
SAV	SAMPLE VALVE
THV	THROTTLE VALVE
VRV	VACUUM RELIEF VALVE

12. NOZZLE NUMBERING

ALL NOZZLES ON TANKS, VESSELS AND HEAT EXCHANGERS
SHALL BE LABELLED AS OUTLINED BELOW

NN-XX

eg. NN-01

XX - Sequential Number (specific for each tank, vessel or heat exchanger)

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DATUM	Scale	Size
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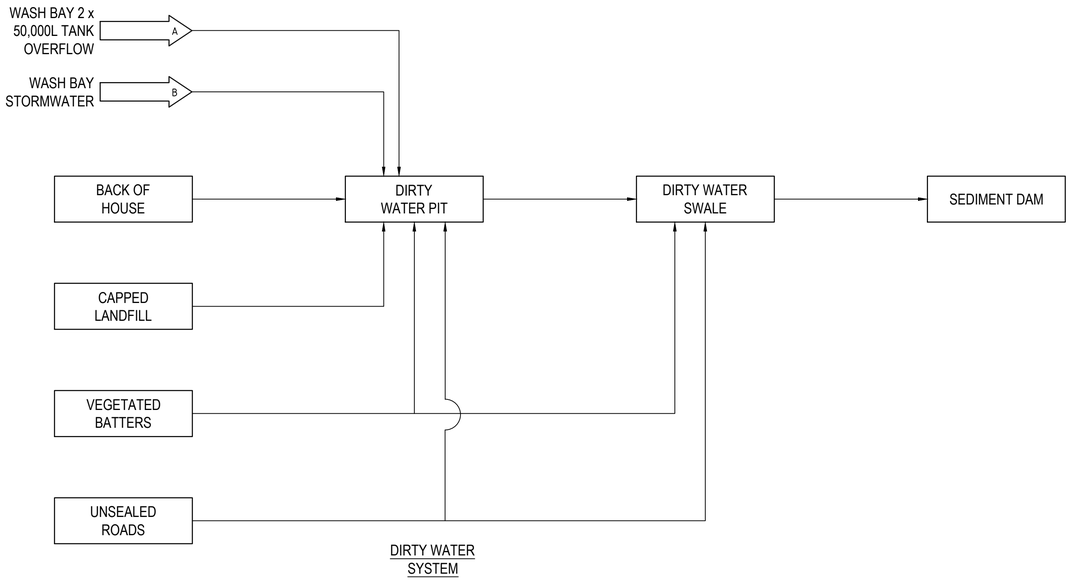
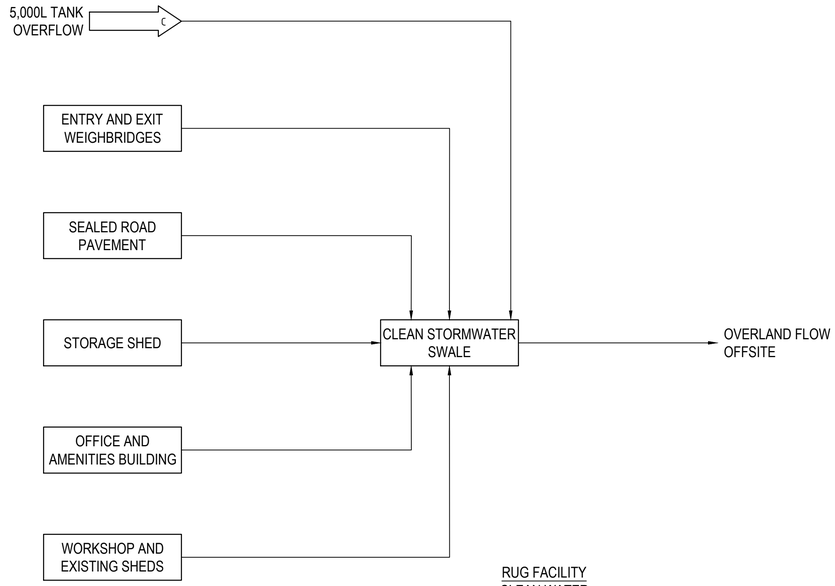
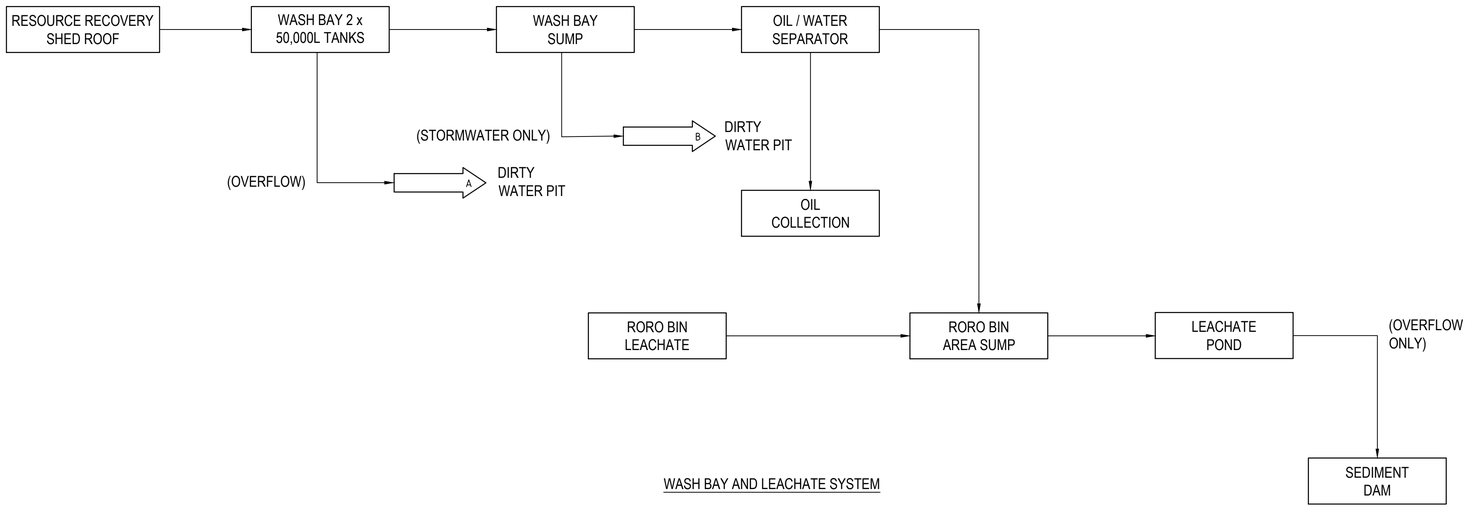
Revision: A



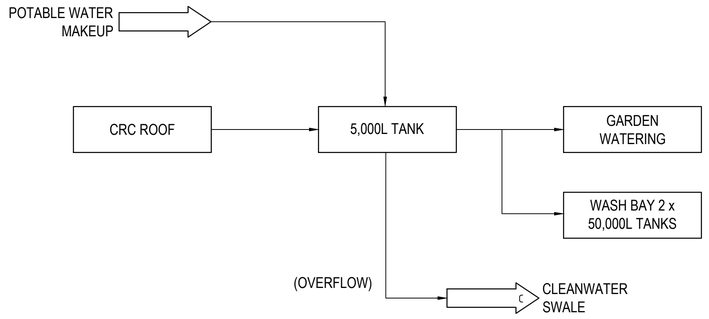
DIRTY WATER SYSTEM



RUG FACILITY CLEAN WATER SYSTEM



WASH BAY AND LEACHATE SYSTEM



CRC RAIN WATER TANK

RE-USE HUB RAIN GARDEN

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	RJK	RJK

Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Ground Floor, 16 Burelli Street
Wollongong NSW 2500
Tel: 02 4231 9600 Fax: 02 4228 6811
Web: www.cardno.com.au

Drawn	MH	Date 23/10/2019
Checked	RJK	Date 23/10/2019
Designed	KS	Date 23/10/2019
Verified	RJK	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

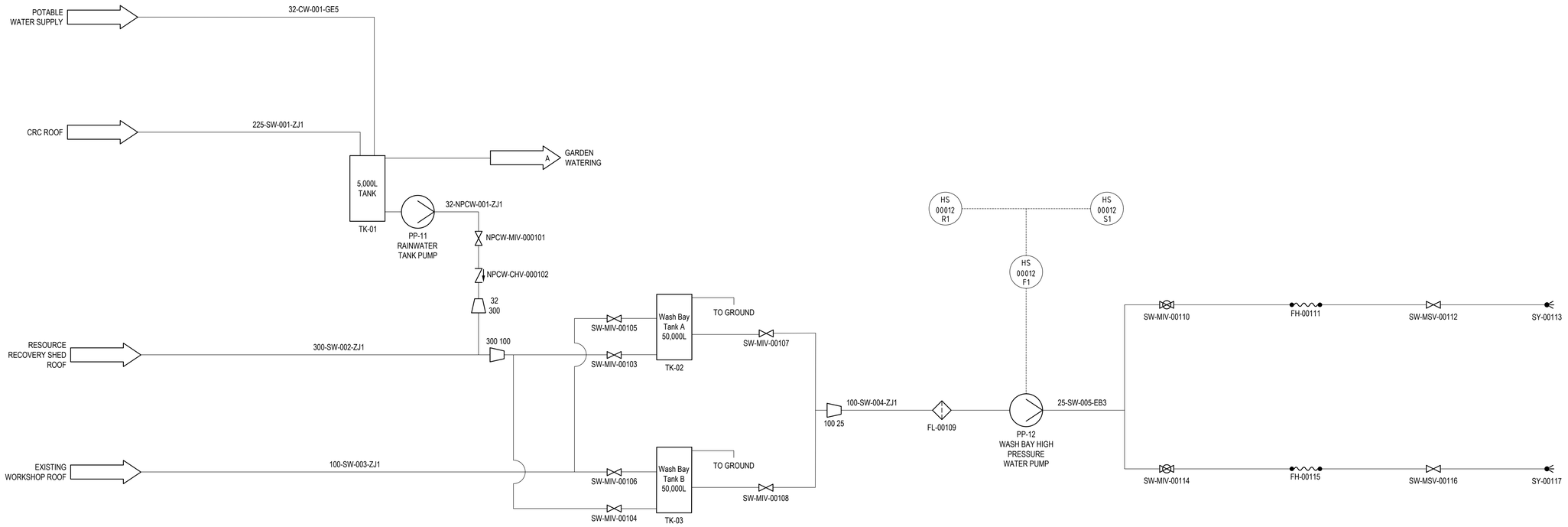
Title: PROCESS FLOW DIAGRAM

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		NTS	A1

Drawing Number: 821825301-DRW-G-P-1003

Revision: A



Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	RJK	RJK

Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Ground Floor, 16 Burelli Street
Wollongong NSW 2500
Tel: 02 4231 9600 Fax: 02 4228 6811
Web: www.cardno.com.au

		Date
Drawn	MH	23/10/2019
Checked	RJK	23/10/2019
Designed	KS	23/10/2019
Verified	RJK	20/12/2019
Approved	RJK	20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

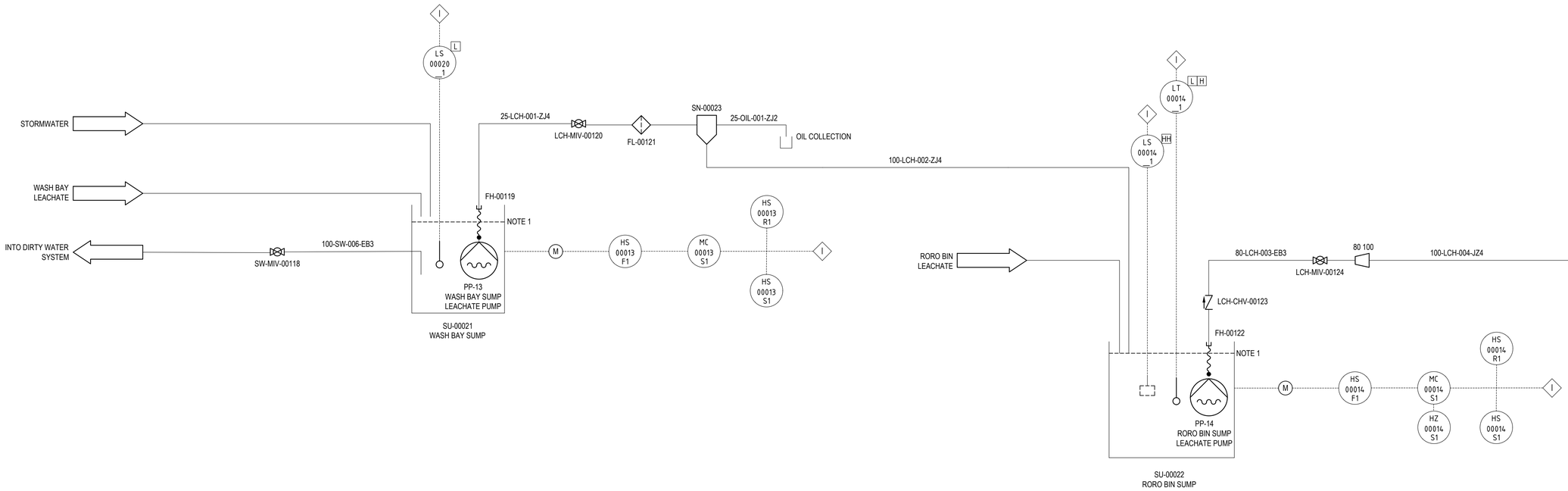
Title: PROCESS & INSTRUMENTATION DIAGRAM

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM	Scale	Size
AHD	NTS	A1

Drawing Number: 821825301-DRW-G-P-1004

Revision: A



NOTES: (1) TRASH GRID OVER SUMP (WEBFORGE GRATING OR EQUIVALENT)

Rev.	Date	Description	Des.	Verif.	Appd.
A	20/12/2019	ISSUED FOR CONSTRUCTION	MFN	RJK	RJK

Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Ground Floor, 16 Burelli Street
Wollongong NSW 2500
Tel: 02 4231 9600 Fax: 02 4228 6811
Web: www.cardno.com.au

Drawn	MH	Date 23/10/2019
Checked	RJK	Date 23/10/2019
Designed	KS	Date 23/10/2019
Verified	RJK	Date 20/12/2019
Approved	RJK	Date 20/12/2019

Client: GOULBURN MULWAREE COUNCIL

Project: GOULBURN WASTE MANAGEMENT CENTRE
RE-USE GOULBURN INFRASTRUCTURE
RUG PROJECT

Title: PROCESS & INSTRUMENTATION DIAGRAM

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

DATUM		Scale	Size
AHD		NTS	A1

Drawing Number: 821825301-DRW-G-P-1005

Revision: A

Re-Use Goulburn

APPENDIX C

TRAFFIC IMPACT ASSESSMENT

Cardno
Shaping the Future

AUTOMATIC COUNTER SUMMARY AND DATA SHEET

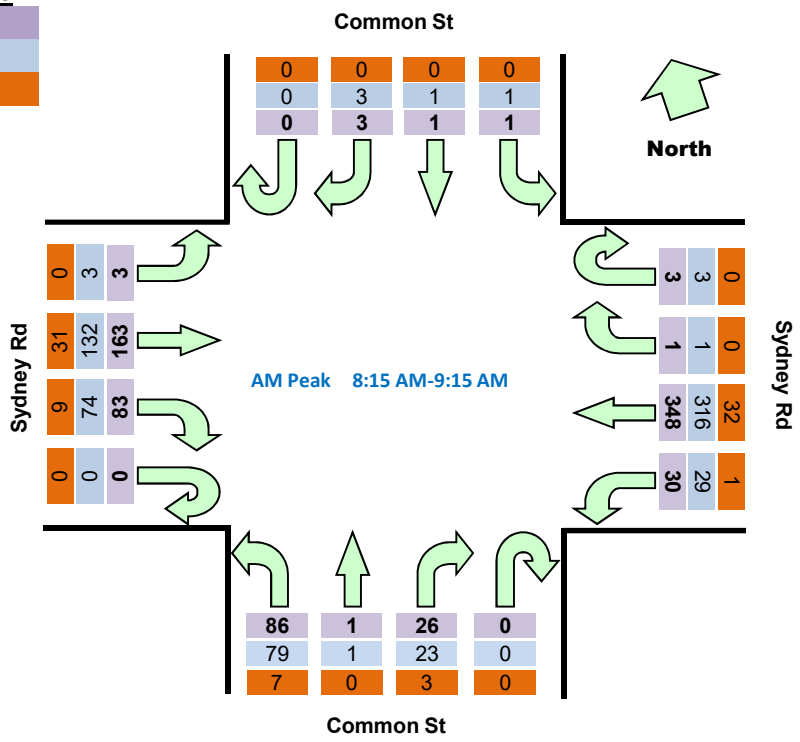
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	30/07/2018	24/07/2018	25/07/2018	26/07/2018	27/07/2018	28/07/2018	29/07/2018	Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	11:00	11:00	10:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	16:00	15:00	15:00	15:00	16:00	12:00	14:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	29	36	31	37	41	49	68	291	42	174	35	117	59
01:00	24	31	24	40	24	50	48	241	34	143	29	98	49
02:00	21	20	19	18	23	30	29	160	23	101	20	59	30
03:00	33	32	29	39	40	32	15	220	31	173	35	47	24
04:00	96	80	83	73	94	49	34	509	73	426	85	83	42
05:00	253	257	299	256	244	105	71	1485	212	1309	262	176	88
06:00	346	352	355	402	361	220	169	2205	315	1816	363	389	195
07:00	509	530	537	541	515	347	232	3211	459	2632	526	579	290
08:00	637	648	664	613	732	569	380	4243	606	3294	659	949	475
09:00	571	645	584	588	737	735	567	4427	632	3125	625	1302	651
10:00	614	576	560	560	718	884	697	4609	658	3028	606	1581	791
11:00	665	562	550	616	762	860	785	4800	686	3155	631	1645	823
12:00	707	618	608	650	804	816	756	4959	708	3387	677	1572	786
13:00	738	607	617	658	810	777	757	4964	709	3430	686	1534	767
14:00	665	579	634	663	876	712	836	4965	709	3417	683	1548	774
15:00	754	740	728	835	944	685	813	5499	786	4001	800	1498	749
16:00	755	728	720	749	972	560	697	5181	740	3924	785	1257	629
17:00	654	662	647	674	801	522	581	4541	649	3438	688	1103	552
18:00	395	367	447	514	598	440	476	3237	462	2321	464	916	458
19:00	261	239	280	316	444	259	377	2176	311	1540	308	636	318
20:00	182	180	206	242	342	247	285	1684	241	1152	230	532	266
21:00	98	102	161	150	222	151	231	1115	159	733	147	382	191
22:00	62	85	69	99	142	135	110	702	100	457	91	245	123
23:00	46	67	49	51	83	98	43	437	62	296	59	141	71
Total	**9115**	**8743**	**8901**	**9384**	**11329**	**9332**	**9057**	**65861**	**9407**	**47472**	**9494**	**18389**	**9201**
% Heavy	**12.27%**	**13.18%**	**12.08%**	**11.91%**	**10.23%**	**7.00%**	**5.64%**	**10.30%**		**11.84%**		**6.33%**	

