ARUP

Cleanaway Operations Pty Ltd

Bromelton Energy and Resource Centre

Stormwater Management Plan and Flood Risk Assessment

Reference: BERC-ARU-BNE-SWMP-RPT-0001

C | 04 February 2026

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 293683-00

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Document Verification

Project title	Bromelton Energy and Resource Centre
Document title	Stormwater Management Plan and Flood Risk Assessment
Job number	293683-00
Document ref	BERC-ARU-BNE-SWMP-RPT-0001
File reference	

Revision	Date				
		Filename	Stormwater Management Plan and Flood Risk Assessment_A		
A	05 Sep 2025	**Description**	Draft Issue		
			Prepared by	**Checked by**	**Approved by**
		Name	Emily Fuller	Toby Heading	Euan Mitchell
		Signature			
B	26 Sep 2025	**Filename**	Stormwater Management Plan and Flood Risk Assessment_B		
		Description	Issue for Adequacy Review		
			Prepared by	**Checked by**	**Approved by**
		Name	Emily Fuller	Toby Heading	Euan Mitchell
		Signature			
C	04 Feb 2026	**Filename**	Stormwater Management Plan and Flood Risk Assessment_C		
		Description	Issue for Approval		
			Prepared by	**Checked by**	**Approved by**
		Name	Toby Heading	Euan Mitchell	Euan Mitchell
		Signature			

Issue Document Verification with Document ☑

Contents

Abbreviations and glossary 1

Executive Summary 3

1. Introduction 4

1.1 Purpose of Assessment 4

1.2 Project Description 4

2. Regulatory Context 8

2.1 Commonwealth Legislation, policy and guidelines 8

2.2 State legislation, policy and guidelines 8

3. Site Context 18

3.1 Site Description 18

3.2 Site Location and Surroundings 18

3.3 Recent Site History 20

4. Assessment Methodology 21

5. Existing Site Conditions 23

5.1 Existing Topography and Catchment delineation 23

5.2 Existing Stormwater Infrastructure 25

5.3 Existing Watercourses 26

5.4 Existing Flood Behaviour 27

6. Concept Engineering Design 29

6.1 Levels and Grading 29

6.2 Stormwater Management 31

6.3 Flood Impact Assessment 41

7. Assessment of Surface Water Risks 44

7.1 Construction 44

7.2 Operation 44

8. Proposed mitigation of impacts 46

8.1 Construction 46

8.2 Operation 46

9. Conclusions 48

9.1 Compliance with State Codes 49

9.2 Compliance with SeqWater Guidelines 52

10. References 55

Tables

Table 1: Key Project Components 6

Table 2: Relevant Engineering Standards 11

Table 3: Development Setback Assessment 30

Table 4: Rainfall Data from Bromelton 31

Table 5: Pre Development Stormwater Discharge & Assessment Parameters 32

Table 6: Comparison of Pre and Post Development Catchment Areas within developed footprint 32
Table 7: Extract of Table 7.3.1 from QUDM 34
Table 8: Detention basin design 34
Table 9: Stormwater Pollutant Reduction Targets 36
Table 10: Water Quality Parameters Modelled 37
Table 11: Summary of MUSIC Model Results 38
Table 12 Comparison of Peak Flows at Existing Off-Site Culvert Crossings 41
Table 13: Construction mitigation measures for Surface Water & Flooding 46
Table 14: Operational mitigation measures for Surface Water & Flooding 46
Table 15: Assessment of State Code 1 49
Table 16: Assessment of State Code 2 50
Table 17: Assessment of State Code 22 52
Table 18: Assessment of Seqwater Development Guideline 2024 Final 52

Figures

Figure 1: Energy from Waste Process 5
Figure 2: Site Location Plan 7
Figure 3: Bromelton SDA (Source: Bromelton SDA Development Scheme) 9
Figure 4: Smart Map (Source: Qld Globe). Red outline is the Project area boundary. 18
Figure 5: Site and Surrounds (Source: Qld Globe) 20
Figure 6: Pre-Development Catchment Plan 24
Figure 7: Existing Watercourses (source: QLD Globe) 26
Figure 8: Existing Case TUFLOW Model Setup 27
Figure 9: Existing Conditions 1% AEP Peak Flood Depth 28
Figure 10: Concept Design Site Plan 29
Figure 11: Post-Development Catchment Plan (Note – Red Line denotes split between catchments 1 & 2) 33
Figure 12: Aerial Image of site showing location of Existing Farm Dams (Source: Google Maps) 35
Figure 13: Bio-retention and On-Site Detention Basin Configuration 36
Figure 14: MUSIC Model Schematisation for Northern Catchment 37
Figure 15: MUSIC Model Schematisation for Southern Catchment 38
Figure 16: 1% AEP Flow Comparison at Location (A) Railway Culvert 42
Figure 17: 1% AEP Flow Comparison at Location (B) Beaudesert Road Culvert 42
Figure 18: Design Case TUFLOW Model Setup and Reporting Location 42
Figure 19: Design Conditions 1% AEP Peak Flood Depth 43
Figure 20: Design Conditions 1% AEP Peak Flood Impact (Change in peak flood depth) 43

Photographs

Photograph 1 – Existing box culvert 24
Photograph 2 – Culvert discharging into channel north of the Project area. 24
Photograph 3 – View of cascading farm dams with railway corridor in the distance 25
Photograph 4 – View of culvert passing under railway line. 25

Appendices

Appendix A - Topographical Survey 56
Appendix B – Concept Civil Design Drawings 57
Appendix C – Stormwater Drainage Calculations 58
Appendix D - MUSIC Model Outputs 59
Appendix E – Correspondence with Seqwater 60
Appendix F - Flood Mapping 61
Appendix G – Logan River Regional Flood Map 62



Acknowledgement of Country

Arup acknowledges the Traditional Owners across all lands, waters and skies our firm may reach; we acknowledge their wisdom, resilience, and rich cultural heritage. We pay our respects to the Elders, past and present, and to all Aboriginal and Torres Strait Islander peoples.

'Continuing to Shift to shape an even better world' original artwork by Tarni O'Shea of Gilimbaa and updated by David Williams of Gilimbaa.

Abbreviations and glossary

Abbreviation	Definition
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
APCr	Air Pollution Control residue
ARI	Average Recurrence Interval
BoM	Bureau of Meteorology
BREF	Best Available Techniques Reference Document
CEMP	Construction Environmental Management Plan
CSIRO	Commonwealth Scientific Independent Research Organisation
DES DETSI	Department of Environment and Science (formerly) Department of the Environment, Tourism, Science and Innovation
DRDMW DLGWV	Department of Regional Development, Manufacturing and Water (formerly) Department of Local Government, Water and Volunteers
DSDILGP DSDIP	Department of State Development, Infrastructure, Local Government and Planning (formerly) Department of State Development, Infrastructure and Planning
EA	Environmental Authority
EfW	Energy from waste
EMP	Environmental Management Plan
EP Act	*Environment Protection Act 1994* (Qld)
EP Regulation	Environmental Protection Regulation 2019 (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPC	Engineering, Procurement and Construction
EPP Air	Environment Protection (Air) Policy 2019 (Qld)
EPP Noise	Environmental Protection (Noise) Policy 2019 (Qld)
EPP Water and Wetland Biodiversity	Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Qld)
ERA	Environmentally Relevant Activity
ESC	Erosion and Sediment Control
EVOS	Environmental Values and Objectives
ESCP	Erosion and Sediment Control Plan
EU	European Union
FEED	Front End Engineering Design

Abbreviation	Definition
GDE	Groundwater Dependent Ecosystems
GPT	Gross Pollutant Trap
HV	High Voltage
IBA	Incinerator Bottom Ash
IBAA	Incinerator Bottom Ash Aggregate
IED	European Industrial Emissions Directive
IFD	Intensity Frequency Duration
LGA	Local Government Area
MCU	Material Change of Use
MUSIC	Model for Urban Stormwater Improvement Conceptualisation
m	Metres
mAHD	Elevation in Metres (with respect) to Australian Height Datum
Planning Act	*Planning Act 2016* (Qld)
PMF	Probable Maximum Flood
QUDM	Queensland Urban Drainage Manual (4th Edition)
RL	Reduced Level
SDA	State Development Area
SDAP	State Development Assessment Provisions
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
t	Tonnes
TMR	Queensland Department of Transport and Main Roads
tpa	Tonnes per annum
TEEP	Technically, Environmentally and Economically Practical

Executive Summary

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing an energy from waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC /the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert.