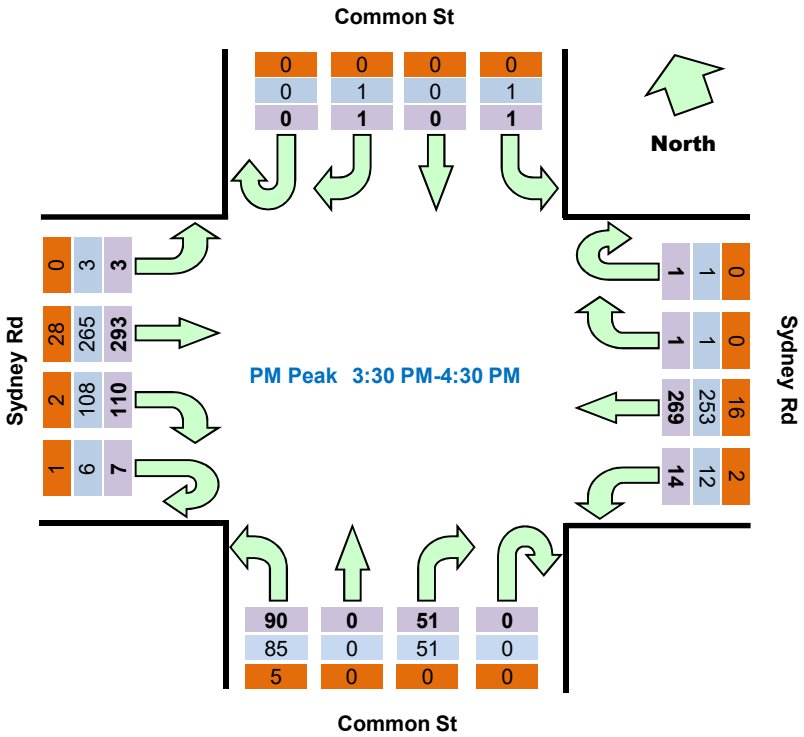
Sydney Road - Tube Count Survey Results

Weekday (Thursday) Peak Hour Traffic Volume - Sydney Road / Common Street Intersection

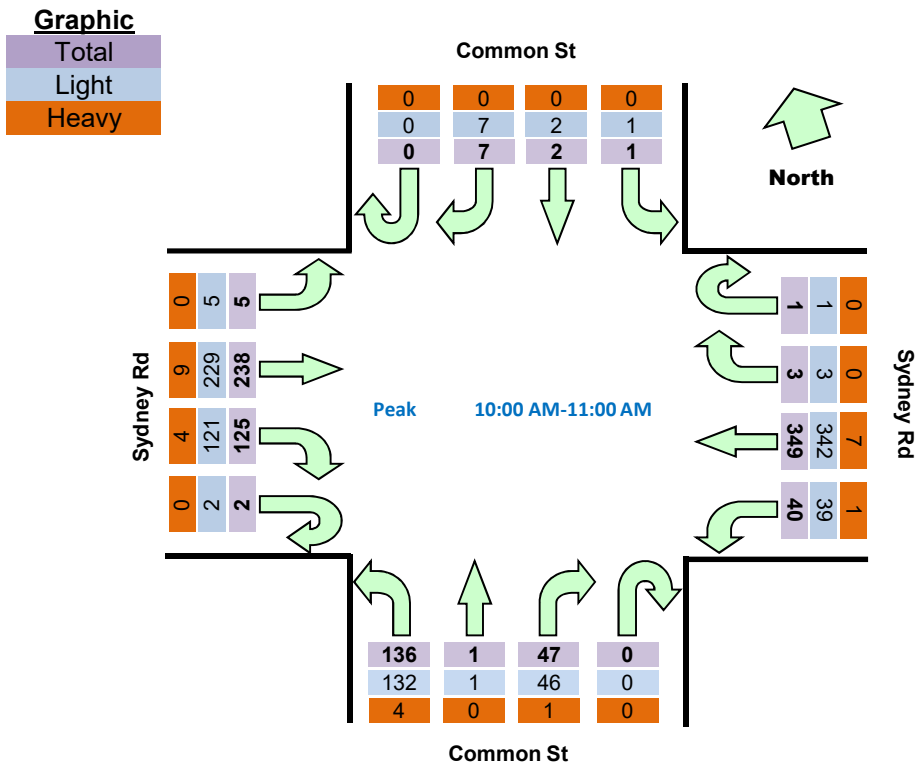
Graphic

Total
Light
Heavy

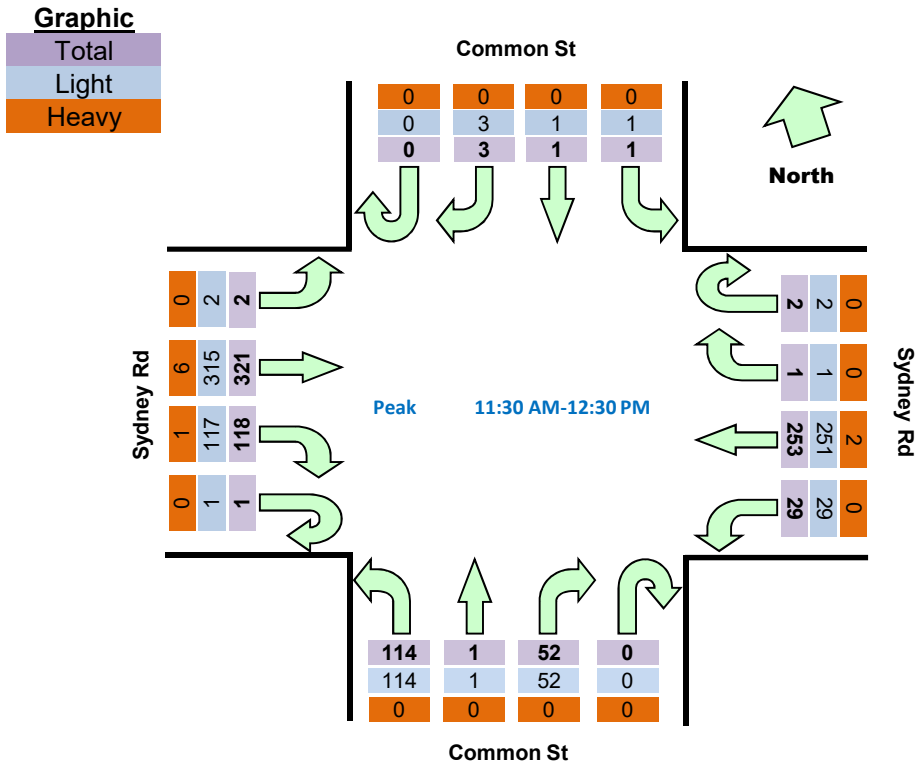




Weekend (Saturday) Peak Hour Traffic Volume - Sydney Road / Common Street Intersection



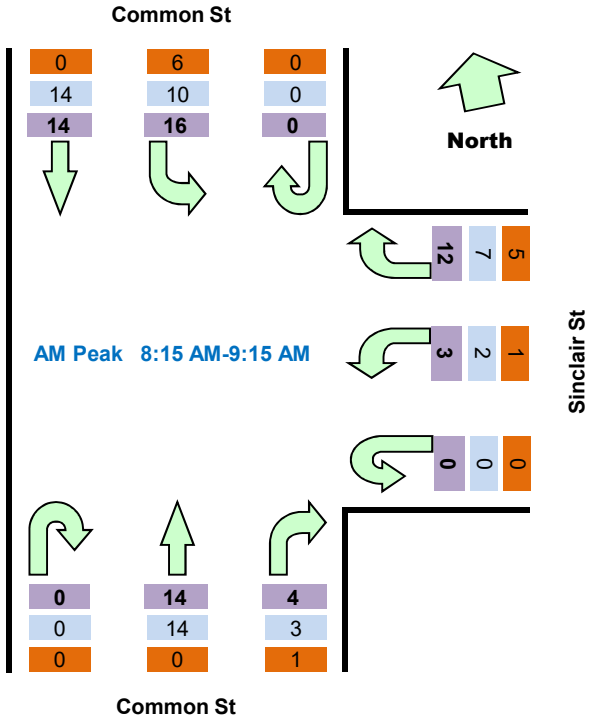
Weekend (Sunday) Peak Hour Traffic Volume - Sydney Road / Common Street Intersection

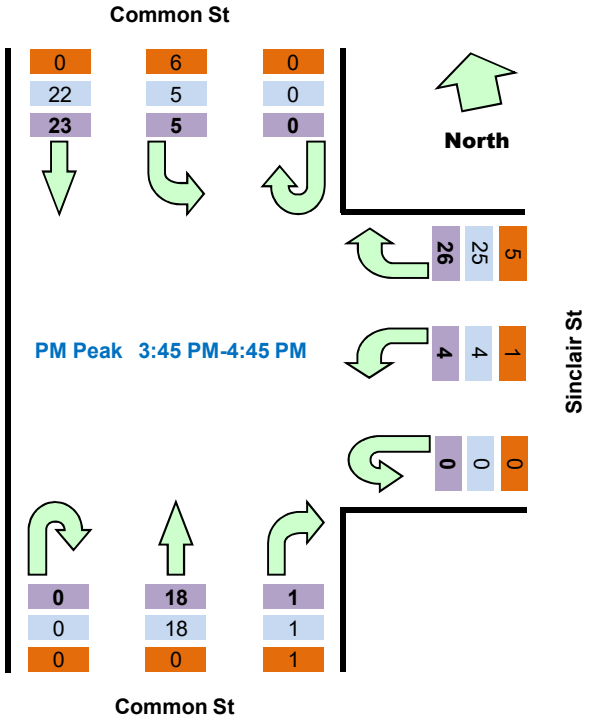


Weekday (Thursday) Peak Hour Traffic Volume - Sinclair Street / Common Street Intersection

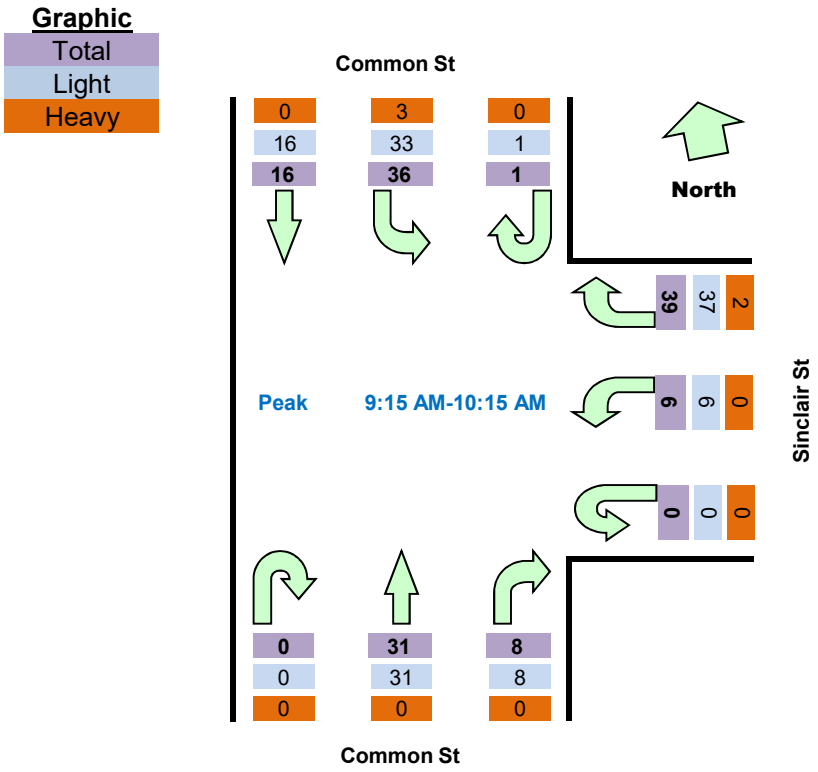
Graphic

Total
Light
Heavy

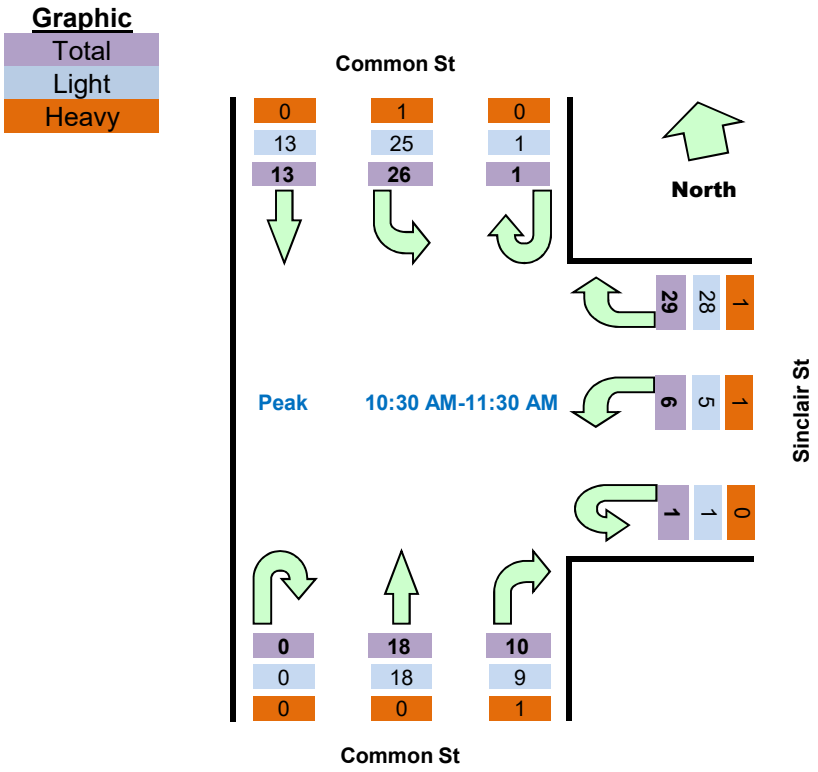




Weekend (Saturday) Peak Hour Traffic Volumes - Sinclair Street / Common Street Intersection



Weekend (Sunday) Peak Hour Traffic Volumes - Sinclair Street / Common Street Intersection



MOVEMENT SUMMARY

Site: 101 [2018 (Weekend Peak - Ex) Sydney Rd / Common St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
1	L2	136	2.9	0.355	6.3	LOS A	1.6	11.7	0.45	0.66	0.54	42.5
2	T1	1	0.0	0.355	20.1	LOS B	1.6	11.7	0.45	0.66	0.54	39.7
3	R2	47	2.1	0.355	24.1	LOS B	1.6	11.7	0.45	0.66	0.54	42.8
Approach		184	2.7	0.355	10.9	LOS A	1.6	11.7	0.45	0.66	0.54	42.6
East: Sydney Road												
4	L2	40	2.5	0.022	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	49.9
5	T1	349	2.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	3	0.0	0.004	6.4	LOS A	0.0	0.1	0.34	0.56	0.34	46.4
6u	U	1	0.0	0.004	8.3	LOS A	0.0	0.1	0.34	0.56	0.34	49.3
Approach		393	2.0	0.092	0.6	NA	0.0	0.1	0.00	0.06	0.00	58.8
North: Common Street												
7	L2	1	0.0	0.051	5.0	LOS A	0.2	1.1	0.70	0.82	0.70	36.3
8	T1	2	0.0	0.051	16.5	LOS B	0.2	1.1	0.70	0.82	0.70	33.5
9	R2	7	0.0	0.051	23.7	LOS B	0.2	1.1	0.70	0.82	0.70	36.8
Approach		10	0.0	0.051	20.4	LOS B	0.2	1.1	0.70	0.82	0.70	36.1
West: Sydney Road												
10	L2	5	0.0	0.064	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	238	3.8	0.064	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
12	R2	125	3.2	0.199	8.7	LOS A	0.7	5.2	0.48	0.74	0.48	45.6
12u	U	2	0.0	0.199	9.9	LOS A	0.7	5.2	0.48	0.74	0.48	48.5
Approach		370	3.5	0.199	3.1	NA	0.7	5.2	0.16	0.26	0.16	54.4
All Vehicles		957	2.7	0.355	3.8	NA	1.6	11.7	0.16	0.26	0.18	53.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2018 (Weekend Peak - Ex) Common St / Sinclair St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
2	T1	31	0.0	0.028	3.4	LOS A	0.1	0.7	0.11	0.46	0.11	43.0
3	R2	8	0.0	0.028	4.9	LOS A	0.1	0.7	0.11	0.46	0.11	44.7
Approach		39	0.0	0.028	3.7	LOS A	0.1	0.7	0.11	0.46	0.11	43.5
East: Sinclair Street												
4	L2	6	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.7
6	R2	39	5.1	0.024	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.4
Approach		45	4.4	0.024	4.6	NA	0.0	0.0	0.00	0.53	0.00	45.4
North: Common Street												
7	L2	36	8.3	0.029	4.6	LOS A	0.1	1.0	0.13	0.45	0.13	45.5
8	T1	16	0.0	0.029	3.8	LOS A	0.1	1.0	0.13	0.45	0.13	42.1
Approach		52	5.8	0.029	4.4	LOS A	0.1	1.0	0.13	0.45	0.13	44.8
All Vehicles		136	3.7	0.029	4.3	NA	0.1	1.0	0.08	0.48	0.08	44.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2018 (Weekend Peak - Ex + Dev) Sydney Rd / Common St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
1	L2	150	6.0	0.406	7.1	LOS A	2.1	15.5	0.46	0.70	0.62	41.5
2	T1	1	0.0	0.406	22.0	LOS B	2.1	15.5	0.46	0.70	0.62	38.7
3	R2	51	3.9	0.406	26.8	LOS B	2.1	15.5	0.46	0.70	0.62	41.7
Approach		202	5.4	0.406	12.2	LOS A	2.1	15.5	0.46	0.70	0.62	41.5
East: Sydney Road												
4	L2	46	6.5	0.026	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	49.2
5	T1	349	2.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	3	0.0	0.004	6.4	LOS A	0.0	0.1	0.34	0.56	0.34	46.4
6u	U	1	0.0	0.004	8.3	LOS A	0.0	0.1	0.34	0.56	0.34	49.3
Approach		399	2.5	0.092	0.7	NA	0.0	0.1	0.00	0.07	0.00	58.6
North: Common Street												
7	L2	1	0.0	0.055	5.0	LOS A	0.2	1.2	0.71	0.82	0.71	35.6
8	T1	2	0.0	0.055	17.2	LOS B	0.2	1.2	0.71	0.82	0.71	32.8
9	R2	7	0.0	0.055	25.3	LOS B	0.2	1.2	0.71	0.82	0.71	36.1
Approach		10	0.0	0.055	21.6	LOS B	0.2	1.2	0.71	0.82	0.71	35.4
West: Sydney Road												
10	L2	5	0.0	0.064	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	238	3.8	0.064	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
12	R2	141	7.1	0.232	9.0	LOS A	0.9	6.4	0.50	0.75	0.50	45.2
12u	U	2	0.0	0.232	10.0	LOS A	0.9	6.4	0.50	0.75	0.50	48.2
Approach		386	4.9	0.232	3.4	NA	0.9	6.4	0.18	0.29	0.18	53.9
All Vehicles		997	4.0	0.406	4.3	NA	2.1	15.5	0.17	0.29	0.21	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2018 (Weekend Peak - Ex + Dev) Common St / Sinclair St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
2	T1	31	0.0	0.029	3.4	LOS A	0.1	0.7	0.14	0.46	0.14	42.8
3	R2	8	0.0	0.029	5.1	LOS A	0.1	0.7	0.14	0.46	0.14	44.6
Approach		39	0.0	0.029	3.8	LOS A	0.1	0.7	0.14	0.46	0.14	43.3
East: Sinclair Street												
4	L2	6	0.0	0.035	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.7
6	R2	56	14.3	0.035	4.7	LOS A	0.0	0.0	0.00	0.53	0.00	45.3
Approach		62	12.9	0.035	4.7	NA	0.0	0.0	0.00	0.53	0.00	45.2
North: Common Street												
7	L2	58	19.0	0.043	4.7	LOS A	0.2	1.5	0.16	0.45	0.16	45.1
8	T1	16	0.0	0.043	4.3	LOS A	0.2	1.5	0.16	0.45	0.16	41.8
Approach		74	14.9	0.043	4.6	LOS A	0.2	1.5	0.16	0.45	0.16	44.7
All Vehicles		175	10.9	0.043	4.5	NA	0.2	1.5	0.10	0.48	0.10	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2028 (Weekend Peak - Ex) Sydney Rd / Common St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
1	L2	167	3.0	0.557	11.2	LOS A	3.7	26.6	0.57	0.90	1.04	37.3
2	T1	1	0.0	0.557	33.6	LOS C	3.7	26.6	0.57	0.90	1.04	34.5
3	R2	57	1.8	0.557	40.1	LOS C	3.7	26.6	0.57	0.90	1.04	37.4
Approach		225	2.7	0.557	18.7	LOS B	3.7	26.6	0.57	0.90	1.04	37.3
East: Sydney Road												
4	L2	49	2.0	0.026	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	50.0
5	T1	428	2.1	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	4	0.0	0.005	6.7	LOS A	0.0	0.1	0.38	0.57	0.38	46.3
6u	U	1	0.0	0.005	8.8	LOS A	0.0	0.1	0.38	0.57	0.38	49.2
Approach		482	2.1	0.112	0.6	NA	0.0	0.1	0.00	0.06	0.00	58.8
North: Common Street												
7	L2	1	0.0	0.096	5.1	LOS A	0.3	2.0	0.81	0.88	0.81	31.2
8	T1	2	0.0	0.096	23.0	LOS B	0.3	2.0	0.81	0.88	0.81	28.5
9	R2	9	0.0	0.096	35.7	LOS C	0.3	2.0	0.81	0.88	0.81	31.7
Approach		12	0.0	0.096	31.1	LOS C	0.3	2.0	0.81	0.88	0.81	31.1
West: Sydney Road												
10	L2	6	0.0	0.079	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	292	3.8	0.079	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
12	R2	153	3.3	0.273	10.1	LOS A	1.1	7.8	0.55	0.82	0.59	44.4
12u	U	2	0.0	0.273	11.3	LOS A	1.1	7.8	0.55	0.82	0.59	47.3
Approach		453	3.5	0.273	3.5	NA	1.1	7.8	0.19	0.29	0.20	53.9
All Vehicles		1172	2.7	0.557	5.5	NA	3.7	26.6	0.19	0.32	0.29	51.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2028 (Weekend Peak - Ex) Common St / Sinclair St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
2	T1	38	0.0	0.035	3.4	LOS A	0.1	0.9	0.12	0.46	0.12	42.9
3	R2	10	0.0	0.035	5.0	LOS A	0.1	0.9	0.12	0.46	0.12	44.7
Approach		48	0.0	0.035	3.7	LOS A	0.1	0.9	0.12	0.46	0.12	43.4
East: Sinclair Street												
4	L2	7	0.0	0.029	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.7
6	R2	47	4.3	0.029	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	45.5
Approach		54	3.7	0.029	4.6	NA	0.0	0.0	0.00	0.53	0.00	45.4
North: Common Street												
7	L2	44	9.1	0.037	4.6	LOS A	0.2	1.2	0.15	0.45	0.15	45.4
8	T1	20	0.0	0.037	3.9	LOS A	0.2	1.2	0.15	0.45	0.15	42.0
Approach		64	6.3	0.037	4.4	LOS A	0.2	1.2	0.15	0.45	0.15	44.7
All Vehicles		166	3.6	0.037	4.3	NA	0.2	1.2	0.09	0.48	0.09	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2028 (Weekend Peak - Ex + Dev) Sydney Rd / Common St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
1	L2	180	5.6	0.627	14.0	LOS A	4.8	35.2	0.59	0.99	1.25	35.3
2	T1	1	0.0	0.627	38.0	LOS C	4.8	35.2	0.59	0.99	1.25	32.6
3	R2	61	3.3	0.627	45.8	LOS D	4.8	35.2	0.59	0.99	1.25	35.3
Approach		242	5.0	0.627	22.1	LOS B	4.8	35.2	0.59	0.99	1.25	35.3
East: Sydney Road												
4	L2	55	5.5	0.030	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	49.4
5	T1	428	2.1	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	4	0.0	0.005	6.7	LOS A	0.0	0.1	0.38	0.57	0.38	46.3
6u	U	1	0.0	0.005	8.8	LOS A	0.0	0.1	0.38	0.57	0.38	49.2
Approach		488	2.5	0.112	0.7	NA	0.0	0.1	0.00	0.07	0.00	58.6
North: Common Street												
7	L2	1	0.0	0.103	5.1	LOS A	0.3	2.1	0.83	0.88	0.83	30.4
8	T1	2	0.0	0.103	24.0	LOS B	0.3	2.1	0.83	0.88	0.83	27.7
9	R2	9	0.0	0.103	38.2	LOS C	0.3	2.1	0.83	0.88	0.83	30.9
Approach		12	0.0	0.103	33.1	LOS C	0.3	2.1	0.83	0.88	0.83	30.3
West: Sydney Road												
10	L2	6	0.0	0.079	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	292	3.8	0.079	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
12	R2	169	6.5	0.311	10.7	LOS A	1.3	9.8	0.57	0.84	0.66	43.8
12u	U	2	0.0	0.311	11.7	LOS A	1.3	9.8	0.57	0.84	0.66	46.8
Approach		469	4.7	0.311	4.0	NA	1.3	9.8	0.21	0.32	0.24	53.3
All Vehicles		1211	3.8	0.627	6.6	NA	4.8	35.2	0.21	0.36	0.35	50.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2028 (Weekend Peak - Ex + Dev) Common St / Sinclair St]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
2	T1	38	0.0	0.036	3.5	LOS A	0.1	0.9	0.15	0.47	0.15	42.8
3	R2	10	0.0	0.036	5.2	LOS A	0.1	0.9	0.15	0.47	0.15	44.6
Approach		48	0.0	0.036	3.8	LOS A	0.1	0.9	0.15	0.47	0.15	43.3
East: Sinclair Street												
4	L2	7	0.0	0.040	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	44.7
6	R2	64	12.5	0.040	4.7	LOS A	0.0	0.0	0.00	0.53	0.00	45.3
Approach		71	11.3	0.040	4.7	NA	0.0	0.0	0.00	0.53	0.00	45.3
North: Common Street												
7	L2	66	18.2	0.050	4.7	LOS A	0.2	1.8	0.17	0.44	0.17	45.1
8	T1	20	0.0	0.050	4.4	LOS A	0.2	1.8	0.17	0.44	0.17	41.8
Approach		86	14.0	0.050	4.7	LOS A	0.2	1.8	0.17	0.44	0.17	44.6
All Vehicles		205	9.8	0.050	4.5	NA	0.2	1.8	0.11	0.48	0.11	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [2028 (Weekend Peak - Ex + Dev) Sydney Rd / Common St - with Mitigation Measure]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Common Street												
1	L2	181	5.5	0.172	5.7	LOS A	0.7	5.0	0.33	0.58	0.33	46.6
2	T1	1	0.0	0.456	32.1	LOS C	1.7	12.3	0.89	1.04	1.20	25.9
3	R2	61	3.3	0.456	38.6	LOS C	1.7	12.3	0.89	1.04	1.20	28.2
Approach		243	4.9	0.456	14.0	LOS A	1.7	12.3	0.48	0.69	0.56	40.1
East: Sydney Road												
4	L2	55	5.5	0.030	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	49.4
5	T1	428	2.1	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	4	0.0	0.005	6.7	LOS A	0.0	0.1	0.38	0.57	0.38	46.3
6u	U	1	0.0	0.005	8.8	LOS A	0.0	0.1	0.38	0.57	0.38	49.2
Approach		488	2.5	0.112	0.7	NA	0.0	0.1	0.00	0.07	0.00	58.6
North: Common Street												
7	L2	1	0.0	0.103	5.1	LOS A	0.3	2.1	0.83	0.88	0.83	30.3
8	T1	2	0.0	0.103	24.0	LOS B	0.3	2.1	0.83	0.88	0.83	27.7
9	R2	9	0.0	0.103	38.3	LOS C	0.3	2.1	0.83	0.88	0.83	30.8
Approach		12	0.0	0.103	33.1	LOS C	0.3	2.1	0.83	0.88	0.83	30.3
West: Sydney Road												
10	L2	6	0.0	0.079	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	292	3.8	0.079	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
12	R2	169	6.5	0.311	10.7	LOS A	1.3	9.8	0.57	0.84	0.66	43.8
12u	U	2	0.0	0.311	11.7	LOS A	1.3	9.8	0.57	0.84	0.66	46.8
Approach		469	4.7	0.311	4.0	NA	1.3	9.8	0.21	0.32	0.24	53.3
All Vehicles		1212	3.8	0.456	5.0	NA	1.7	12.3	0.19	0.30	0.21	51.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Re-Use Goulburn

APPENDIX D

ABORIGINAL HERITAGE ASSESSMENT

Cardno
Shaping the Future

Goulburn Waste Management Centre RUG Project

Aboriginal Cultural Heritage Report

Report prepared by:
Pejar Local Aboriginal land Council

Property Details

Property Lot/DP: 265, DP 750050

Owner and/or Manager Name: Goulburn Mulwaree Council

Date of Assessment: 21 November 2018

Assessors Name: Drusilla McAlister and Aryssa McAlister

Aim

The aim of this cultural heritage assessment property report is to identify and record Aboriginal cultural heritage sites on this property and provide recommendations for protection of these sites during land management activities.

This document (with its attachments) will:

- Identify whether or not Aboriginal objects are, or are likely to be, present in an area.
- Determine whether or not activities are likely to harm Aboriginal objects.
- Recommend actions to minimise and avoid harm to Aboriginal objects.
- Recommend actions to enhance and celebrate Aboriginal objects or values.
- Determine whether an Aboriginal Heritage Impact Permit (AHIP) is required.
- Meet requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010).

Methodology

Cultural heritage assessment property surveys are conducted using the following method:

- Vehicle and pedestrian survey on the majority of the property with more detailed investigation on landforms likely to contain Aboriginal objects.

Results

AHIMS search results

AHIMS search results indicate __20__ registered sites on or within 1km of this property. AHIMS search results are included in Attachment 1 of this report.

Property map

A map of the property is included in Attachment 2.

Recommendations

Land management activities which may impact on cultural heritage sites at this property are:

- Construction of infrastructure (such as fences and dams).
- Construction of earthworks.
- Ripping for tree establishment or direct seeding.
- Pest / animal control (such as rabbit burrow ripping and woody weed removal).
- Intensive domestic stock movement.
- Bushfire hazard reduction.
- Other:

Although there were no Aboriginal Artefacts located within this project area, this does not rule out the fact that the area may contain Artefacts that are yet to be found and recorded.

- further monitoring will need to be carried out closer to a time when clearing of the land in and around the area is due,

- If any previously undetected Aboriginal site or relic is uncovered or unearthed during any activity, work at that location must cease immediately and advice on appropriate action be obtained from the Pejar LALC in conjunction with NSW Office of Environment and Heritage.

- also, If there are any changes to the design or plan, we will need to be contacted, and further investigation will need to be carried out

- ***Under Section 90 (1) of the National Parks and Wildlife Act 1974, it is an offence to destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage, or desecration of, an Aboriginal Object or Place without first obtaining An AHIP (Aboriginal Heritage Impact Permit) from the Director-General of the National parks and Wildlife service (Office of Environment and Heritage - OEH)***

Table 2: Appropriate protective measures for different site types

Site types	Recommended Protective Measures
Stone artefacts, shell midden, hearth, earthen mound	• Do not break earth within 10 meters around known sites, especially where there is surface evidence of artefacts, shell, charcoal or ochre. • If a site is identified within a proposed works area, then consider alternatives for the location of the proposed works, to avoid impact to the site. • Vehicles or heavy equipment must not be used on or within these sites unless a path exists that will not damage the site. • Vegetation which is screening the site must not be damaged. • There must be no slashing of vegetation, no tree removal, and no use of earthmoving equipment such as bulldozers within 10 metres of the site. • If using fire for hazard reduction ensure that a Bush Fire Hazard Reduction Certificate is obtained and that conditions relating to the artefact are followed.
Modified tree	• Do not use excavation equipment or break the earth within the root zone or drip line of the tree, as this may destabilise the tree or damage the root system. • Protective fencing may occasionally be required to be installed around a tree to prevent stock damage to the tree. Ensure the fencing doesn't impact the root system of the tree. • Prior to hazard reduction loose leaf litter and low ground cover is to be manually cleared by raking for 10 metres around the tree of concern. • Trees of concern are to be protected during hazard reduction. For example, dampen earth around tree to be protected, and minimise risk of ember attack.