This report provides information relevant to the stormwater management and flood risk across the Project area, details the flood modelling undertaken and documents the potential changes in flood risk due to the proposed development activities.

The subject site is currently steeply sloping pastural land comprising grasses with low density shrubs and trees. It is bounded to the north by Beaudesert Boonah Road and a state-owned railway corridor to the east. Three cascading farm dams are positioned along a central overland flow path which conveys water to an existing 1.8m high brick culvert below the railway corridor. This overland flow path is to be retained and is not impacted by the development of the facility although one of the proposed stormwater basins discharges to this flow path.

Stormwater designs have been designed in accordance with Queensland Urban Drainage Manual (QUDM) and Australian Rainfall and Runoff (2019), as prescribed within Bromelton State Development Area Development Scheme (December 2017). Post development discharge flows match pre-development discharges for a 10-year Average Recurrence Interval (ARI) event. Two on-site detention basins have been provided to manage stormwater flows.

Modelling using the software program MUSIC demonstrates that the water sensitive urban design and water recycling measures meet pollution reduction targets required by Seqwater and comply with Performance Outcome PO14 of Seqwater's Water Quality Management in Drinking Water Catchments development guideline. Rainwater harvesting has been integrated within the design with four rainwater harvesting tanks provided.

A lined retention basin is proposed to serve the Incinerator Bottom Ash Aggregate (IBAA) hardstand. Runoff is to be captured, stored and re-used as part of the maturation process of the stockpiled ash materials. Physical separation in the form of grading and upstands will used to separate the IBA maturing hardstand from adjacent roadways.

A two-dimensional flood model was created using TUFLOW (version 2023-03-AB) software. The TUFLOW model adopted a direct rain on grid approach to generate flows for the contributing catchment.

Flood modelling of the post-development scenario demonstrates that the Project does not result in a material worsening of the operating performance of the state controlled road or railway corridor adjacent to the site in the 1% Annual Exceedance Probability (AEP) event including climate change factors.

Modelling shows that stormwater runoff does not create or exacerbate a safety hazard within state transport infrastructure, which includes Beaudesert-Boonah Road and the railway corridor.

1. Introduction

1.1 Purpose of Assessment

This report provides the Stormwater Management Plan and Flood Risk Assessment for BERC. The purpose of this report is to demonstrate compliance with the following planning and regulatory requirements:

- Bromelton State Development Area Development Scheme (December 2017)
- State Development Assessment Provisions Version 3.3 (18 July 2025)
- Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment
- Scenic Rim Council Planning Scheme 2020
- Relevant requirements of State Codes including codes 1, 2 and 22.

This report provides information relevant to the existing site hydrology and flood risk across the study area, details the flood modelling undertaken and documents the potential changes in flood risk due to the proposed development activities. The assessment considers best practice requirements for the construction and operation of an EfW facility.

1.2 Project Description

1.2.1 Project Overview

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing an Energy from Waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC) (the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert within the Scenic Rim Regional Council local government area.

The Project has been designed to thermally treat approximately 760,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. Residual waste is waste that is not technically, environmentally and economically practical (TEEP) to reuse or recycle, which would otherwise be sent to landfill for disposal. The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (836,000 tpa). The EfW process is summarised in Figure 1.

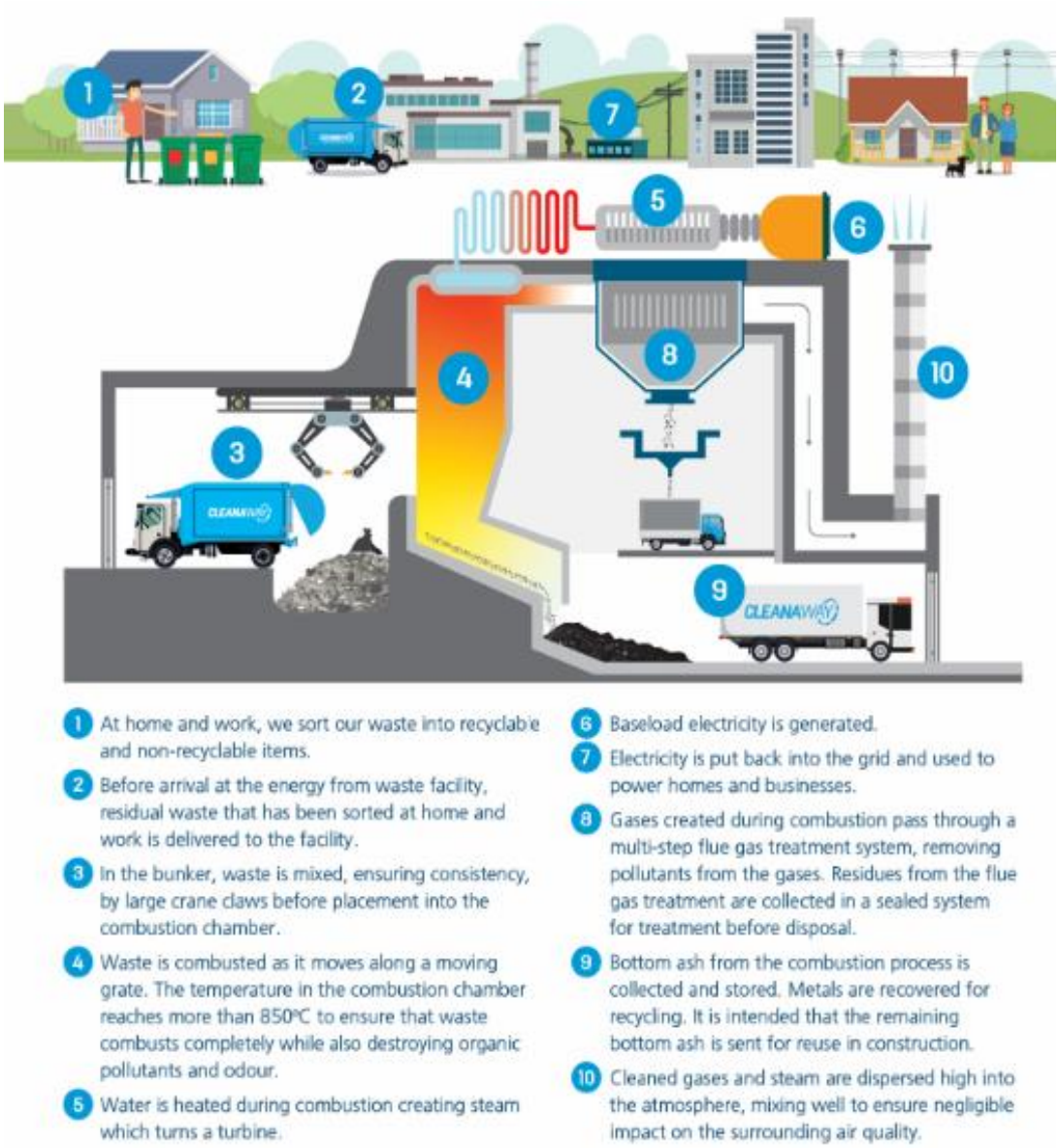


Figure 1: Energy from Waste Process

1.2.2 Proponent

Cleanaway, an Australian owned company, has operated for more than 50 years, supporting industry, government, communities and households across Australia. Its mission is to make a sustainable future possible, achieved through action across all levels of the waste hierarchy. Waste generation is minimised through extensive education programs, with Cleanaway's 50 education officers reaching over 120 businesses, 30 councils, and almost 33,000 school participants in the last financial year.

Cleanaway invests heavily in recycling, operating several Material Recovery Facilities nationwide and has partnered with Pact Group, Asahi Beverages and Coca-Cola to deliver two large-scale PET (polyethylene terephthalate) recycling facilities and a HDPE (high density polyethylene) recycling facility with Pact Group. In addition, in collaboration with Viva Energy, Cleanaway is developing a soft plastics recycling plant. EfW is recognised by Cleanaway as an important part of the future waste management framework, enabling recovery of energy and other resources from residual waste that cannot otherwise be recycled.

1.2.3 Policy Alignment

The BERC aligns with the Queensland EfW Policy and the Queensland EfW Guideline (2021) by diverting residual waste from landfill and delivering economic and social benefits through employment and local business opportunities in South East Queensland.

In accordance with Policy outcome 7 of the Queensland EfW Policy, the BERC will be designed to meet the best practice emission standards and requirements of the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration (2019), which sets the European Union environmental standards for waste incineration.

The Project also supports the Queensland Waste Strategy contributing to its 2050 targets to reduce household waste by 25%, recycle 75% of all waste, and divert 90% from landfill. In doing so, the BERC will play a key role in advancing Queensland's transition to a circular economy and reducing long-term reliance on landfill.

1.2.4 Key Components

The key components of the Project are summarised in Table 1.

Table 1: Key Project Components

Project Component	Detail
Address	Lot 1 Beaudesert Boonah Road, Bromelton, Queensland, 4285 (Lot 1 on RP45234). Refer Figure 2.
Site Area	63 hectares
Summary of proposed works	The project includes the construction of a main EfW facility for waste processing, incinerator bottom ash (IBA) maturation and processing facility and an air pollution control residue (APCr) facility. It also includes all onsite infrastructure needed for the EfW facility, such as site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Project will include a visitor centre to help educate and inform the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process. The intent behind this education is to drive a shift in community awareness and attitudes toward waste management and resource recovery.
Technology Used	The proposed technology is moving grate combustion technology. This has been used globally for over 100 years and is common in many of the 500 similar operational examples across Europe.
Facility Outputs	Approximately 73.2MW (577,600 MWh/year, corrected for ambient temperature) exported to grid as baseload electricity. Potential to supply energy in the form of heat and/or process steam to local industrial users. Residual material include IBA and APCr. It is intended that the IBA will be mechanically processed on site to create incinerator bottom ash aggregate (IBAA). During the process, both ferrous and non-ferrous metals are recovered for recycling and sale. It is intended that the remaining material is re-purposed for use as an aggregate in construction. The Project includes a facility to stabilise APCr before removal and disposal at a licensed landfill.
Key Infrastructure	EfW facility including administration and visitor's centre IBA maturation and processing facility (2 x pads and 2 x sheds) APCr facility (1 x pad, 1 x shed) Transformer yard and switchyard De-coupling area for trucks Weighbridges Internal road network and carparking 2 x combined storm water treatment and detention basin 1 x lined retention basin Access from Beaudesert Boonah Road via a signalised intersection with Recycling Street

Project Component	Detail
Hours of Operation	24 hours per day, seven days per week (365 days per year)
Operational Staff	Approximately 60 staff



Figure 2: Site Location Plan

2. Regulatory Context

This section set out the legislation, policy and guidelines applicable to the stormwater and flood risk assessment.

2.1 Commonwealth Legislation, policy and guidelines

There is no Commonwealth legislation applicable to the stormwater and flood risk assessment; however, the following Commonwealth guidelines applicable to the assessment include:

- Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR, 2017).
- Australian Rainfall and Runoff (ARR) (Ball, et al., 2019).

2.2 State legislation, policy and guidelines

2.2.1 Queensland Energy from Waste Policy and Guideline

The legislative context for EfW facilities in Queensland is given by the Queensland Energy from Waste Policy and Guideline. The Queensland EfW policy aims to ensure Queensland's EfW sector is developed in an environmentally and socially sound manner. The Queensland EfW Policy seeks to position EfW as an alternative to landfill, and not as an alternative to recycling, as part of a longer-term, integrated waste management system solution.

The policy and guidelines set out technical and environmental requirements, including compliance with international best practice. European Union guidelines for waste to energy technologies provide guidance where local and national guidelines are not available. These international guidelines include:

- The Industrial Emissions Directive (IED) 2010 (2010/75/EU).
- European Union Best Available Techniques Reference Document for Waste Incineration (WI BREF, 2019) and associated BAT Conclusions (BATC) for Waste Incineration (2019).

2.2.2 Bromelton State Development Area and Development Scheme

In 2008, the Coordinator-General of Queensland declared the Bromelton State Development Area (SDA) in accordance with the *State Development and Public Works Organisation Act 1971* (SDPWO Act). The Bromelton SDA comprises an area of approximately 15,610 ha of land located in the Scenic Rim Regional Council local government area, approximately 6 km west of the town of Beaudesert (refer Figure 1).

The purpose of the SDA is to promote and facilitate economic development in Queensland, and more specifically to support the growing demand for medium to large scale industries and difficult to locate industries. The Bromelton SDA Development Scheme ('Development Scheme') was prepared, outlining a development assessment framework and processes for making, assessing and deciding SDA applications. SDA applications are made to, assessed and determined by the Coordinator-General, with input from relevant referral agencies.

The site is located within the Special Industry Precinct. The proposed BERC constitutes a Material Change of Use for Special Industry and is assessable development under the Development Scheme. The SDA application is assessed against the following parts of the Development Scheme to the extent relevant:

- Strategic vision for the Bromelton SDA
- Overall objectives for development in the Bromelton SDA
- Preferred development intent for the applicable development precinct
- SDA-wide assessment criteria.

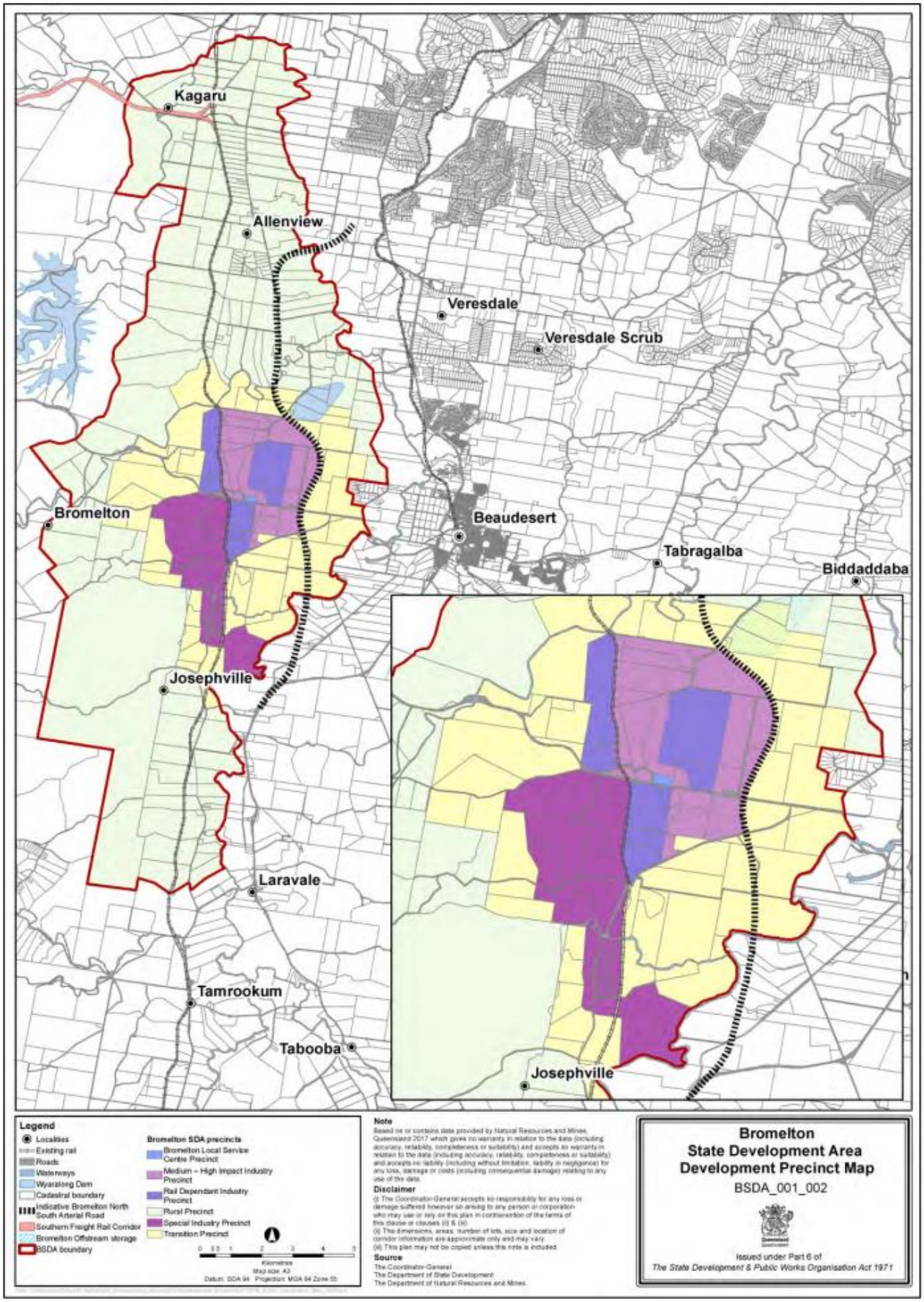


Figure 3: Bromelton SDA (Source: Bromelton SDA Development Scheme)