	• If using fire for hazard reduction ensures that a Bush Fire Hazard Reduction Certificate is obtained and that conditions relating to the tree are followed. • Trees of concern must be examined as soon as possible after the passage of the fire and embers that might cause the tree to burn must be extinguished.
Rock arrangement, stone quarry grinding grooves, fish traps	• During hazard reduction (specifically burning), loose leaf litter must be carefully removed from rock platforms. • If using fire for hazard reduction ensure that a Bush Fire Hazard Reduction Certificate is obtained and that conditions relating to the site are followed. • Heavy equipment (including vehicles) must not be used on rock platforms, or within 10 metres of sites unless there is an existing road available for use. • Do not move loose stones, especially where they have been already grouped or arranged. • Heavy machinery is not to be used in these areas or adjacent to these types of sites. • Do not drive vehicles or use heavy equipment within these sites unless a path exists that will not damage the site. • Vegetation which is screening the site must not be damaged. • There must be no slashing of vegetation, no tree removal, and no use of earthmoving equipment such as bulldozers within 10 metres of these sites.
Rock art	• During hazard reduction (specifically burning), loose leaf litter must be carefully removed from rock platforms. • If using fire for hazard reduction place the control lines well away from the site. • Heavy equipment (including vehicles) must not be used on rock platforms, or within 10 metres of sites unless there is an existing road available for use. • If using fire for hazard reduction ensure that a Bush Fire Hazard Reduction Certificate is obtained and that conditions relating to the tree are followed. • If burning, rake loose leaf litter away from vegetation in the vicinity of the site if smoke is likely to impact upon rock art. • No use of chemicals or other retardants within 20 metres of art sites. If windy the distance is to be extended to 50 metres • Vegetation which is screening the site must not be damaged. • There must be no slashing of vegetation, no tree removal, and no use of earthmoving equipment such as bulldozers within 10 metres of these sites.

Attachment 1 – AHIMS Search Results

Field Assessment Form

ABORIGINAL CULTURAL HERITAGE – Field Assessment Form

Are there any?	Yes/No	Comments
'Aboriginal Places' (as defined by the Minister administering the *NP& W Act*)	NO	
Old growth areas and areas of native vegetation that have undergone little disturbance	YES	
Large / mature trees that may have potential to be scar trees	YES	
Areas adjoining wetlands, natural springs, floodplains, watercourses e.g. rivers and creeks particularly at the junction of two or more watercourses	YES	
Caves, rock shelters or rock overhangs	NO	
Sandhills or sandy riverbanks	NO	
Large rock outcrops, hill, mountain top or elevated site with long sight lines overlooking flat plains country or floodplain	YES	Overlooking the overall area
Exposed rock near wetlands, natural springs, floodplains, watercourses e.g. rivers and creeks	NO	
Ridgelines	YES	CLOSE PROXIMITY TO MOUNT GREY
Evidence of Aboriginal signs of use*	YES	BUT NONE WERE FOUND DURING INSPECTION
Other notable findings	NO	

** Signs of use may include stone artefact scatters, scarred trees, rock arrangements, ovens or hearths. Use this section to document signs of use that have not yet been registered on AHIMS*

 # In the comments section note if any relevant artefacts were found and if site cards have been completed.

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : 8201825301

Client Service ID : 388452

Kaeley Draper

16 Burelli Street
Wollongong New South Wales 2500

Attention: Kaeley Draper

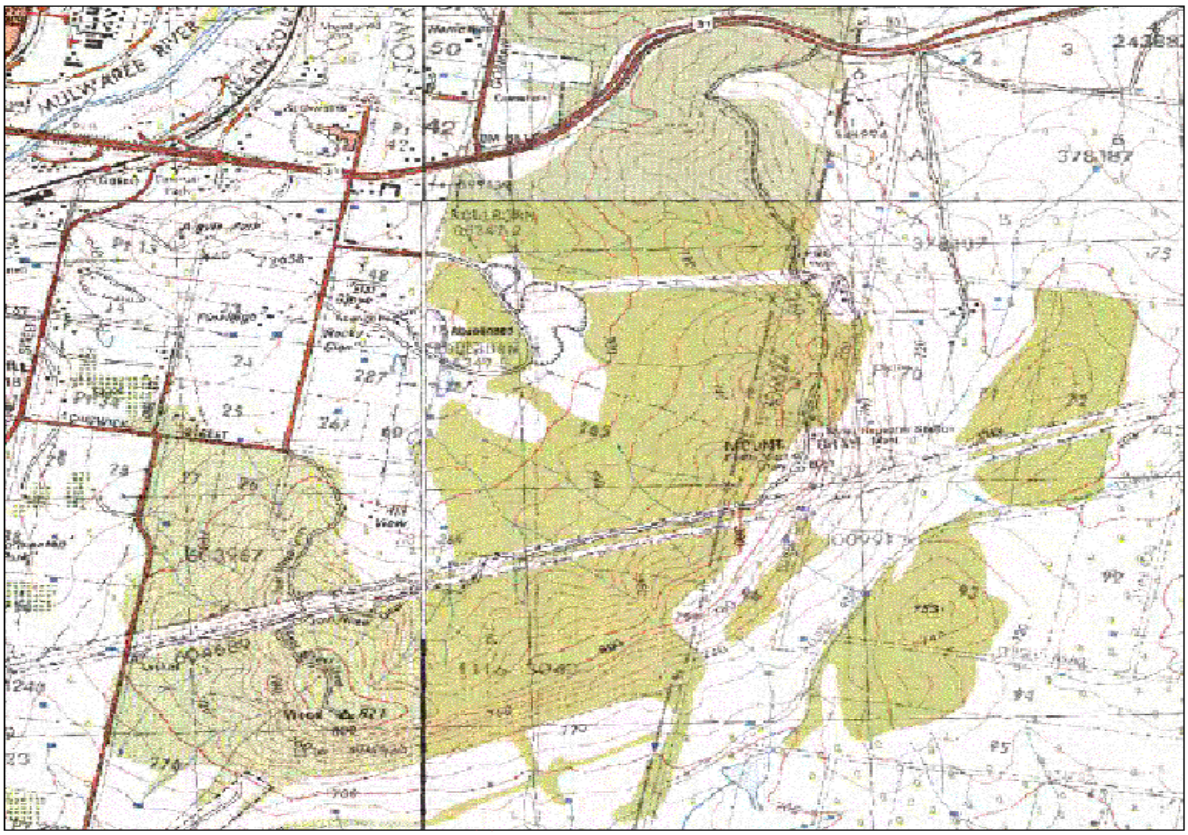
Email: kaeley.draper@cardno.com.au

Date: 12 December 2018

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 265, DP:DP750050 with a Buffer of 1000 meters, conducted by Kaeley Draper on 12 December 2018.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

20	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : 8201825301

Client Service ID : 388452

Kaeley Draper

16 Burelli Street
Wollongong New South Wales 2500

Attention: Kaeley Draper

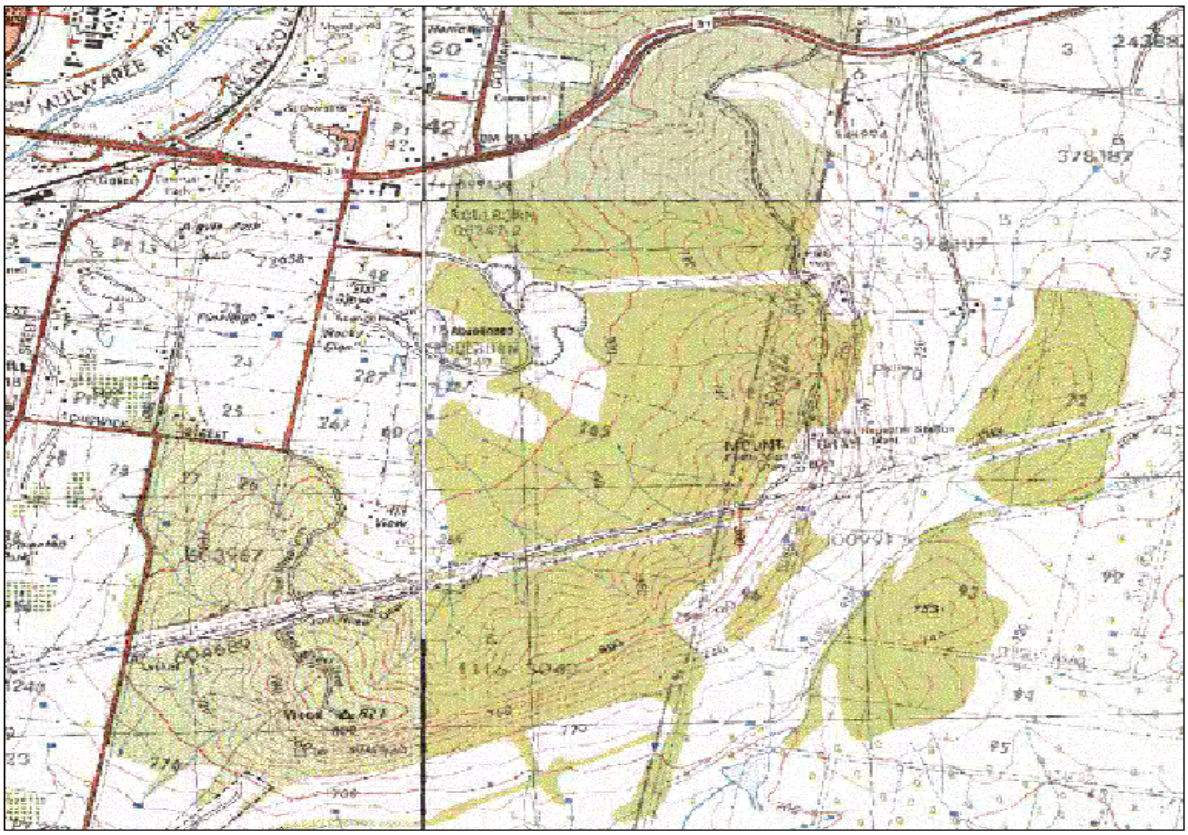
Email: kaeley.draper@cardno.com.au

Date: 12 December 2018

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 265, DP:DP750050 with a Buffer of 1000 meters, conducted by Kaeley Draper on 12 December 2018.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

20	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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Re-Use Goulburn

APPENDIX E

ECOLOGY ASSESSMENT

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Flora and Fauna Assessment




Goulburn Waste Management Facility, Sinclair Street, Goulburn, NSW

Proposed Reuse Goulburn Facility

Prepared for: Cardno

27 November 2019

PROJECT NUMBER	2018-073		
PROJECT NAME	Flora and Fauna Assessment		
PROJECT ADDRESS	Goulburn Waste Management Facility, Sinclair Street, Goulburn		
PREPARED FOR	Cardno		
AUTHOR/S	Elizabeth Norris, Tammy Paartalu		
REVIEW	Bruce Mullins		
VERSION	**Version**	**Draft/Final**	**Date to client**
	1.1	Draft 1.0	19 November 2018
		Draft 1.1	29 November 2019
		Final	29 November 2019

This report should be cited as: *Ecoplanning (2019). Flora and Fauna Assessment* – Goulburn Waste Management Facility, Sinclair Street, Goulburn, NSW*. Prepared for Cardno.*

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Glossary and abbreviations

Abbreviation	Description
BC Act	NSW *Biodiversity Conservation Act 2016*
BGW	Box Gum Woodland
CEEC	Critically Endangered Ecological Community
DoEE	Commonwealth Department of the Environment and Energy
EEC	Endangered Ecological Community
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
GMLEP	Goulburn Mulwaree Local Environmental Plan 2009
HBT	Hollow Bearing Tree
LEP	Local Environmental Plan
LGA	Local Government Area
mm/cm/m/km	Millimetres/centimetres/metres/kilometres
masl	Metres above sea level
MNES	Matters of National Environmental Significance
TEC	Threatened Ecological Community, listed as vulnerable, endangered or critically endangered under either the BC Act and/or EPBC Act
*	Denotes exotic species

Contents

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Tables

1 Introduction

1.1 Purpose of report

Ecoplanning was commissioned to undertake a flora and fauna assessment of the proposed development of new Re-use Goulburn (RUG) facilities at the Goulburn Waste Management Centre in Sinclair Street, Goulburn. The proposed development is to be located within primarily cleared land in the western portion of the existing Waste Services Facility. The proposal will be assessed under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The purpose of this report is to identify and assess the flora and fauna within the study area and the likely impacts of the proposed development. This report addresses the legislative context provided in (**Table 1.1**).

Table 1.1: Legislative framework reviewed in this report.

Instrument	Considerations	Context
Commonwealth		
Environment Protection and Biodiversity Conservation (EPBC) *Act 1999*	Matters of National Environmental Significance	An action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.
State (New South Wales)		
Biodiversity Conservation Act (BC) *Act 2016*	Part 4, Divisions 2 and 5	Lists threatened species, ecological communities and key threatening processes to be considered under s7.3
	Section 7.3	Test for determining whether proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats
Environmental Planning and Assessment (EP&A) *Act 1979*	Part 5	Describes the procedure and context for assessment and consent
Local Government		

Instrument	Considerations	Context
Goulburn – Mulwaree Local Environmental Plan 2009 (GMLEP)	Clause 7.2 – Terrestrial Biodiversity	The objectives of this clause are to protect, maintain or improve the diversity of the native vegetation, including: (a) protecting biological diversity of native flora and fauna, and (b) protecting the ecological processes necessary for their continued existence, and (c) encouraging the recovery of threatened species, communities or populations and their habitats. This clause applies to development on land that is identified as "Biodiversity" on the Terrestrial Biodiversity Map. The site does not appear to be mapped as 'Biodiversity' although it is surround to the north, south and east by land mapped as 'Biodiversity.'

1.2 Site description

1.2.1 Subject site and study area

Following the *Threatened Species Test of Significance Guidelines* (OEH 2018a) the ***subject site*** is defined as the area 'directly affected by the proposal', and includes all vegetation proposed to be removed. The site has been defined by the area included within the survey plan provided by Cardno.

The **study area** is defined as the subject site and all areas that are indirectly impacted upon by the proposal, and includes a buffered area of approximately 30 m surrounding the subject site **(Figure 1.1**)

The study area is situated in Goulburn Mulwaree (LGA).

1.2.2 Locality

Very little native vegetation occurs within 10 km of the study area (**Figure 1.2**) and mostly consists of fragmented patches of bushland with minimal connectivity to surrounding vegetation. Under the GMLEP (2009) the study area is zoned SP2 Infrastructure (Waste Management Facility). The surrounding lands are zoned E2 – Environmental Conservation, B6 Enterprise corridor and RE 1 Public recreation (**Figure 1.3**).

The study area comprises approximately 6.73 ha of primarily cleared land with a small amount of remnant vegetation present on the western and northern boundary of the study area (**Figure 1.1**). The proposal has been designed to minimise native vegetation clearance by locating the proposal largely within previously cleared land.

1.3 Description of the proposal

The study area is located within Lot 265 // DP750050 and Lot 1 // DP1064103. The proposed development includes the establishment of new Re-use Goulburn (RUG) facilities (**Figure 1.1**). Current operations include the collection and recycling of bulky goods, comingled recyclables, batteries and oils, general landfill and organics composting. The proposal involves alterations and additions to the existing site including a new resource recovery shed, a re-use hub/education centre, and replacement of existing truck wash. The proposal is situated in the primarily cleared land in the western part of the current waste management facility.

Proposed facilities include:

- A new exit weighbridge
- Offices
- An education centre
- Resource recovery shed
- Bus and car parks
- CRC area
- Large items area
- Skips and tip wells
- Push pit area
- Truck wash bay

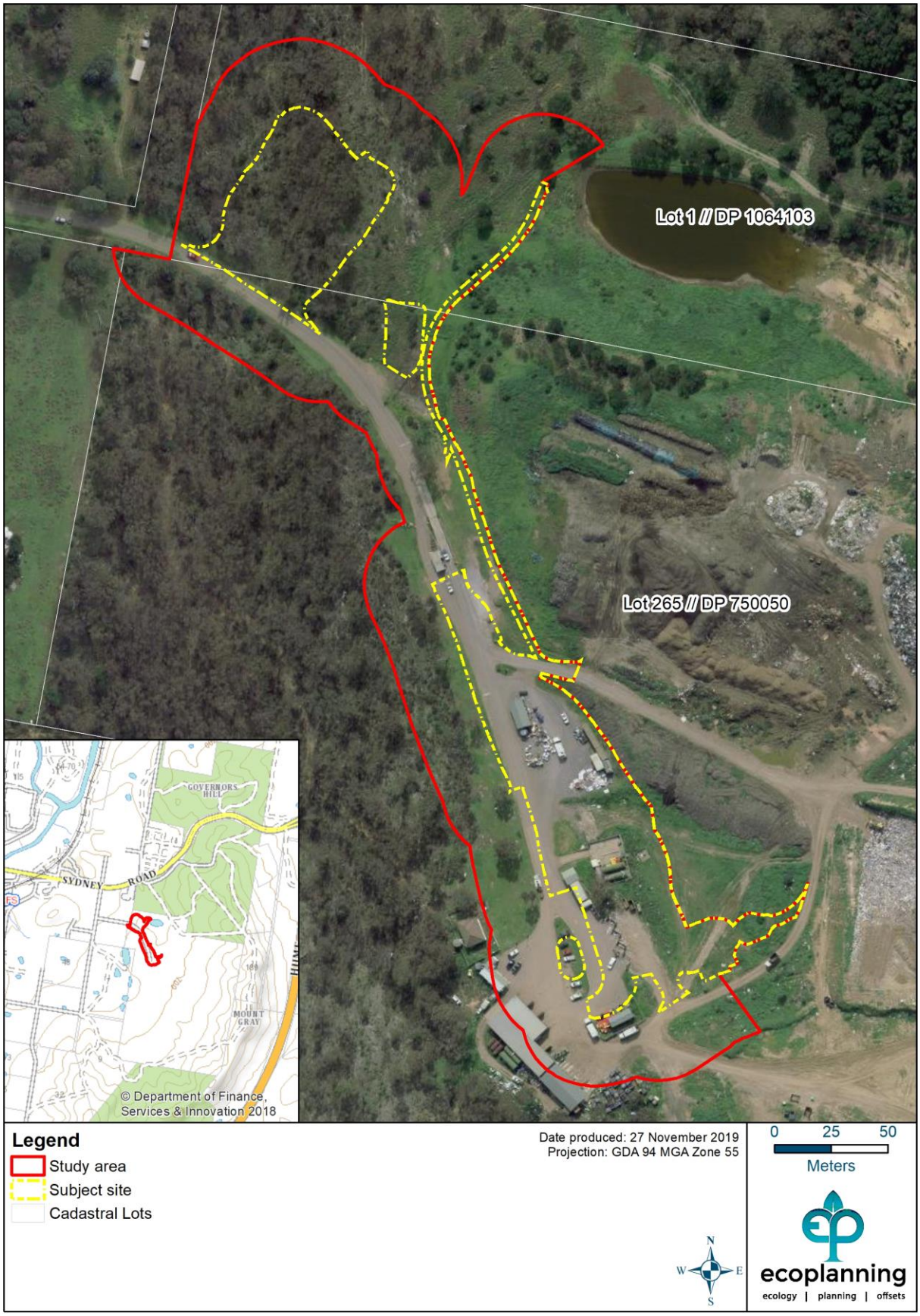

Figure 1.1: Study area and subject site, Goulburn Waste Management Facility, Sinclair Street, Goulburn