Overall objectives for development in the Bromelton SDA include the following (those in bold are relevant to this report):

(a) be consistent with the strategic vision for the Bromelton SDA and the development precinct

(b) ensure the integrity and long-term functionality of the Bromelton SDA is maintained and protected from land uses and activities that may be incompatible with, or adversely affect, the continued use of the Bromelton SDA for industrial development of regional, State and national significance

(c) avoid new sensitive land uses and other incompatible land uses which could restrict the ability to establish and operate industrial development within the Bromelton SDA

(d) maximise the efficient use of land, and existing and planned infrastructure

(e) minimise adverse impacts on infrastructure and infrastructure corridors

(f) support the safe and efficient function and operation of existing and planned transport infrastructure

(g) include site specific stormwater and waste water controls to avoid potential adverse impacts on the water quality of receiving waters and water assets

(h) protect, and where possible, enhance the values of water supply catchments and key water supply infrastructure to ensure a safe and secure water supply

(i) manage the risks associated with natural hazards, to protect people and property

(j) avoid adverse impacts on environmental, cultural heritage and community values, or minimise and mitigate impacts where they can't be reasonably avoided

(k) be located, designed and constructed in accordance with best practice principles and

(l) be located and designed to avoid impacts on the ongoing operation of quarries within key resource areas and their haulage routes.

The SDA-wide assessment criteria relevant to this assessment include the following:

Services

1) Development plans for and addresses the impacts of the development on existing and future planned telecommunications, transport, water, wastewater, recycled water and energy networks.
2) Development is adequately services by telecommunications, transport, water, wastewater, recycled water and energy networks as relevant.
3) Development is located, designed and constructed to avoid or mitigate potential flood damage, ensure no net worsening, avoid risks to public safety and not adversely impact on transport and service infrastructure.

Natural hazards – flooding

1) Development, in accordance with current best practice, is to:
    a. Achieve an appropriate level of flood immunity and
    b. Not adversely affect existing flow rates, flood heights or cause or contribute to other flooding impacts on upstream, downstream or adjacent properties. This includes potential impacts from changes to stormwater flows and local flooding.
2) The risk of, and the adverse impacts from, flooding are avoided, minimised or mitigated to protect people or property, and enhance the community's resilience to flooding.
3) Development maintains the safety of noxious and hazardous materials and chemicals manufactured or stored in bulk during flood events.

Water Quality

1) Development, consistent with the Environmental Protection (Water) Policy 2009, avoids potential adverse impacts on the environmental values and water quality objectives of receiving waters, arising from:

    a) Altered stormwater quality or flow

    b) Wastewater (other than contaminated stormwater and sewage) and

    c) The creation or expansion of non-tidal artificial waterways.

2) Developments protects the ecological and hydraulic function of water assets within and adjacent to the Bromelton SDA.

3) Development incorporates current best practice integrated water cycle management strategies and integrates water sensitive urban design principles.

Energy and Water Efficiency

1) The use of reticulated water supply is minimised through alternative water supply sources, including:

    a. Rain Water Harvesting and

    b. Recycled Water Sources

Development is to be designed and constructed in accordance with the relevant engineering standards (and any subsequent revisions to the relevant standards) stated below.

Table 2 provides the relevant engineering standards that are referenced in the SDA development scheme.

Table 2: Relevant Engineering Standards

Design Item	Relevant Engineering Standard	Related objective/Performance Outcome
Sewer and water	Standards of the relevant water and sewerage service provider (e.g. Queensland Urban Utilities)	Guidelines cover the design and documentation of civil components of water reticulation and sewerage assets.
	South East Queensland (SEQ) Water Supply and Sewerage Design and Construction Code	The SEQ Water Supply and Sewerage Design and Construction Code is a set of guidelines and standards that govern the planning, design, construction, and operation of water supply and sewerage infrastructure in South East Queensland, Australia. This code is typically administered by relevant water authorities or government bodies responsible for water supply and sewerage services in the region. The objective of the guideline is to establish the key criteria to be applied in the design of water supply and sewerage reticulation infrastructure to meet current and future needs of the SEQ region. Developed by the SEQ Water Service Providers (SEQ-SPs).
Water quality	Development Guidelines for Water Quality Management and Drinking Water Catchments 2012	The Seqwater Development Guidelines provide an assessment framework to manage the risk of development activities in the drinking water catchments in SEQ (South East Queensland). The below performance outcomes are used as assessment benchmarks for assessable development: **P02** – Development does not discharge wastewater unless demonstrated to not compromise the drinking water supple environmental values. **A02.1** – Development does not generate wastewater. **A02.2** – If development generates wastewater, the wastewater is collected and contained on-site, and is: a. Lawfully disposed to sewer;

Design Item	Relevant Engineering Standard	Related objective/Performance Outcome
		b. Transferred off-site for treatment/disposal to an appropriately licensed facility; c. Reused on-site in a closed-cycle irrigation scheme, industrial processes, washing/cleaning or other purposes; or d. Treated to meet the drinking water supply environmental values prior to release. Note: Where development involves the release of wastewater, a Wastewater Management Plan (WWMP) is to be prepared by a suitably qualified person. **P03** - Where treated wastewater is irrigated to land, it will: a. be confined to a dedicated area of land on-site; b. be suitably located and sized; and c. use irrigation practices that will not harm groundwater and on-site surface water quality. **P010** – Development protects and enhances riparian vegetation so that it protects against bank erosion and filters sediments, nutrients and other pollutants to ensure the environmental values for the supply of drinking water are not compromised. **A010.1** – Vegetation Clearing does not occur within the following vegetation separation distances: a) 25m to a stream order 1-3; b) 50m to a stream order 4 or greater. c) 200m to a full supply level of a dame, lake or reservoir or watercourse that serves as potable water supply. And **A010.2** – Vegetation Clearing is not undertaken at or below the 1% AEP flood event (including climate change factors) or on a slope greater than 15%. **P011** Stormwater drainage conveys runoff in a manner that: a) Minimises risk to public safety, the environment and drinking water source areas; and b) Provides a lawful point of discharge from each lot; and c) Does not worsen drainage impacts on neighbouring sites. **P013** – Manage stormwater at the construction phase to protect drinking water supply environmental values and facilitate the achievement of water quality objectives for receiving waters. **A013.1** – At the construction stage, an erosion and sediment control program (ESCP) demonstrates that stormwater achieves the design objectives listed in Table A of the SPP (Appendix 2): Construction Phase – Stormwater management design objectives. Or **A013.2** – An ESCP demonstrates how stormwater quality will be managed at the construction stage in accordance with an acceptable regional or local guideline sot that target contaminants are treated to a design objective at least equivalent to Table A of the SPP.