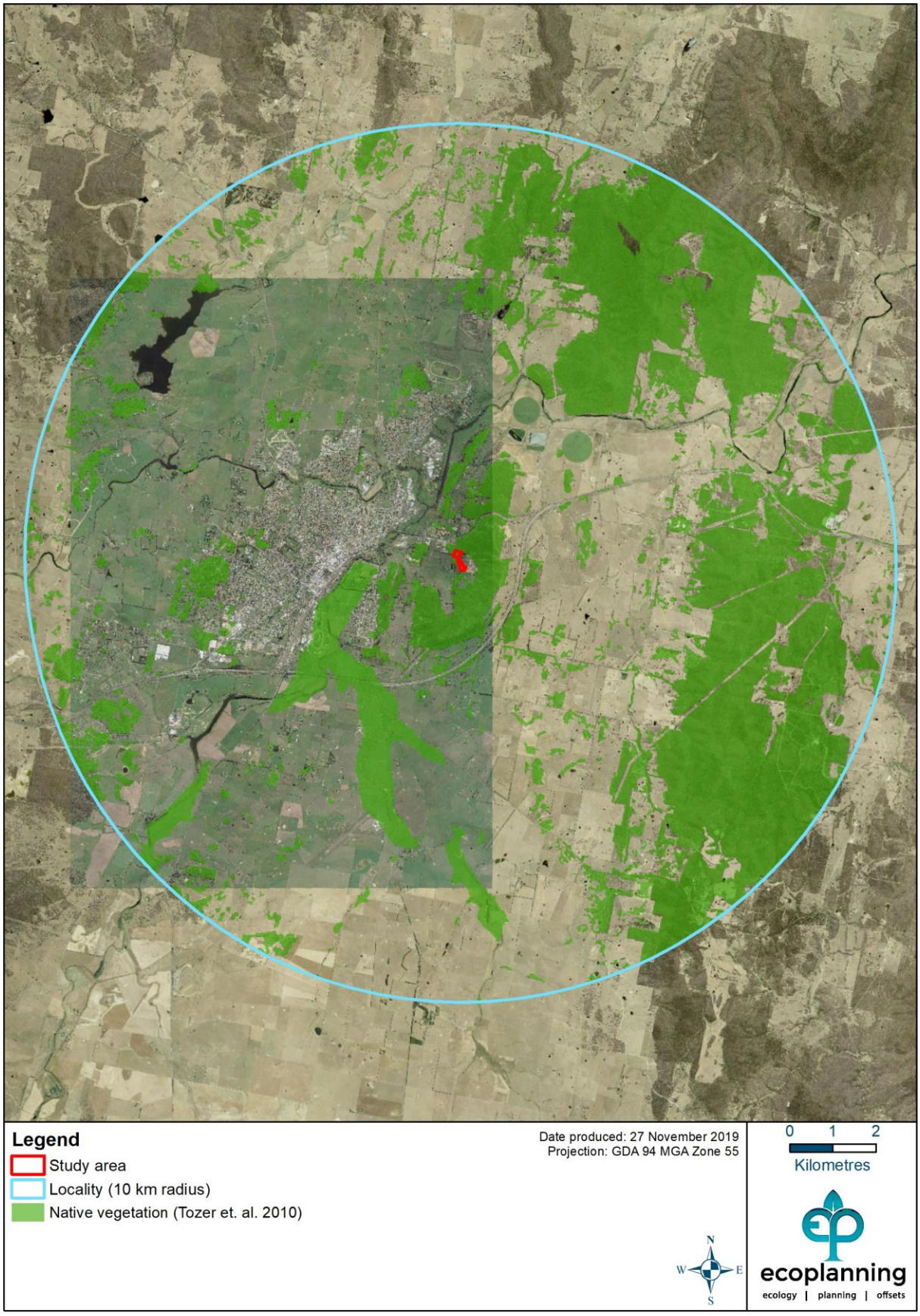

Figure 1.2: Mapped native vegetation within 10 km of the study area (Tozer et al 2010)

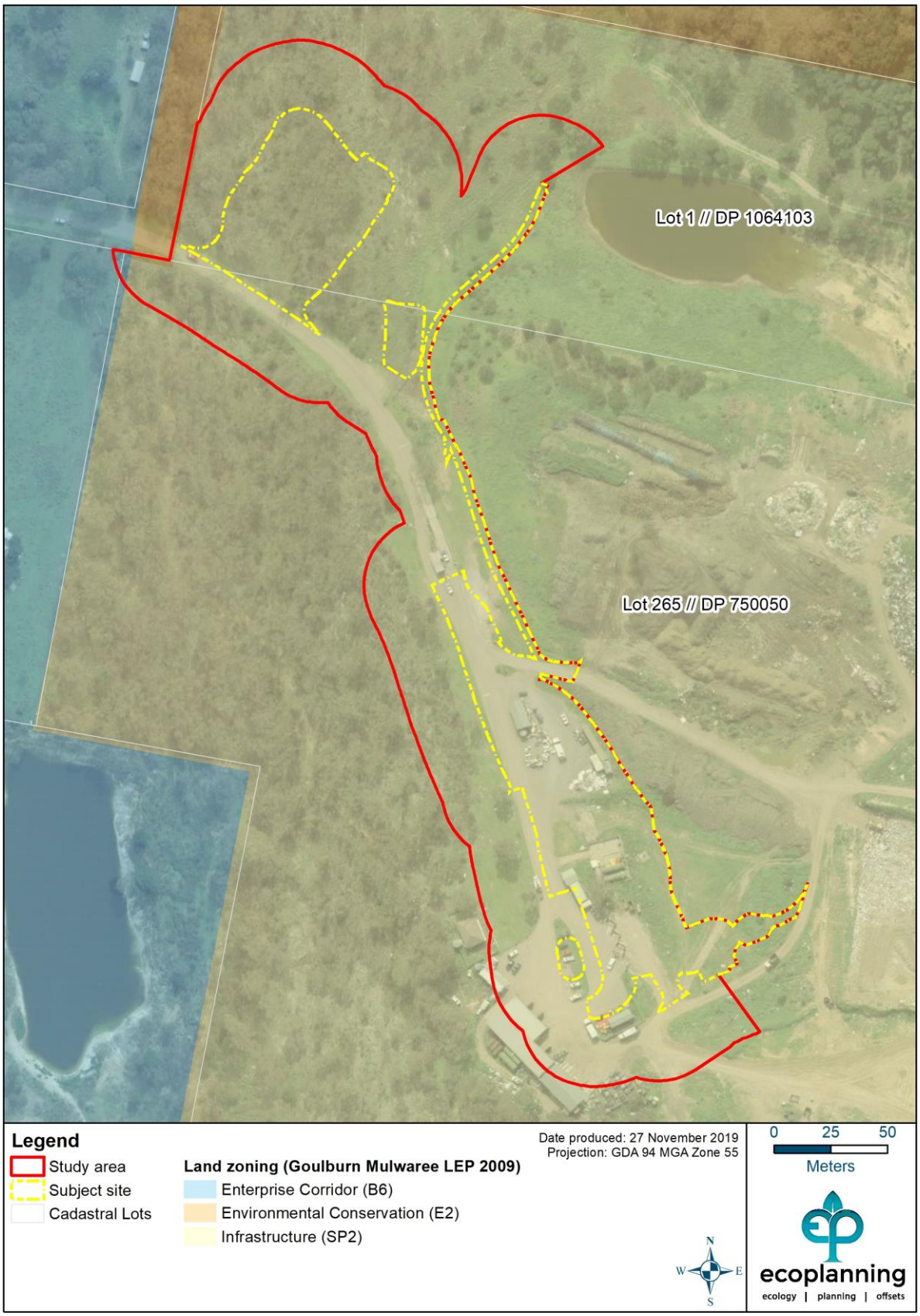

Figure 1.3: Land zoning (Goulburn Mulwaree LEP 2009).

2 Methods

2.1 Literature and database review

A site-specific literature and database review were undertaken prior to the field survey and the preparation of this report. This included desktop analysis of aerial photography and review of regional scale information from the following sources:

- NSW Planning Viewer (NSW Dept. of Planning and Environment 2018)
- BioNet Atlas of NSW Wildlife (NSW Office of Environment and Heritage (OEH) 2018a)
- Protected Matters Search Tool (Commonwealth Department of the Environment and Energy (DotEE) 2018)
- SIX Maps (Land and Property Information (LPI) 2018)
- Native Vegetation of South East NSW (Tozer et al. 2010)
- NSW Vegetation Information System (VIS) (OEH 2018b)
- Soil Landscape Mapping (Hird 1991, DECCW 2009)

The following policies and guidelines were considered in the preparation of this report:

- The EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines (Dept. of Environment, Water, Heritage and the Arts (DEWHA) 2013)
- Threatened Species Test of Significance Guidelines (OEH 2018c)

Threatened species, populations and migratory species that were recorded within 10 km of the study area in the Atlas of NSW Wildlife (OEH 2018a) and listed in the EPBC Protected Matters Search Tool (DotEE 2018) were consolidated and their likelihood of occurrence was assessed by:

- reviewing the location and date of recent (<5 years) and historical (>5-20 years) records
- reviewing available habitat within the study and surrounding areas
- reviewing the scientific literature pertaining to each species and population
- applying expert knowledge of each species

The potential for each threatened species, population and/or migratory species to occur was then considered and the necessity for targeted field surveys was determined. Following field surveys and review of available habitat within the study area, the potential for species or populations to use the study area and to be affected directly or indirectly by the proposal were identified as either:

- “Recent record” = species has been recorded in the study area within the past 5 years
- “High” = species has previously been recorded in the study area (>5 years ago) or in proximity to (for mobile species), and/or habitat is present that is likely to be used by a local population

- "Moderate" = suitable habitat for a species is present onsite but no evidence of a species detected and relatively *high* number of recent records (5-20 years) in the locality or species is highly mobile
- "Low" = suitable habitat for a species is present onsite but limited or highly degraded, no evidence of a species detected and relatively *low* number of recent records in the locality
- "Not present" – suitable habitat for the species is not present onsite or adequate survey has determined species does not occur in the study area

2.2 Field survey

A general site survey (CSIRO and NCST 2009) was undertaken by Elizabeth Norris (Senior Botanist) on 18 October 2018. The survey assessed the vegetation and fauna habitat features on site and validated the vegetation communities occurring within the study area.

Weather conditions on the day were cool and clear. There was 0.2 mm of rain recorded 24 hours prior to the survey (**Table 2.1**).

Table 2.1: Daily weather observation at Goulburn TAFE (Station Number 070263).

Date	Temp (°C)		Rainfall (mm)	Max wind	
	Min	Max		Direction	Speed (km/h)
18/10/2018	9.3	22.8	12.4	NNW	37

2.2.1 Vegetation communities and flora

Field survey involved traversing the study area whilst recording native and exotic flora species, with a focus on identifying potential habitat for threatened flora species. Parts of the study area containing native vegetation were surveyed more extensively than cleared areas of the site. Nomenclature follows the Flora of NSW (Harden 1990-2002) and updates provided in PlantNET (RBGDT 2017).

Field survey was undertaken to check the regional vegetation mapping of Tozer et. al. 2010 (**Figure 3.3**) and to describe the vegetation on the site based on site-specific information. Vegetation communities were also checked against described Threatened Ecological Communities (TECs) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Biodiversity Conservation Act 2016* (BC Act).

2.2.2 Fauna and fauna habitat

Incidental fauna survey was undertaken for birds, amphibians, reptiles and mammals, which included opportunistic observations of fauna along with observation of signs of direct and indirect occupancy (i.e. scats, owl pellets, fur, bones, tracks, bark scratches, foliage chew marks and chewed cones of *Pinus* spp. as well as some of the other cultivars known to be used by fauna).

Fauna habitat searches were conducted for potential foraging, roosting, breeding or nesting habitats of nocturnal and diurnal species. This included inspections to determine the presence of any tree hollows, stags, bird nests, possum dreys, decorticating bark, rock shelters, rock outcrops / crevices, mature / old growth trees, food trees (*Banksia* spp., *Allocasuarina* spp., and winter-flowering eucalypts), culverts, dens, dams, riparian areas and refuge habitats of man-made structures.

Primary sources of literature accessed for species nomenclature include:

- Birds - Christidis and Boles (2008)
- Bats – Churchill (2008)
- Mammals - Van Dyck and Strahan (2008)
- Reptiles and amphibians – Robinson (1998), Cogger (2014)
- Terrestrial invertebrates - Australian Faunal Directory (ABRS 2009)

2.2.3 Survey limitations

The flora survey aimed to record as many species as possible. However, a definitive list of the flora within the study area cannot be gathered without systematic traverses and survey across a number of seasons. Given the highly disturbed nature of the vegetation on the site and the site history, this level of survey effort was not deemed necessary for this assessment. While additional species would be recorded during a longer survey over various seasons, the techniques used in this investigation are considered to be adequate to gather the data necessary to validate the vegetation communities and vegetation condition in the study area, and to detect any threatened flora.

A full fauna survey following *Threatened Species Survey and Assessment Guidelines* (OEH 2013) was not undertaken as sufficient detail to determine the likelihood of occurrence of threatened and migratory species for the purpose of this report was achieved through habitat assessment during the field survey.

3 Results

3.1 Literature and database review

3.1.1 Topography, drainage, soils and biodiversity layer.

The study area is approximately 694 masl, and is of undulating terrain with a general westward slope towards the centre of Goulburn township. The study area did not support any watercourses on or adjacent to the site although there is a large dam in the northern part of the study area.

The study area is located on land mapped as 'disturbed terrain' and on the Bullamalita soil landscape (**Figure 3.1**). The Bullamalita soil landscape covers an area of 160 km² near the city of Goulburn and is associated with Upper Silurian and Lower Devonian sediments wherever they occur in conjunction with footslopes and valley floors or on landform patterns with slope gradients generally <10%. Soils are generally acid to neutral yellow duplex soils on sideslopes, footslopes and drainage lines. The soil landscape includes undulating to rolling hills at elevations between 650 – 800 m, with local relief between 10 – 50 m. Native vegetation commonly found on this soil landscape includes Savannah woodland of Yellow Box and Red Gum.

The study area is not mapped as "Natural resource sensitivity – biodiversity" on the Natural Resources Sensitivity – Biodiversity Map under the Goulburn Mulwaree Local Environmental Plan (2009).

3.1.2 Threatened species, populations and migratory species

Nineteen (19) threatened species have been previously recorded within a 10 km radius of the study area, including 15 fauna and four flora species (**Appendix A** and **Figure 3.2**).

No threatened flora or fauna species listed under the BC Act or the EPBC Act were recorded during the site inspections, and searches of relevant databases (Atlas of NSW Wildlife, OEH 2018) did not identify any previous records of threatened flora or fauna species within the study area.

There are four records of threatened flora species within the locality. The closest threatened flora species is *Leucochrysum albicans* var. *tricolor* (Hoary Sunray), previously recorded approximately 2.61 km from the study area. All other records of threatened flora species are situated >4.9 km from the study area. The four threatened species recorded in the locality were assessed as 'not present' in the study area, based on the degraded condition of the study area and flora surveys conducted on 18 October 2018.

Threatened fauna species that have recently been recorded or were assessed to have a 'moderate' likelihood of occurring in the study area (**Appendix A**) were assessed in accordance with the relevant components of the Significant Impact Guidelines Commonwealth Department of the Environment (DotE) (2013) and/or Part 7.3 of the BC Act. These species were:

- Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)
- Varied Sittella (*Daphoenositta chrysoptera*)

3.1.3 Vegetation and threatened ecological communities

Desktop assessment identified two native vegetation communities mapped to the west of the site, with a small amount of Tableland Low Woodland (DSF p9) and Western Tablelands Dry Forest (DSF p14) mapped on the northern and southern fringes of the study area (Tozer 2010). Two small patches of Western Tablelands Dry Forest (DSF p14) are also mapped within the middle western edge of the study area (**Figure 3.3**). The remainder of the study area is unmapped (**Figure 3.3**).

These two vegetation communities share several co-occurring species and both communities are found in undulating terrain on the tablelands (Tozer et al 2010). Generally, Tableland Low Woodland (DSF p9)) occurs on low ridges on sandy loam soils whilst Western Tableland Dry Forest (DSF p14) is widely distributed on dry ridges.

Neither of these two communities are listed TECs under the EPBC Act or BC Act.

Table 3.1: vegetation community nomenclature

Vegetation communities (Tozer 2010)	Corresponding Plant Community Types	TECs	BC Act	EPBC Act
Tableland Low Woodland (DSF p9)	PCT 888 - Inland Scribbly Gum – Brittle Gum – low woodland of the eastern tablelands, South East Highlands	-	-	-
Western Tableland Dry Forest (DSF p14)	PCT 1093 - Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest on skeletal hills of the tablelands, South East Highlands	-	-	-

3.1.4 Biodiversity (Terrestrial)

The study area does not occur on land identified on the Terrestrial Biodiversity Map (DPE 2018).

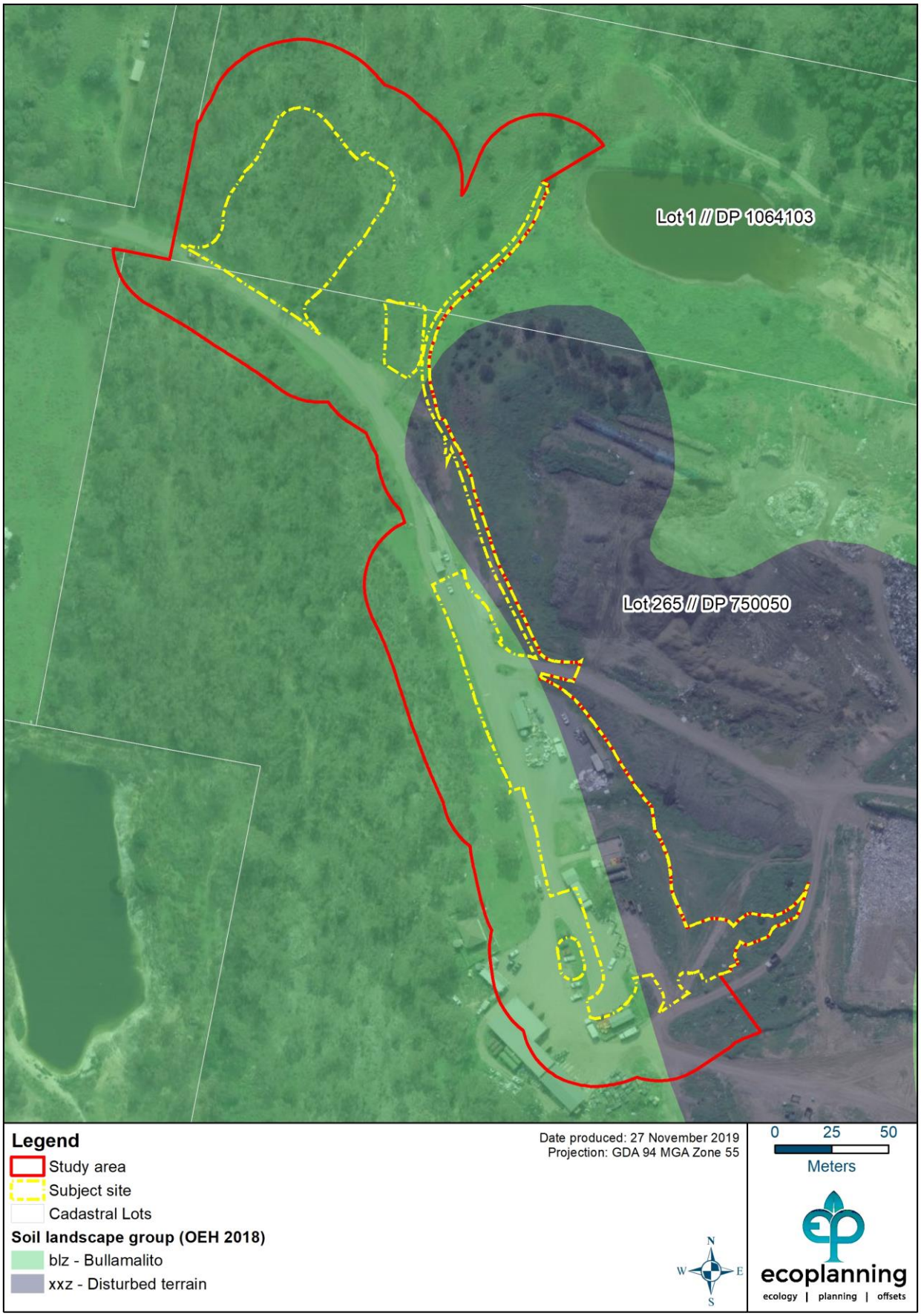

Figure 3.1: Soil landscapes in the study area (Hird 1991).

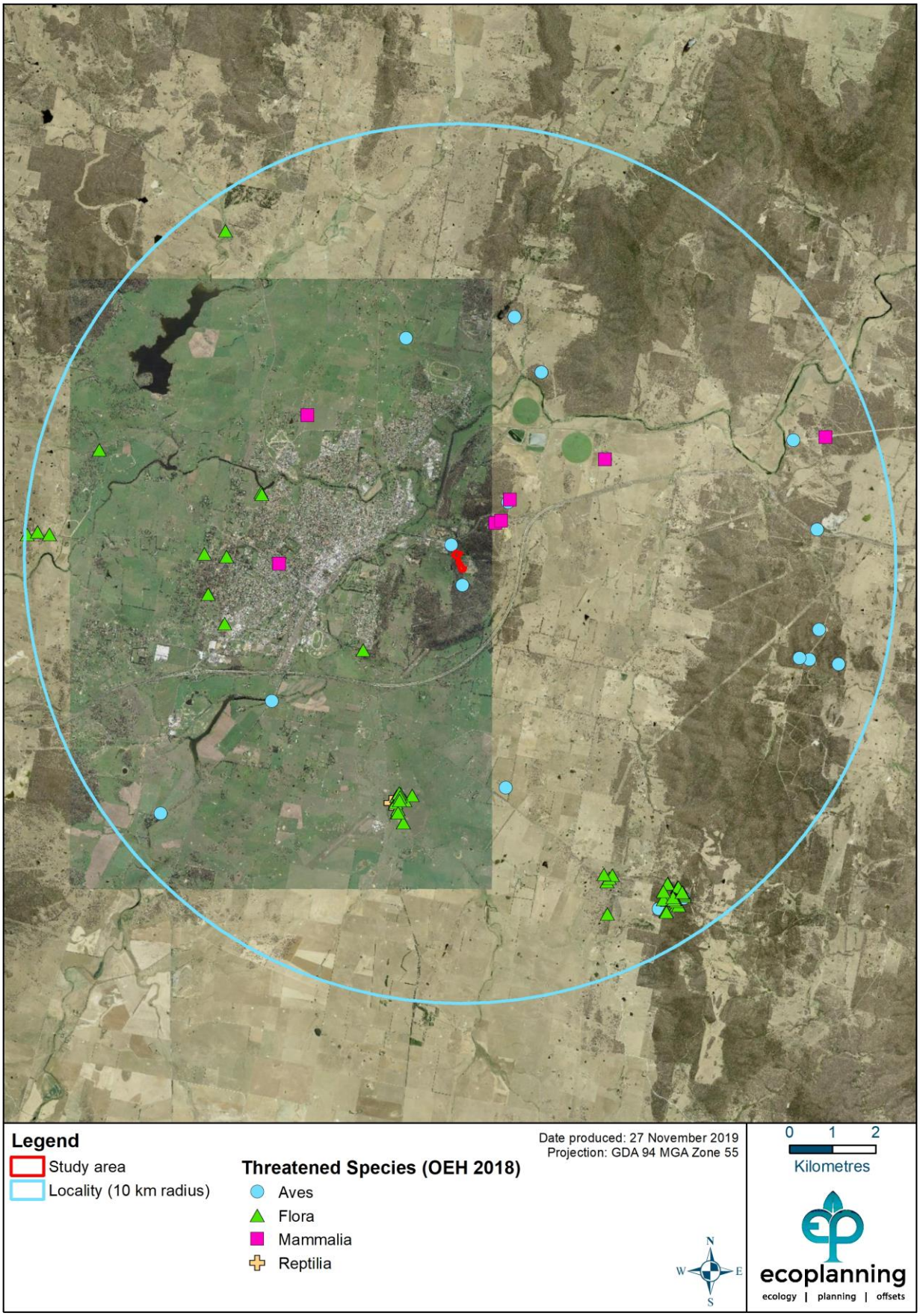

Figure 3.2: Threatened species record within the locality

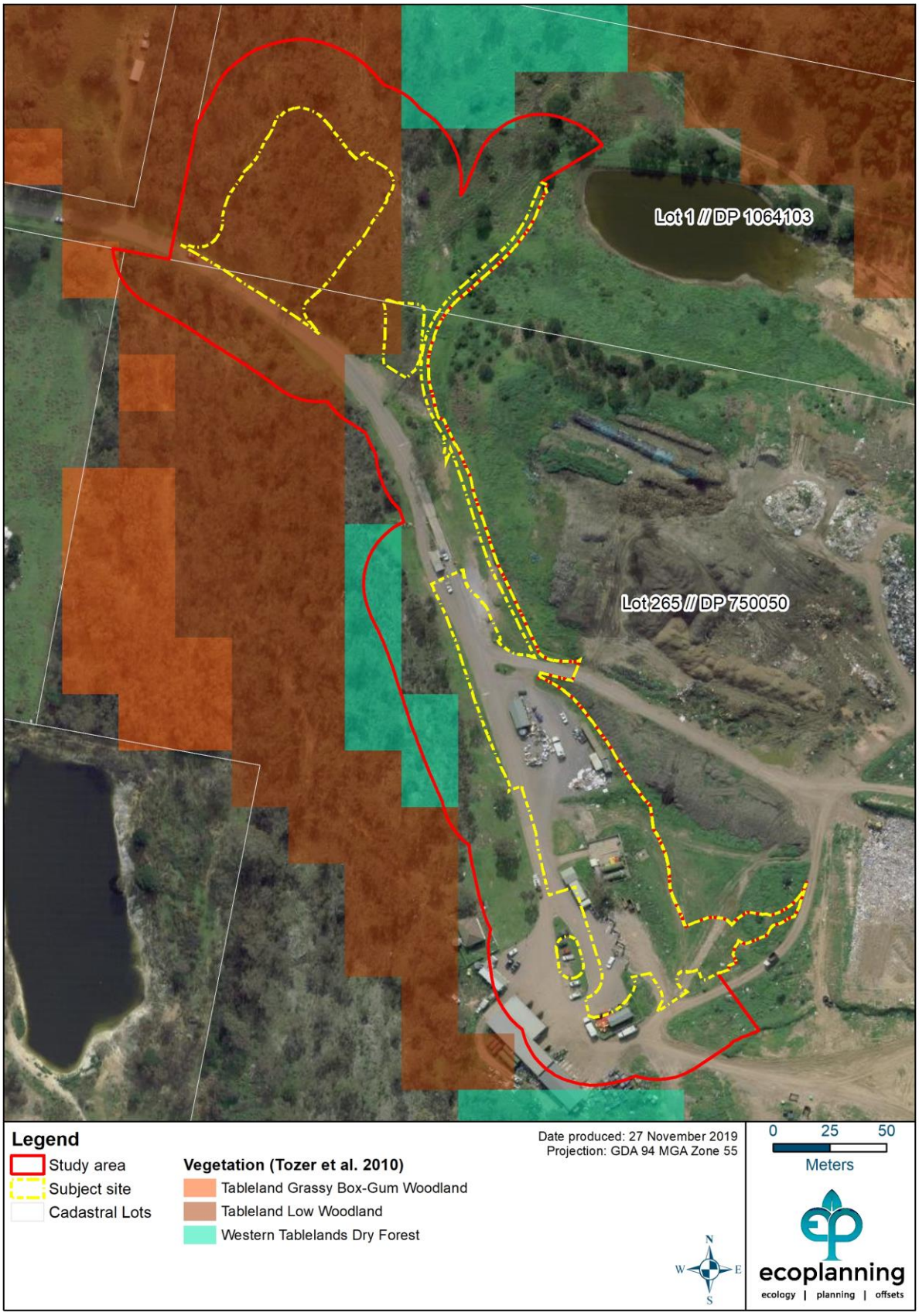

Figure 3.3: Native vegetation within the study area (Tozer et al. 2010)

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3.2 Field survey

3.2.1 Vegetation communities and flora species

The study site had undergone extensive clearing through the development the Goulburn Waste Management Facility, and most of the native vegetation occurred in a disturbed and modified condition through maintenance clearing for overhead transmission lines and mowing of the ground-layer. More intact native vegetation within the study site was present at the northern end, north of the Sinclair Street, although some of this vegetation had also been disturbed to varying degrees.

Field survey determined the native vegetation in the study area to be generally consistent with the Western Tablelands Dry Forest (DSF p14) mapped by Tozer et al (2010). This community was equivalent to PCT 1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands (VIS 2018). The remaining parts of the study area were mapped as exotic grassland, disturbed land and infrastructure (**Figure 3.4**). Descriptions for each of the vegetation zones mapped at the site is included below.

Western Tablelands Dry Forest (PCT 1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest) – moderate to good

Native vegetation characteristic of PCT 1093 – Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest was present along the western and northern boundaries of the study area (**Figure 3.5**). The canopy was dominated by *Eucalyptus rossii* (Inland Scribbly Gum) with *Eucalyptus macrorhyncha* occurring less frequently. Smaller trees and shrubs included *Acacia decurrens, Allocasuarina littoralis* and *Persoonia linearis.* A low shrub layer was also present and was dominated by *Calytrix tetragona, Ozothamnus diosmifolius* (Dogwood), *Platysace lanceolata*, *Cassinia arcuata* (Sifton Bush), *Persoonia mollis* subsp. *livens*, and *Grevillea arenaria* subsp. *arenaria* (Sand Grevillea) scattered throughout. The understorey was composed of a mixture of native and exotic species with commonly recorded native species including *Rytidosperma fulvum, Rytidosperma pallidum*, *Pimelea linifolia* subsp. *linifolia* (Slender Rice Flower), *Lepidosperma gunnii*, *Brachyloma daphnoides* (Daphne Heath), and *Einadia nutans* (Climbing Saltbush).

Exotic species were common where areas of the ground layer were more disturbed, such as around existing infrastructure (transmission line easement). Common exotic species included *Ehrharta erecta* (Panic Veldt Grass), *Eragrostis curvula* (African Lovegrass), *Hypochaeris radicata* (Catsear), *Sonchus oleraceus* (Sowthistle), *Cerastium glomeratum* (Mouse-ear Chickweed), *Hirschfeldia incana* (Hairy Brassica) and *Arctotheca calendula* (Cape Weed).

In areas adjacent to the transmission line easement, the canopy of this community was more open and areas of disturbed soil was also present amongst the shrub layer (**Figure 3.6**).

Western Tablelands Dry Forest (PCT 1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest) – scattered trees

A narrow strip comprising several scattered trees of *Eucalyptus rossii* (Inland Scribbly Gum) with the occasional *Eucalyptus blakelyi* (Blakely's Red Gum) over a maintained and mown exotic grassland occurred adjacent to the western side of the Sinclair Street access road and facilities. A small area of landscaped garden, located adjacent to the weigh bridge, had been developed and decorated with pre-loved toys (**Figure 3.7**).

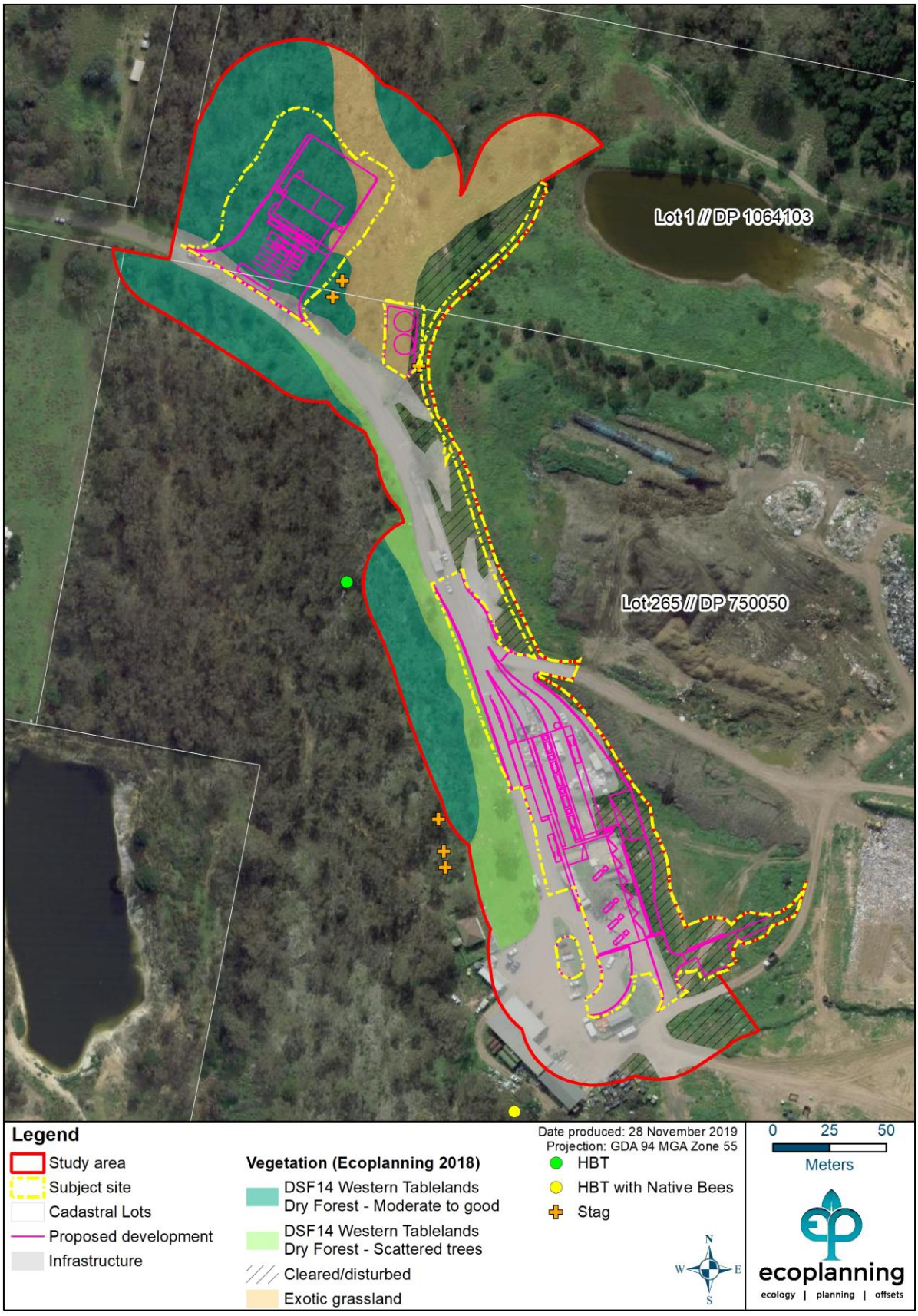

Figure 3.4: Field validated vegetation in the study area (Ecoplanning 2018).