Design Item	Relevant Engineering Standard	Related objective/Performance Outcome
		Or **A013.3** Stormwater runoff generated during construction is captured and transferred off-site or captured and treated to any applicable re-use standards and re-used on site. **P014** – Development is located and designed to improve stormwater quality so that water source areas achieve aquatic ecosystem water quality objectives including drinking water supply environmental values **A014.3** – Stormwater runoff generated during operation (post-construction) demonstrates a minimum reduction in mean annual load from unmitigated development that achieves the following stormwater management design objectives: • 85% reduction in total suspended solids; • 65% reduction in total phosphorus; • 45% reduction in total nitrogen; and • 95% reduction in gross pollutants.
Stormwater quality	Water sensitive urban design: Design objectives for urban stormwater management	As part of the drainage strategy required by the responsible drainage authority, developers need to demonstrate either that the proposed development will not affect the downstream systems, or that the proposed stormwater treatment measures will sufficiently mitigate potential water quality and quantity impacts.
	Environmental Protection Policy (Water)	Purpose of this policy is achieved by: a) Identifying environmental values and management goals for Queensland waters b) Stating water quality guidelines and water quality objectives to enhance or protect the environmental values c) Providing a framework for making consistent, equitable and informed decisions about Queensland waters d) Monitoring and reporting on the condition of Queensland waters. Management hierarchy for surface or ground water To the extent it is reasonable to do so, release of waste water or contaminants to waters must be dealt with using the following hierarchy of preferred procedures: a) Evaluate water conservation measures to reduce the use of water and the production of waste water or contaminants b) Evaluate waste prevention options and implement appropriate waste prevention measures c) If waste prevention does not, or is not likely to, eliminate the release of waste water or contaminants to waters, evaluate treatment and recycling options and implement appropriate treatment and recycling d) If treatment and recycling does not, or is not likely to, eliminate the release of waste water or contaminants to waters, evaluate the following options for waste water or contaminants, in the order in which they are listed: a. Appropriate treatment and release to a waste facility or sewer b. Appropriate treatment and release to land

Design Item	Relevant Engineering Standard	Related objective/Performance Outcome
		c. Appropriate treatment and release to surface waters or ground waters.
	Water Sensitive Urban Design Technical Design Guidelines for South East Queensland	Design objectives are specific and measurable water management targets, selected to meet desired outcomes, such as protection of downstream environmental values. The adopted design objectives for the checking curves are to achieve the following reductions in mean annual pollutant load leaving a development site: • > = 80% reduction in total suspended solids • > = 60% reduction in total phosphorus load. • > = 45% reduction in total nitrogen load. • > = 90% reduction in gross pollutant load.
	Construction and Establishment Guidelines, Swales, Bioretention Systems and Wetlands	Water by Design and others have developed tools and guidelines to assist practitioners in applying a Water sensitive urban design (WSUD) approach in Queensland, including using bioretention systems, constructed wetlands, and other vegetated stormwater assets to achieve post-construction phase stormwater management design objectives (SMDOs). This can involve using bioretention systems and constructed wetlands to improve the quality and reduce the quantity of stormwater generated by urban development and released to receiving waters or stormwater networks. This document provides guidelines for: - Construction: all civil works involved in building or constructing an asset, including earthworks and the installation of hydraulic, functional, and other components. - Establishment: all landscape works involved in bringing an asset to an operational and resilient state, including mulching, planting, watering, and weeding.
	Healthy Waterways - Water Sensitive Urban Design Technical Design Guidelines for South East Queensland	Design objectives are specific and measurable water management targets, selected to meet desired outcomes, such as protection of downstream environmental values. The adopted design objectives for the checking curves are to achieve the following reductions in mean annual pollutant load leaving a development site: • > = 80% reduction in total suspended solids • > = 60% reduction in total phosphorus load. • > = 45% reduction in total nitrogen load. • > = 90% reduction in gross pollutant load.
	Concept Design Guidelines for Water Sensitive Urban Design	The Concept Design Guidelines were developed to assist interdisciplinary teams to conceptualise and develop design best practice water management solutions throughout the urban development to ensure compliance with legislative and planning requirements as well as result in well-designed urban form.
Stormwater quantity	Queensland Urban Drainage Manual (QUDM)	The Queensland Urban Drainage Manual (QUDM) is a comprehensive guide that provides technical guidance and standards for managing urban drainage systems in the Australian state of Queensland. The primary purpose of the QUDM is to assist engineers, planners, and developers in designing, constructing, operating, and maintaining

Design Item	Relevant Engineering Standard	Related objective/Performance Outcome
		urban drainage systems that effectively manage stormwater and mitigate flood risks in Queensland's urban areas. The QUDM covers a wide range of topics related to urban drainage, including hydrology, hydraulics, water quality management, and sustainable drainage practices. Table 7.3.1 outlines recommended design average recurrence intervals (ARI) and annual exceedance probabilities (AEP) from the minor storm.
	Australian Rainfall and Runoff – where referenced in QUDM	No Performance Outcomes nominated.

2.2.3 Queensland *Environmental Protection Act 1994*, Regulations and Policies

The Environmental Protection Act 1994 (EP Act) provides for the management of the environment in Queensland. The Environmental Protection Regulation 2019 (EP Reg) provides the environmental objectives and performance outcomes that are to be complied with for environmental decisions relating to a prescribed Environmentally Relevant Activity (ERA). BERC will require an environmental authority for conducting ERAs, including but not limited to ERA 61 Thermal Waste Processing and Treatment. ERA 63 Sewage treatment has also been considered for the site; however, is not being triggered due to the proposed management approach to sewer flows, and thus this ERA is not relevant.

Relevant environmental objectives and performance outcomes stated in the Schedule 8 of the EP Reg for this report are provided below.

Environmental Objective

The activity will be operated in a way that protections environmental values of waters.

Performance Outcomes

1. There is no actual or potential discharge to waters of contaminants that may cause an adverse effect on an environmental value from the operation of the activity.
2. All of the following –
    a. The storage and handling of contaminants will include effective means of secondary containment to prevent releases to the environmental from spillage or leaks;
    b. Contingency measures will prevent or minimise adverse effects on the environmental due to unplanned releases or discharges of contaminates to water;
    c. The activity will be managed so that stormwater contaminated by the activity that may cause an adverse effect on an environmental value will not leave the site without prior treatment;
    d. The disturbance of any acid sulfate soil, or potential acid sulfate soil will be managed to prevent or minimis adverse effects on environmental values.
    e. Acid producing rock will be managed to ensure that the production and release of acidic waste is prevented or minimised, including during operation and after the environmental authority has been surrendered.
    f. Any discharge to water or watercourse or wetland will be managed so that there will be no adverse effects due to the altering of existing flow regimes for water or watercourse of wetland.
    g. For a petroleum activity, the activity will be managed in a way that is consistent with the coal seam gas water management policy, including the prioritisation hierarchy for managing and using coal seam gas water and the prioritisation hierarchy for managing saline water.

h. The activity will be managed so that adverse effects or environmental values are prevented or minimised.

The EP Act gives the Department of Environment and Science (DES) the power to create Environmental Protection Policies that identify, and aim to protect, environmental values. Of relevance to this report is the Environmental Protection (Water and Wetland Biodiversity) Policy 2019: The purpose of this policy is to achieve the object of the EP Act in relation to water and wetlands by:

- Identifying environmental values for waters and wetlands to be enhanced or protected.
- Identifying management goals for waters
- Stating water quality guidelines and quality objectives for enhancing or protecting the environmental values of water
- Providing a framework for making consistent, equitable and informed decisions about waters
- Monitoring and reporting on the condition of waters.

The administering authority must consider the requirements of the EPP when it decides an application for an environmental authority, amendment of a licence or approval of a draft environmental management plan.

Also relevant is DES' guideline Application requirements for activities with impacts to water (Impacts to Water Guideline, ESR/2015/1837), which outlines the information to be provided as part of the application process for environmentally relevant activities and how the information is used. This outlines how the proposed activity will be assessed by comparison with the requirements stipulated in the EP Act.

Another consideration is the potential to release prescribed water contaminants to waters. Prescribed water contaminants include a wide variety of contaminants from inert substances such as earth, clay, gravel and sediment to substances such as chemicals, contaminants with a high or low pH, construction and building waste, and oil. There is a requirement for ensuring that stormwater falling on or running across a site does not leave the site contaminated. Where contamination of stormwater occurs, measures to treat the stormwater to remove contaminants must be included. Also of relevance is the storage of materials onsite such that the potential for water to become contaminated is reduced.