Figure 3.5: Western Tablelands Dry Forest in the study area

Figure 3.6: Western Tablelands Dry Forest in the subject site

Figure 3.7: Western Tablelands Dry Forest (scattered trees) in the subject site

Exotic grassland

This vegetation type consisted of cleared land dominated by exotic grasses and forbs growing beneath and adjacent to the transmission line easement in the north of the study area, north of Sinclair Street. The dominant ground-layer species were *Eragrostis curvula* (African Lovegrass), with other species including *Echium plantagineum* (Paterson's Curse), *Prunus* species (Cherry) and *Rubus fruiticosus* spp. agg. (Blackberry) occurring less frequently (**Figure 3.8**).

Disturbed land

Disturbed land includes those areas of the modified landforms of buried waste material, located along the eastern portions of the study area. Areas of shrub plantings are also present, and form part of some re-plantings works along the bunds of the waste facility site. These gardens are also decorated with pre-loved toys (**Figure 3.9**)

The remaining areas of the subject site included infrastructure comprising hard surfaces (roads, carparks), office and depots, the weigh bridge and the various waste service recycling areas.

Figure 3.8: Exotic grassland

Figure 3.9 Disturbed Land

Table 3.2: Vegetation types found in the study area showing the condition and area.

Vegetation type	Vegetation zone (condition class)	BC Act	EPBC Act	Study Area (ha)[1]	Subject Site (ha) [1]
Western Tablelands Dry Forest (PCT 1903 - Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest)	Moderate to good	-	-	1.24	0..35
	Scattered trees	-	-	0.32	0.01
Total native vegetation				**1.56**	**0.36**
Other vegetation	Exotic grassland	N/A	N/A	0.58	0.10
	Disturbed land	N/A	N/A	0.64	0.33
Total vegetation				**2.78**	**0.79**
Infrastructure	N/A			1.40	0.66

[1] Total area of vegetation subject to rounding errors

3.2.2 Flora species

A total of 69 flora species were identified within the study area, of which 23 are exotic and 46 are native (**Appendix C**).

One weed listed under the NSW *Biosecurity Act 2015* and Local Land Services (2017) is a Weed of National Significance (WoNS) (**Table 3.3**). Four other weed species are also listed under the NSW *Biosecurity Act 2015* and/or Local Land Services Strategic Weeds Management Plan (2017) (**Table 3.3**).

Table 3.3: Priority weeds and Weeds of National Significance (WoNS).

Common name	Scientific name	WoNS	Duty
Blackberry	*Rubus fruiticosus* spp. agg.	Y	**Mandatory Measure** Must not be imported into the State or sold.
African Love Grass	*Eragrostis curvula*	N	**General Biosecurity Duty** *All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*
St John's Wort	*Hypericum perforatum*	N	**General Biosecurity Duty** (As above) **Regional Recommended Measure**** *Whole region: Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant.*

Common name	Scientific name	WoNS	Duty
Paterson's Curse	*Echium plantagineum*	N	**General Biosecurity Duty** (As above)
Viper's Bugloss	*Echium vulgare*	N	**General Biosecurity Duty** (As above)

** South East Local Land Services South East Regional Strategic Weed Management Plan

No individuals or populations of threatened flora species under the BC Act or EPBC Act were recorded in the study area.

3.2.3 Fauna Habitat

A range of fauna habitat features were present in the study area:

- Woodland
- Hollow-bearing trees
- Stag trees
- Large woody debris
- Rocky outcrop

Habitat within the study area provided potential foraging, roosting and nesting resources. The habitat features relevant to each fauna group are shown in **Table 3.4**. One hollow bearing tree and six stag trees were recorded within the study area. No hollow bearing trees or stags were recorded within the subject site (**Figure 3.4**).

Table 3.4: Key fauna habitat features of relevance to fauna in the study area.

Habitat features	Fauna species
Woodland	Diurnal and nocturnal birds and arboreal mammals, bats, reptiles, frogs
Stag tree	Diurnal and nocturnal birds and arboreal mammals, bats, reptiles
Hollow-bearing tree	Diurnal and nocturnal birds, arboreal mammals, microchiropteran bats and reptiles
Large woody debris	Reptiles, birds, terrestrial mammals
Rocky outcrop	Reptiles, terrestrial mammals

3.2.4 Fauna species

Field surveys recorded a total of seven fauna species, six of which were birds, and one mammal (**Appendix D**). No threatened fauna species were recorded during the field survey. The low incidence of fauna sightings may be attributable to the size of the study area and its proximity to the Waste Services facilities.

State Environmental Planning Policy No.44 (SEPP 44) – Koala Habitat Protection

State Environmental Planning Policy applies to land that is listed in Schedule 1 of SEPP 44, and that has:

- *Has an area of more than 1 ha, or*
- *Has, together with any adjoining land in the same ownership, an area of more than 1 ha, whether or not the development application applies to the whole, or only part, of the land.*

The study area is in Goulburn Mulwaree Local Government Area, which is listed in Schedule 1 of SEPP 44 and is >1 ha, hence the SEPP 44 applies to the study area.

To determine if a development consent can be granted using SEPP 44, a two-step assessment is required:

Step 1: Is the land potential koala habitat (where potential koala habitat means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component)?

The canopy species recorded in the study area included *Eucalyptus rossii*, *Eucalyptus blakelyi, Eucalyptus blakelyi X dealbata* and *Eucalyptus macrorhyncha*. These canopy species are not listed feed trees under Schedule 2 of SEPP 44. As such, the study area does not constitute potential Koala habitat.

Step 2: Is the land core koala habitat (where core koala habitat means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population)?

No signs of Koala were recorded within the study area, such as scratch marks or scats during field assessment. The study area does not support potential feed trees for the Koala and there are no known resident populations. Therefore, the site would not to constitute core Koala habitat.

4 Impact assessment

This section outlines the anticipated direct and indirect impacts of the development on the ecological values of the study area.

4.1 Direct impacts

4.1.1 Vegetation clearing

Up to 0.36 ha of Western Tablelands Dry Forest vegetation in the study site would be directly impacted by the proposal comprising 0.35 ha in a moderate to good condition and 0.01 ha of scattered trees. The remainder of the impact area consists of exotic grassland (0.10 ha) and disturbed land (0.33 ha) within the subject site (**Table 4.1** and **Figure 4.1**). As such, the direct impacts in the study area would predominantly include removal of disturbed land and exotic vegetation, which is 54 % of the vegetation within the subject site. The exotic grassland and disturbed land have minimal ecological value and provide marginal foraging habitat for native fauna.

Table 4.1: Area of impact on vegetation in the subject site.

Vegetation type	Vegetation zone (condition class)	Study Area (ha)[1]	Subject Site (ha) [1]
Western Tablelands Dry Forest (PCT 1903 - Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest)	Moderate to good	1.24	0.35
	Scattered trees	0.32	0.01
Total native vegetation		**1.56**	**0.36**
Other vegetation	Exotic grassland	0.58	0.10
	Disturbed land	0.64	0.33
Total exotic vegetation and disturbed land		**1.22**	**0.43**
Total vegetation		**2.78**	**0.79**

[1] Subject to rounding errors

4.1.2 Loss of fauna habitat

The proposal will remove a small amount of potential foraging habitat (0.36 ha) of Western Tablelands Dry Forest in a moderate to good and scattered trees condition). This impact is considered relatively minor given the very small amount of habitat present and that threatened fauna in locality are generally highly mobile (birds, microbats). Large areas of more intact habitat will remain connected to the subject site on other surrounding properties. The habitat in the study area is of relatively low importance to native fauna species and adjacent consolidated patches of remnant vegetation retain fauna habitat of higher conservation significance.

4.2 Indirect impacts

It is difficult to quantify indirect impacts of the proposed development, but these may include impacts such as erosion and water quality impacts that may be associated with the construction phase of the project. These impacts will be managed through the development of a Construction Environmental Management Plan. Given the already highly modified nature and present land use of the study area, and the implementation of appropriate controls, indirect impacts from the proposal are likely to be relatively minor (**Figure 4.1**).

4.3 Avoidance and mitigation

4.3.1 Vegetation clearing

The majority of the study area consists of cleared and disturbed land and exotic vegetation and the proposal has been designed to avoid and minimise the removal of native vegetation. Access roads have been placed around current stands of vegetation and the facility has been placed in a cleared area. As the majority of vegetation to be removed is exotic vegetation, avoidance of impacts to the extent practicable has been implemented.

4.3.2 Construction Environmental Management Plan

To avoid potential indirect offsite impacts during construction, an appropriate erosion and sedimentation control plan should be in place following best practice protocols such as that detailed in Landcom (2004).

4.4 Legislative context

4.4.1 State considerations

Environmental Planning and Assessment (EP&A) Act 1979

Habitat for the following threatened species listed under the BC Act have the potential to be impacted by the proposal:

- Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)
- Varied Sittella (*Daphoenositta chrysoptera*)

Impact assessments in accordance with s7.3 of the BC Act (i.e. 'test of significance') and the associated guidelines (OEH 2018b) have been undertaken. The assessments concluded that there will be no significant impacts to threatened fauna species in accordance with s7.3 of the BC Act (**Appendix B**).

4.4.2 Local considerations

The proposal is not mapped on the terrestrial biodiversity map under the GMLEP (2009).

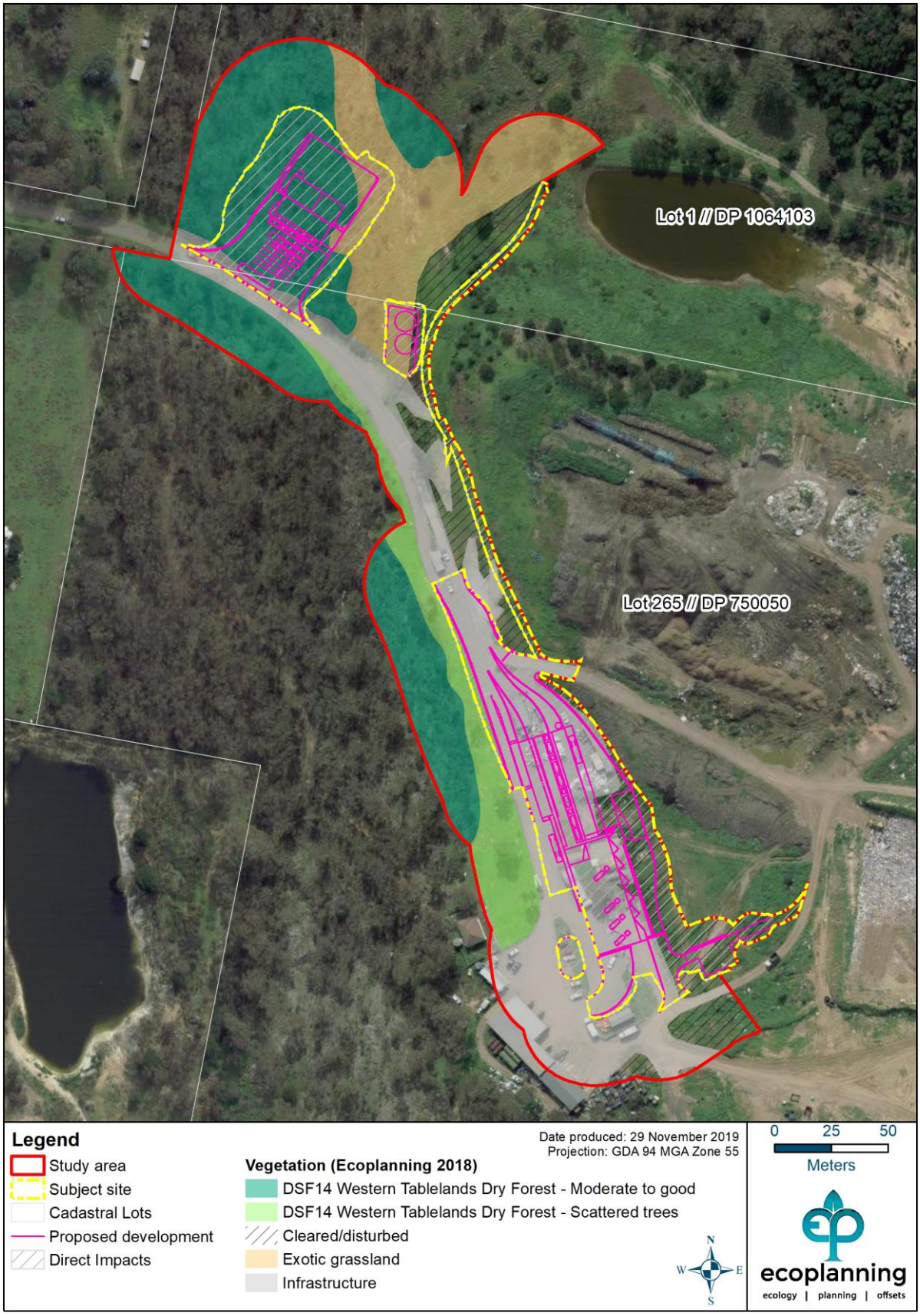

Figure 4.1: Direct impacts of the proposal.

5 Conclusion

The proposal will directly impact up to 0.79 ha of vegetated land, of which 0.36 ha consists of native vegetation. This includes impacts to 0.35 ha of Western Tablelands Dry Forest in a moderate to good condition and 0.01 ha occurring as scattered trees. The remaining vegetation comprises exotic grassland (0.1 ha) and disturbed land (0.33 ha). Western Tableland Dry Forest conforms to PCT 1093 Red Stringy bark – Brittle Gum – Inland Scribbly Gum dry open forest, and is not listed as a TEC under the EPBC Act of BC Act. Within the subject site Western Tablelands Dry Forest was found in a moderate to good condition. It is also found as scattered trees over mown grassland areas. Approximately 1.2 ha (77 %) of Western Tablelands Dry Forest will remain within the study area and more extensive stand occur within the locality.

No threatened flora or fauna species listed under the EPBC Act or BC Act were identified in the study area during field assessment. Whilst the Dusky Woodswallow and Varied Sittella have the potential to utilise the site for foraging, the current proposal requires the removal of a relatively small area of Western Tablelands Dry Forest in a modified condition (0.54 ha). The results of the test of significance under the BC Act indicated that the proposal is not likely have a significant impact on any threatened fauna.

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Appendix A: Species likelihood of occurrence

As outline in **Section 2.1**, the potential for each threatened species, population and/or migratory species to occur was considered and the necessity for targeted field surveys was determined. Following field surveys and review of available habitat within the subject site and study area, the potential for species to use the site and be affected directly or indirectly by the proposed action were considered as either:

- "Recent record" = species has been recorded in the study area within the past 5 years
- "High" = species has previously been recorded in the study area (>5 years ago) or in proximity to (for mobile species), and/or habitat is present that is likely to be used by a local population
- "Moderate" = suitable habitat for a species is present onsite but no evidence of a species detected and relatively high number of recent records (5-20 years) in the locality or species is highly mobile
- "Low" = suitable habitat for a species is present onsite but limited or highly degraded, no evidence of a species detected and relatively low number of recent records in the locality
- "Not present" = suitable habitat for the species is not present onsite or adequate survey has determined species does not occur in the study area

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
KINGDOM: Animalia; CLASS: Amphibia						
Litoria aurea Green and Golden Bell Frog	TSC Act: E1 EPBC Act: V	NA	NA	NA	Low	Not present
Litoria littlejohni Little John's Tree Frog	TSC Act: V EPBC Act: V	NA	NA	NA	Not Present	Not present
KINGDOM: Animalia; CLASS: Aves						
Anthochaera phrygia Regent Honeyeater	TSC Act: CE EPBC Act: CE	2	0.23 km (21/09/2006	0.23 km (21/09/2006	Low	Low
Artamus cyanopterus cyanopterus Dusky Woodswallow	TSC Act: V	2	4.2 km (29/01/2008)	25/11/2014 (6.1 km)	Moderate	Moderate
Botaurus poiciloptilus Australasian Bittern	TSC Act: E1 EPBC Act: E	NA	NA	NA	Low	Not present
Callocephalon fimbriatum Gang-gang Cockatoo	TSC Act: V	11	5.2 km (08/10/2004)	12/03/2013 (8.7 km)	Low	Low
Calyptorhynchus lathami Glossy Black-Cockatoo	TSC Act: V	2	7.9 km (17/11/2009)	17/11/2009 (7.9 km)	Moderate	Low
Chthonicola sagittata Speckled Warbler	TSC Act: V	1	4.6 km (25/03/2013	25/03/2013 (4.6 km)	Low	Low
Daphoenositta chrysoptera Varied Sittella	TSC Act: V	4	0.2 km (21/09/2016)	21/09/2016 (0.2 km)	Moderate	Moderate
Ephippiorhynchus asiaticus Black-necked Stork	TSC Act: E	1	8.6 km (26/04/1998)	26/04/1998 (8.6 km)	Low	Not present
Falco subniger Black Falcon	TSC Act: V	1	0.3 km (30/06/1996)	30/06/1996 (0.3 km)	Low	Low
Hieraaetus morphnoides Little Eagle	TSC Act: V	3	4.0 km (29/01/2008)	05/08/2015 (8.2 km)	Low	Low

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Lathamus discolor Swift Parrot	EPBC Act: CE TSC Act: E1	NA	NA	NA	Low	Low
Petroica boodang Scarlet Robin	TSC Act: V	2	4.6 km (25/03/2013)	25/03/2013 (4.6 km)	Low	Low
Polytelis swainsonii Superb Parrot	TSC Act: V EPBC Act: V	NA	NA	NA	Low	Low
KINGDOM: Animalia; CLASS: Mammalia						
Dasyurus maculatus maculatus *Spotted-tail Quoll*	TSC Act: V EPBC Act: E	NA	NA	NA	Low	Low
Chalinolobus dwyeri Large-eared Pied Bat	TSC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Falsistrellus tasmaniensis Eastern False Pipistrelle	TSC Act: V	2	1.1 km (16/11/2009)	16/11/2009 (1.1 km)	Moderate	Low
Miniopterus schreibersii oceanensis Eastern Bentwing-bat	TSC Act: V	5	1.3 km (16/11/2009)	7/10/2017 (4.5 km)	Moderate	Low
Petauroides volans Greater Glider	EPBC Act: V	NA	NA	NA	Low	Low
Petrogale penicillata Brush-tailed Rock Wallaby	TSC Act: E EPBC Act: V	NA	NA	NA	Low	Low
Phascolarctos cinereus Koala	TSC Act: V EPBC Act: V	NA	N/A	N/A	Low	Not present
Pseudomys novaehollandiae New Holland Mouse	EPBC Act: V	NA	N/A	N/A	Low	Not present
Pteropus poliocephalus Grey-headed Flying-fox	TSC Act: V EPBC Act: V	10	4.1 km (26/01/2017)	26/01/2017 (4.1 km)	Moderate	Low

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Saccolaimus flaviventris Yellow-bellied Sheathtail-bat	TSC Act: V	1	4.1 (29/01/2008)	29/01/2008 (4.1 km)	Moderate	Low
KINGDOM: Animalia; CLASS: Reptilia						
Aprasia parapulchella Pink-tailed Worm-lizard	TSC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Delma impar Striped Legless Lizard	TSC Act: V EPBC Act: V	1	5.2 km (21/10/1997)	21/10/1997 5.2 km	Low	Low
KINGDOM: Plantae						
Acacia bynoeana Bynoe's Wattle	TSC Act: V EPBC Act: E1	NA	NA	NA	Low	Low
Caladenia tessellata Thick-lipped Spider Orchid	TSC Act: E EPBC Act: V	NA	NA	NA	Low	Low
Dodonaea procumbens Trailing Hop-bush	TSC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Diuris aequalis Buttercup Doubletail	TSC Act: E EPBC Act: V	1	5.7 km (01/01/1998)	01/01/1998 (5.7 km)	Low	Low
Eucalyptus aggregata Black Gum	TSC Act: V EPBC Act: V	NA	NA	NA	Low	Low
Lepidium hyssopifolium Aromatic Peppercress	TSC Act: E EPBC Act: E	NA	NA	NA	Low	Low
Leucochrysum albicans var. *tricolor* Hoary Sunray	EPBC Act: E	375	2.6 km (08/04/2009)	03/12/2016 (5.4 km)	Low	Low
Pelargonium sp. *Striatellum* Omeo Stork's-bill	TSC Act: E EPBC Act: E	NA	NA	NA	Low	Low
Pomaderris delicata Delicate Pomaderris	TSC Act: E EPBC Act: V	126	8.3 km (07/05/2010)	26/09/2017 (8.8 km)	Not present	Not present

Scientific Name Common Name	Legal Status	Number of records	Closest record and date	Most recent and proximity	Likelihood of occurrence	
					Prior to field assessment	Post field assessment
Prasophyllum petilum Tarengo Leek Orchid	TSC Act: E EPBC Act: E	NA	N/A	N/A	Not present	Not present
Rutidosis leptorrhynchoides Button Wrinklewort	TSC Act: E EPBC Act: E	20	4.7 km (03/11/2009)	03/12/2016 (4.9 km)	Not present	Not present
Swainsona recta Small Purple-pea	TSC Act: E EPBC Act: E	NA	N/A	N/A	Not present	Not present
Thesium australe Austral Toadflax	TSC Act: V EPBC Act: V	NA	N/A	N/A	Not present	Not present

Unless other stated, text is taken from the OEH Threatened Species (http://www.environment.nsw.gov.au/threatenedspecies/); Legal Status codes from the Atlas of NSW Wildlife: V = Vulnerable, E = Endangered, E2 = Endangered Population, C = China and Australia Migratory Bird Agreement (CAMBA), J = Japan and Australia Migratory Bird Agreement (JAMBA); K = Republic of Korea Migratory Bird Agreement (ROKAMBA), BC Act = *Biodiversity Conservation Act 2016,* EPBC Act = Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Appendix B: Assessments of Significance

State listings under the BC Act

Varied Sittella *(Daphoenositta chrysoptera)*

The Varied Sittella is sedentary species inhabiting most of mainland Australia. It is found in eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. The species feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.

a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The closest record to the study area (200 m) is also the most recent record (2016). Otherwise, there are few documented records for this species in the area (four in total). It is possible that a viable local population of the species could use the resources in the study area, given there is suitable foraging habitat. However, this species is not likely to use the study area for breeding given that minimal suitable habitat for breeding is not available in the subject area.

The proposed development is not likely to place a viable local population at risk of extinction as breeding habitat would be removed and other foraging habitat would remain within the locality.

b. in the case of an endangered ecological community or critically endangered ecological community whether the action proposed:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The local occurrence of an ecological community is defined by (OEH (2018b) as that which: occurs within the study area… including any adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.

This component is not applicable.

c. in relation to the habitat of a threatened species or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the action proposed,

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long term survival of the species or ecological community in the locality.

The proposed development will result in the removal of 0.36 ha of Western Tablelands Dry Forest in modified condition and as scattered trees. The proposal will not result in the fragmentation or isolation of other areas of habitat as the vegetation in the study area consists of scattered trees. The importance of the vegetation proposed for removal to the long-term survival of the Varied Sittella is low, given that a relatively small amount of vegetation in a modified condition is proposed for removal.

d. whether the action proposed is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly) as no such declared areas are present within or adjacent to the subject area. The subject site is not identified on the Biodiversity Values Map, as defined by the Biodiversity Conservation Regulation 2017. The study area has been subject to an ongoing operational waste management facility.

e. whether the development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process

There is one key threatening process of relevance to the Varied Sittella:

- Clearing of native vegetation

The proposed action will result in the removal of 0.36 ha of Western Tableland Dry Forest in a modified and scattered trees condition class.

Conclusion of s.7.3 assessment of significance for Varied Sittella

The proposed development is not likely to have a significant impact on the Varied Sittella given:

- the low likelihood of a viable local population being reliant on the habitat components in the study area
- the availability of suitable foraging habitat surrounding the study area that will not be impacted.

Dusky Woodswallow *(Artamus cyanopterus cyanopterus)*

The Dusky Woodswallow typically inhabits dry open eucalypt forests and woodlands with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and a ground cover of grasses or sedges and fallen woody debris. They have also been recorded in shrublands, heathlands very occasionally in moist forest or rainforest. The Dusky Woodswallow can also be found in farmland usually at the edges of forest and woodland, similar to the habitat within the subject area and adjacent areas. Dusky Woodswallow nest colonially in 'neighbourhoods', although are nomadic and migrate north during autumn (specifically the eastern population). The main source of food for Dusky Woodswallow is insects, which are taken on the wing, from foliage and on the ground, however, they also consume small amount of nectar from *Eucalyptus* spp.

a) in the case of a threatened species, whether the proposed development or activity is likely to an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

The most recent record was in 2014 at a distance of 4.2 m from the subject site. Otherwise, there are few documented records for this species in the area (two in total). It is possible that a viable local population of the species could use the resources in the study area, given there is suitable foraging habitat. However, this species is not likely to use the study area for breeding given that minimal suitable habitat for breeding is not available in the subject area.

The proposed development is not likely to place a viable local population at risk of extinction as breeding habitat would be removed and other foraging habitat would remain within the locality.

b) in the case of an endangered ecological community or critically endangered ecological community whether the proposed development or activity:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Not applicable

c) in relation to the habitat of a threatened species, population or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and,

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.

The proposal will remove 0.36 ha of potentially suitable foraging habitat. However, given the suitability of surrounding vegetation in the area, the importance of the habitat in the study area is not deemed to be important for the long-term survival of the Dusky Woodswallow. The vegetation in the study area is situated adjacent to a larger expanse of vegetation containing potential habitat to the east of the study area. The habitat is likely to be of limited importance to the long-term survival of the Dusky Woodswallow as other areas of potential foraging habitat remain in the area.

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly) as no such declared areas are present within or adjacent to the subject area. The subject site is not identified on the Biodiversity Values Map, as defined by the Biodiversity Conservation Regulation 2017. The study area has been subject to an ongoing operational waste management facility.

e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

There is one key threatening process of relevance to the Dusky Woodswallow:

- Clearing of native vegetation

The proposal will result in the removal of approximately 0.36 ha of potential foraging habitat for Dusky Woodswallow.

Conclusion of s7.3 Assessment of significance for the Dusky Woodswallow

The proposed development is unlikely to significantly impact the Dusky Woodswallow, as:

- a relatively small amount of modified native vegetation being impacted under the current proposal (0.36 ha),
- the low likelihood of a viable local population being reliant on the habitat components in the study area,
- the availability of suitable foraging habitat surrounding the study area and in adjacent areas of extensive intact vegetation in the locality that will not be impacted.

Appendix C: Flora species inventory

Flora species list

Family	Genus	Species	Common name	Native/ Exotic
Alliaceae	*Agapanthus*	*praecox*	African Lily	Exotic
Apiaceae	*Platysace*	*lanceolata*	Shrubby Platysace	Native
Asteraceae	*Arctotheca*	*calendula*	Capeweed	Exotic
Asteraceae	*Cassinia*	*arcuata*	Sifton Bush	Native
Asteraceae	*Cassinia*	sp.		Native
Asteraceae	*Gamochaeta*	*calviceps*	Cudweed	Exotic
Asteraceae	*Hypochaeris*	*radicata*	Flatweed	Exotic
Asteraceae	*Ozothamnus*	*diosmifolius*	White Dogwood	Native
Asteraceae	*Senecio*	*prenanthoides*		Native
Asteraceae	*Senecio*	*quadridentatus*	Cotton Fireweed	Native
Asteraceae	*Sigesbeckia*	sp.		Native
Asteraceae	*Sonchus*	*oleraceus*	Common Sowthistle	Exotic
Asteraceae	*Xerochrysum*	*bracteata*	Golden Everlasting	Native
Boraginaceae	*Echium*	*plantagineum*	Paterson's Curse	Exotic
Boraginaceae	*Echium*	*vulgare*	Vipers Bugloss	Exotic
Brassicaceae	*Hirschfeldia*	*incana*	Hairy Brassica	Exotic
Campanulaceae	*Wahlenbergia*	*stricta* subsp. *stricta*	Tall Bluebell	Native
Caryophyllaceae	*Cerastium*	*glomeratum*	Mouse-ear Chickweed	Exotic
Casuarinaceae	*Allocasuarina*	*littoralis*	Forest Oak	Native
Chenopodiaceae	*Chenopodium*	*album*	Fat Hen	Exotic
Chenopodiaceae	*Einadia*	*hastata*	Berry Saltbush	Native
Chenopodiaceae	*Einadia*	*nutans*	Climbing Saltbush	Native
Clusiaceae	*Hypericum*	*perforatum*	St. John's Wort	Exotic
Crassulaceae	*Crassula*	*decumbens*		Native
Cyperaceae	*Lepidosperma*	*gunnii*		Native
Ericaceae - Epacridoideae	*Brachyloma*	*daphnoides*	Daphne Heath	Native
Ericaceae - Epacridoideae	*Leucopogon*	*virgatus*		Native
Fabaceae - Faboideae	*Daviesia*	*genistifolia*	Broom Bitter Pea	Native
Fabaceae - Faboideae	*Daviesia*	*latifolia*		Native
Fabaceae - Faboideae	*Mirbelia*	*pungens*		Native
Fabaceae - Mimosoideae	*Acacia*	*baileyana*	Cootamundra Wattle	Native**

Family	Genus	Species	Common name	Native/ Exotic
Fabaceae - Mimosoideae	*Acacia*	*decurrens*	Black Wattle	Native
Fabaceae - Mimosoideae	*Acacia*	sp.		Native
Fabaceae - Mimosoideae	*Acacia*	*paradoxa*	Kangaroo Thorn	Native
Lauraceae	*Cassytha*	*glabella*		Native
Myrtaceae	*Eucalyptus*	*blakelyi*	Blakey's Red Gum	Native
Myrtaceae	*Eucalyptus*	*macrorhyncha*	Red Stringybark	Native
Myrtaceae	*Eucalyptus*	*rossii*	Inland Scribbly Gum	Native
Myrtaceae	*Leucopogon*	*muticus*	Blunt Beard-heath	Native
Orchidaceae	Diuris	*pardina*	Leopard Orchid	Native
Oxalidaceae	*Oxalis*	*perennans*		Native
Papaveraceae	*Fumaria*	*muralis* subsp. *muralis*	Wall Fumitory	Exotic
Phormiaceae	*Dianella*	*revoluta* var. *revoluta*	Blue Flax-lily	Native
Phormiaceae	*Stypandra*	*glauca*	Nodding Blue Lily	Native
Plantaginaceae	*Plantago*	*lanceolata*	Lamb's Tongue	Exotic
Poaceae	*Aira*	*cupaniana*	Silvery Grass	Exotic
Poaceae	*Austrostipa*	*scabra*	Speargrass	Native
Poaceae	*Austrostipa*	sp.		Native
Poaceae	*Briza*	*maxima*	Quaking Grass	Exotic
Poaceae	*Bromus*	*diandrus*	Great Brome	Exotic
Poaceae	*Echinopogon*	*caespitosus*	Bushy Hedgehog-grass	Native
Poaceae	*Ehrharta*	*erecta*	Panic Veldtgras	Exotic
Poaceae	*Eragrostis*	*curvula*	African Lovegrass	Exotic, RPW
Poaceae	*Lolium*	sp.	Rye Grass	Exotic
Poaceae	*Rhytidosperma*	*fulvum*		Native
Poaceae	*Rhytidosperma*	*pallidum*	Red Anther Wallaby Grass	Native
Poaceae	*Rhytidosperma*	sp.		Native
Poaceae	*Vulpia*	sp.		Exotic
Polygonaceae	*Acetosella*	*vulgaris*	Sorrel	Exotic
Portulacaceae	*Calandrinia*	*eremaea*		Native
Proteaceae	*Grevillea*	*acanthifolia*		Native
Proteaceae	*Grevillea*	*arenaria* subsp. *arenaria*	Sand Grevillea	Native
Proteaceae	*Persoonia*	*linearis*	Narrow-leaved Geebung	Native
Proteaceae	*Persoonia*	*mollis* subsp. *livens*		Native
Pteridaceae	*Cheilanthes*	*sieberi*		Native
Rosaceae	*Prunus*	sp.	Peach /Cherry Tree	Exotic

Family	Genus	Species	Common name	Native/ Exotic
Rosaceae	*Rubus*	*fruticosus*	Blackberry	Exotic, WONS, SPW
Santalaceae	*Exocarpos*	*strictus*		Native
Thymelaeaceae	*Pimelea*	*linifolia* subsp. *linifolia*	Slender Rice Flower	Native

++ = Garden Escape; WONS – Weed of National Significance; SPW = State Priority Weed, RPW = Regional Priority Weed

Appendix D: Fauna species inventory

Family	Scientific name	Common name	Native/Exotic
Aves			
Corvidae	*Corvus coronoides*	Australian Raven	Native
Laridae	*Larus novaehollandiae*	Silver Gull	Native
Meliphagidae	*Anthochaera chrysoptera*	Little Wattle Bird	Native
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	Native
Sturnidae	*Acridotheres tristis*	Common Myna	Exotic
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis	Native
Mammalia			
Leporidae	*Oryctolagus cuniculus*	European Rabbit	Exotic