2.2.4 Qld *Water Act 2000*

Queensland's *Water Act 2000* (Water Act) provides a framework for the planning, allocation, and use of surface water and groundwater in Queensland, including regulating major water impoundments, such as dams and weirs, and extraction through pumping for irrigation and other uses. The Water Act 2000 provides a system of interrelated plans, licenses and permits for the regulation of in-stream (i.e. watercourses, lakes or springs) and overland water flow, and groundwater.

The Water Act requires a riverine protection permit prior to excavating and/or filling, or clearing native vegetation in a watercourse, lake or spring protected/mapped under the Water Act, unless the exemption requirements are met. There are no mapped watercourses under the Water Act occurring on the site, and watercourse determination from the Department of Regional Development, Manufacturing and Water (DRDMW) confirmed the unmapped feature is a drainage line not a watercourse.

2.2.5 Fisheries Act 1994

The drainage feature on the site is mapped as a 'green' low risk waterway for waterway barrier works under the *Fisheries Act 1994* (Fisheries Act). Considerations related to the Fisheries Act are discussed in the Biodiversity Technical Report .

2.2.6 Seqwater Development Guidelines

Seqwater is the Queensland Bulk Water Supply Authority for South East Queensland and also has a role in catchment management and flood mitigation services. Seqwater are an unofficial referral agency for applications under the SDA Scheme. The Seqwater Development Guidelines: Water Quality Management in Drinking Water Catchments (GDE-00001 V2, Seqwater October 2024), provide an assessment framework to

manage the risk of development activities in the drinking water catchments in SEQ. These guidelines, whilst not a formal benchmark for development in the SDA, have been referenced to inform this assessment.

2.2.7 State Codes

State Codes provide assessment benchmarks that include Performance Outcomes (POs), which outline the intent of the code, and Acceptable Outcomes (AOs), which represent one way to meet those outcomes. Development proposals must demonstrate compliance with either the PO or AO. Where a proposal does not strictly meet a relevant AO or PO, the State Assessment and Referral Agency (SARA) may, on balance, determine that the development complies with the overall purpose of the code.

This report addresses surface water and drainage requirements in accordance with the following State Development Assessment Provisions (SDAP) codes:

- State Code 1: Development in a State-Controlled Road Environment
- State Code 2: Development in a Railway Environment
- State Code 22: Environmentally Relevant Activities

3. Site Context

3.1 Site Description

The Project area is addressed as Lot 1 Beaudesert Boonah Road, Bromelton and formally described as Lot 1 on RP45234 (referred to as the 'site' in this report). The Lot measures approximately 63.3ha in area and is generally regular in shape. Site dimensions are approximately 510m to the northern boundary (road frontage), 965 m to the eastern boundary (adjacent rail corridor), 880 m to the southern boundary (adjacent private land) and 1,060 m to the western boundary in two parts being 535 m and 525 m (adjacent private land). Refer to Figure 4 for reference.

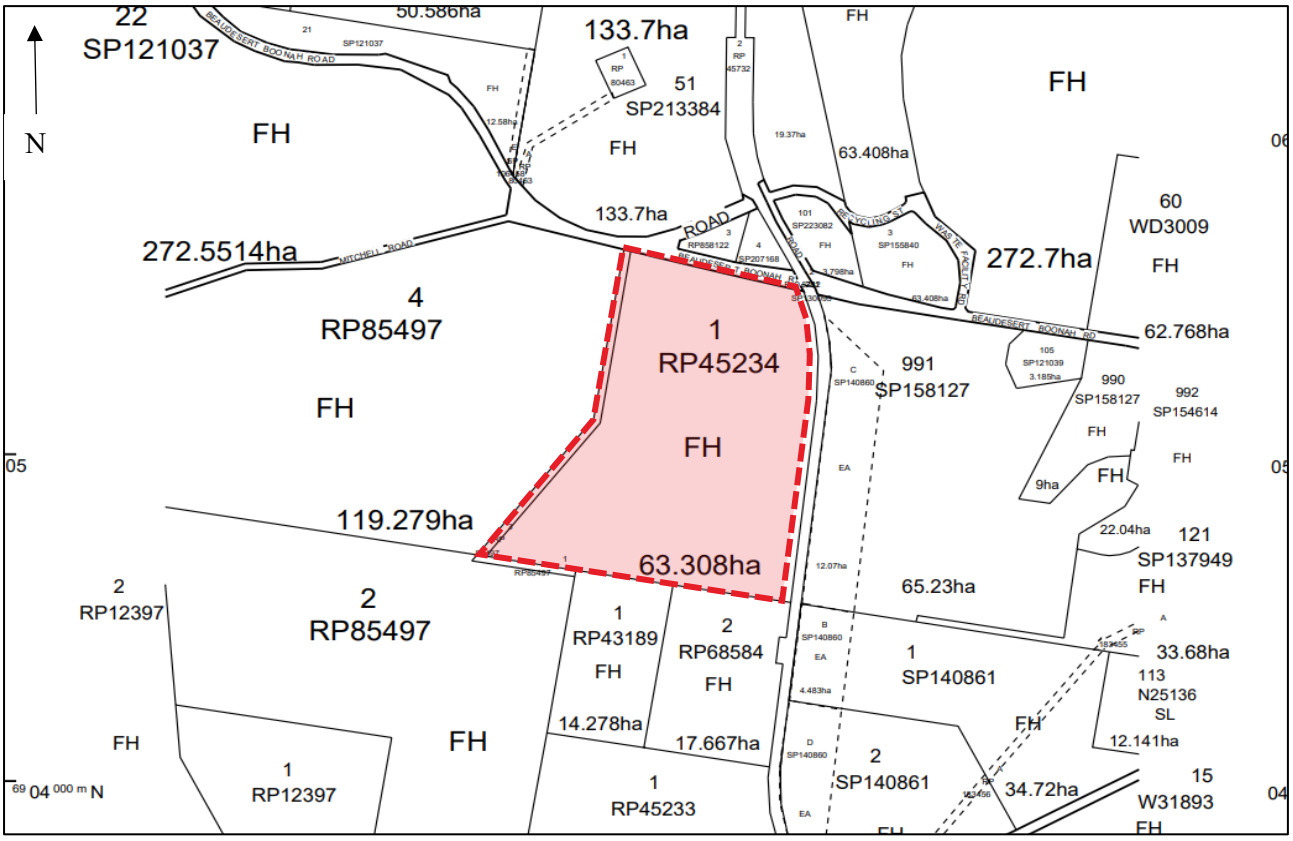


Figure 4: Smart Map (Source: Qld Globe). Red outline is the Project area boundary.

The site is subject to freehold tenure with rights and interests reserved to the Crown by Deed of Grant No. 10600025 (POR 69A). The owner of the land is Queensland Energy and Resource Centre Pty (Trustee under Instrument 722194302). The site is not encumbered by any easements and is also not the beneficiary of any easements. The site is not subject to any leases. A search of the DES database confirms the site is not listed on either the Contaminated Land Registered (CLR) or the Environmental Management Register (EMR).

3.2 Site Location and Surroundings

The Project is located in the local government area of the Scenic Rim Regional Council, and more specifically, within the Bromelton SDA. It is situated approximately 8 km by road directly west from the nearest large settlement of Beaudesert.

The locality is well serviced by transport infrastructure including Beaudesert Boonah Road, which is a State controlled road that links the settlements of Beaudesert and Boonah. This road also provides a direct link to the Mount Lindesay Highway, another State controlled road that connects to the major settlements of Logan, Brisbane and the Gold Coast. The locality is also serviced by the Sydney-Brisbane rail line, an interstate freight rail corridor.

The broader locality comprises primarily rural and agricultural land uses. Established and emerging industrial land uses are located within the Bromelton SDA. The State Government website for the Bromelton SDA identifies the following key uses:

- SCT Logistics - a $30 million intermodal rail freight facility and warehouses on land situated adjacent to the Sydney-Brisbane rail line.
- GELITA Australia Pty Ltd - the Australian plant of the GELITA Group manufactures gelatine which is sold as edible gelatine for food industry uses.
- A.J. Bush and Son's (Manufactures) Pty Ltd - established in 1993, A.J. Bush & Sons are recognised internationally as a leading rendering industry producing protein meal and tallow. The company utilises onsite clean energy practices by recycling methane content biogas captured from covered anaerobic lagoons to generate electricity for power and recycles wastewater for irrigation on their substantial landholdings.
- Beaudesert Central Waste Management Facility - a waste transfer station operated by the Scenic Rim Regional Council
- Bromelton Quarry - a hard rock quarry established in 2000 which supplies blue rock to the regional area.
- The Neilsen Group quarry - supplying general quarry and gravel products to the regional area.
- Quickcell Technology Products Pty Ltd - concrete manufacturers established in 1993 producing prestressed and precast concrete products.

The Energex Beaudesert Bulk Supply Substation is located approximately 6.5 km to the east of the site at Beaudesert, identified on Lot 183 on SP184476.

The site has a single road frontage of approximately 510 m to Beaudesert Boonah Road along its northern boundary. Established industrial premises, Quickcell Technology Products Pty Ltd and SCT Logistics are located north of the site across Beaudesert Boonah Road. The site’s eastern boundary is contiguous with the Sydney-Brisbane rail corridor. Land to the south is owned by AJ Bush although its manufacturing operations are more than 1 km south of the site. Land to the west is currently vacant. Refer to Figure 5 for reference.

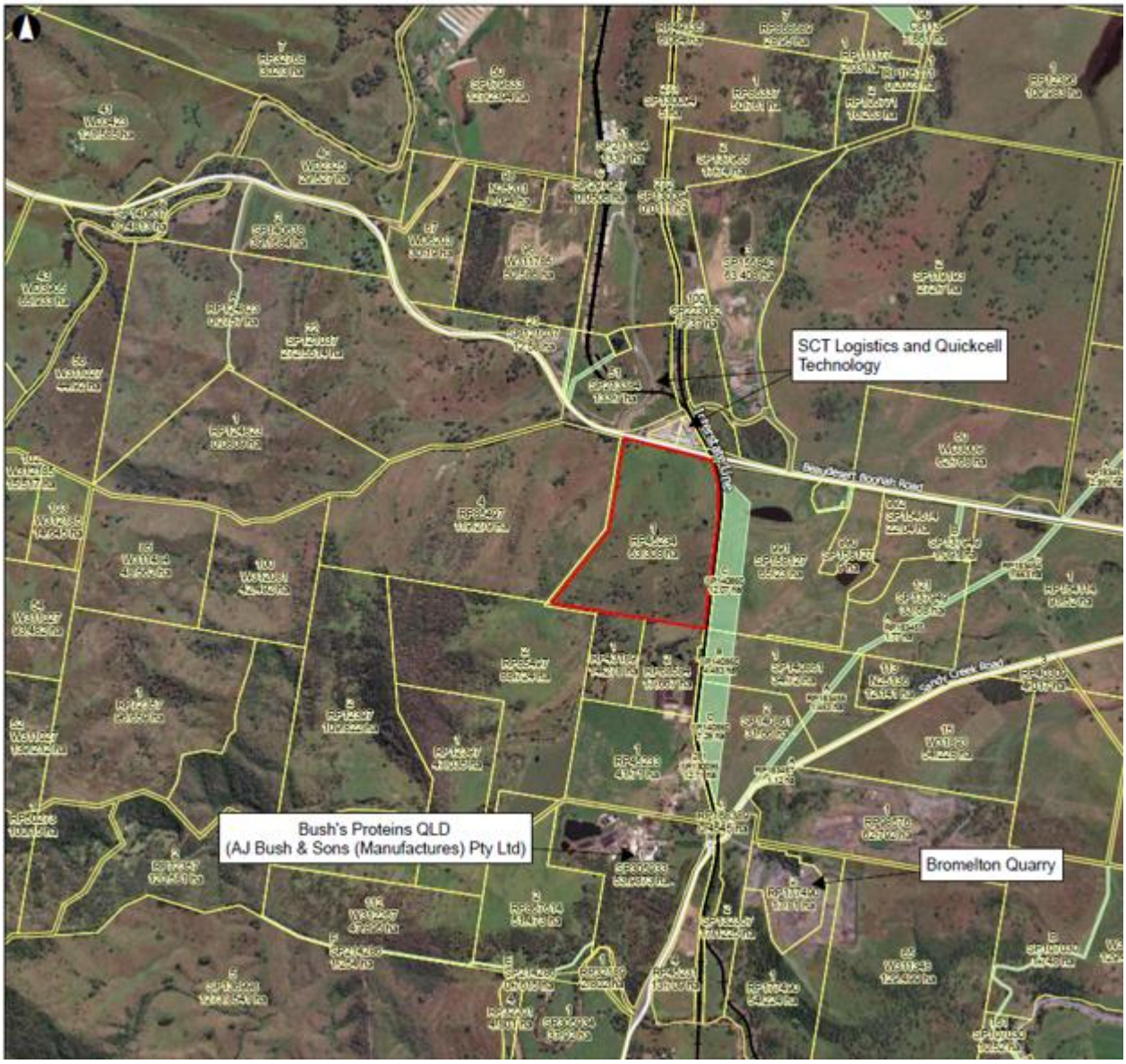


Figure 5: Site and Surrounds (Source: Qld Globe)

3.3 Recent Site History

Historical photography indicates the site has primarily been used in the past 100 years for grazing and agricultural purposes. Recent investigations identified a cattle crush infrastructure and a spray race in the northern section of the site. A review of the Scenic Rim Regional Council DAP Online system was undertaken, and advice was also sought from the Office of Co-Ordinator General regarding development application activity. These sources establish there is no development application or approval activity applicable to the subject site.

4. Assessment Methodology

To develop an understanding of the existing site conditions and inform baseline models, the following works were undertaken:

- Site walkovers in February and April 2023 and August 2025.
- Topographical survey.
- Desktop review of publicly available information such as Queensland Globe.
- Review of relevant legislation and policy as outlined in Section 2.
- Consult with relevant stakeholders such as Seqwater, TMR, Council to clarify design requirements.

A concept level civil design has been developed to enable an assessment of the post-development condition. This post-development condition has been assessed against the pre-development condition to assess design impacts and compliance with the relevant legislation, policies and guidelines outlined in Section 2.

4.1.1 Water quality methodology

MUSIC modelling software has been used to assess the water quality performance of the stormwater management strategy of the operational facility. MUSIC was developed by the Cooperative Research Centre for Catchment Hydrology (CRCCH) and is used industry wide to assess the water quality performance of urban catchments. MUSIC is appropriate for the assessment of catchment areas of up to 100 km^2 using a continuous simulation approach.

MUSIC has been used to determine if proposed changes to land use are capable of meeting mandated water quality objectives (CRC, 2002). The primary water quality parameters modelling in MUSIC are Gross Pollutants (GP), Total Suspended Solids (TSS), Total Phosphorus (TP) and Total Nitrogen (TN).

Relevant Engineering Standards outlined in Table 7 of Bromelton State Development Area Development Scheme nominate multiple design guidelines in the context of stormwater quality. Seqwater's Development Guidelines: Water Quality Management in Drinking Water Catchments (GDE-00001 V2, Seqwater October 2024), as the most onerous, have been used to assess the performance of the proposed stormwater system.

4.1.2 Surface water quantity management

Runoff from the developed portion of the site will be conveyed via the minor and major stormwater network to bioretention and on-site detention basins. The size of the detention component of the basins has been determined to cater for the 10-year Average Recurrence Interval (ARI) event as defined by Table 7.3.1 of QUDM.

4.1.3 Water Balance

A site water balance assessment has been undertaken to assess potable water demands, rainwater harvesting, sewer discharges and stormwater runoff from the site. The water balance uses 20 years of daily rainfall data from 2000 to 2019 from the closest meteorological station. This data has been used to assess average annual water flows at the site.

Water balance outputs from the MUSIC model have also been used to assess stormwater flows and interactions at the site.

4.1.4 Flood risk assessment methodology

To establish the existing flood conditions, hydraulic modelling was undertaken using TUFLOW (version 2023-03-AA), a two-dimensional (2D) hydraulic modelling software. The TUFLOW model adopted a direct rain on grid approach to generate flows for the contributing catchment in lieu of a full hydrology model. This surface water assessment has been based on available aerial photography, topographical survey (TJ Kelly Surveys Pty Ltd, 2023) and 1m LiDAR (QLD DNRM, 2011) data.

The concept design surface, surface roughness delineation and associated site drainage were tested in the hydraulic model to assess the post-development condition and inform potential flood risk at the Project area.

5. Existing Site Conditions

5.1 Existing Topography and Catchment delineation

The Project area is currently pastural land comprising grasses with low density shrubs and trees. A topographical survey of the site and adjacent road was undertaken by TJ Kelly Surveys Pty Ltd in May 2023 and is contained in Appendix A. The topographical survey was conducted using a combination of traditional surveying techniques and drone survey which was used for Beaudesert-Boonah Road and the southern portion of the site. The survey was completed to GDA 2020 projected co-ordinate system, Zone 56.

The Project area has several distinct ridgelines and low points. A high-level review of the survey notes that:

- In the northern portion of the site, the highest point is RL 98.9 m Australian Height Datum (AHD).
- Northwest corner of the site sits at RL 81.75 mAHD.
- Northeast corner of the site sits at RL 79.09 mAHD.
- Land directly adjacent to the culvert crossing under the railway line is at RL 70.54mAHD.
- Ridgeline at southwest corner of the site is at RL 119 mAHD.
- Southeast corner of the site sits at RL 66.5 mAHD.

Aside from the upper portion of the ridge, falls typically exceed 5% with the southern portion of the site containing steeply sloping terrain which exceeds 10% gradient in many places.

Pre-Development Catchments

The ridgelines split the site into three distinct catchments; a northern, central and southern. In reference to Figure 6, catchment 1 is the northern catchment, catchments 2A and 2B are defined as the central catchment and catchments 3 and 4 make up the southern catchment.

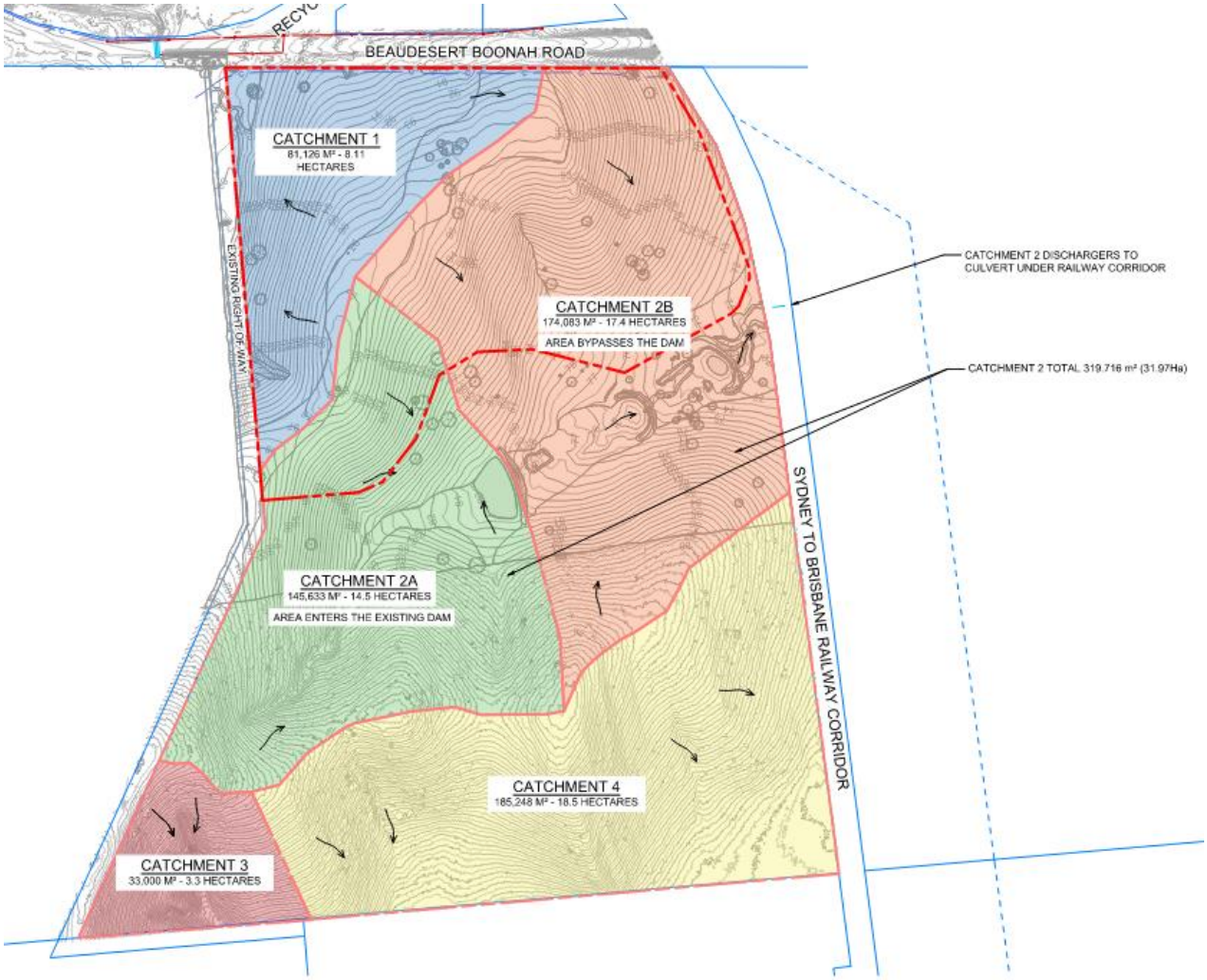


Figure 6: Pre-Development Catchment Plan

The northern catchment currently sheds overland and is collected by a swale within the Lot Boundary corridor of Beaudesert Boonah Road. These flows are conveyed to a pre-cast concrete box-culvert (see Photograph 1) which crosses under Beaudesert Boonah Road and discharges into a man made channel (see Photograph 2) flowing north, ultimately discharging into Allen Creek.



Photograph 1 – Existing box culvert



Photograph 2 – Culvert discharging into channel north of the Project area.

Three cascading farm dams are positioned centrally within the Project area (see Photograph 3) and in conjunction with a natural overland flow path, convey water to an existing 1.8 m high brick culvert (see Photograph 4). The culvert passes under the railway corridor, discharging flows to the site to the east.



Photograph 3 – View of cascading farm dams with railway corridor in the distance



Photograph 4 – View of culvert passing under railway line.

The southern catchment sheds overland flows off-site into Swan Creek, located approximately 200 m south of the Lot Boundary.

With many of the southern parts of the site exceeding 10% gradient, the decision was made to confine the initial development (the subject of the application) to the northern portion of the site. In an effort to maintain existing flow regimes, particularly in undeveloped parts of the existing site, the farms dams are to be retained in their current configuration.

In reference to the red dashed line in Figure 4, the development footprint is approximately 22.6 ha which equates to just over a third of the Project area.

5.2 Existing Stormwater Infrastructure

The Project area is pastural and currently contains no formal piped stormwater infrastructure. There are no formal stormwater quality improvement devices on site; however, it is considered that the series of farm dams provide a level of stormwater attenuation and allow sediment removal.

Beyond the Project area, a 1.85 m wide x 1.85 m high arch culvert passes under the railway corridor providing conveyance for overland flows within catchment 2.

To the northwest of the Project area, twin 2.125 m wide x 0.9 m high box culverts cross under Beaudesert Boonah Road. These culverts serve the northern catchment of the Project area, parts of the adjacent Lot to the west and the swale that drain the road.

5.3 Existing Watercourses

Swan Creek is the closest formal watercourse to the Project area and is approximately 70 m south of the southeast corner of the subject site's Lot Boundary. Swan Creek flows into Logan River about 4 km east of the site.

To the north of the Project area there are a series of culverts, overland flow channels, swales and farm dams which discharge into Allen Creek approximately 3.5km north of the subject site. Allen Creek flows into Logan River about 7km northeast of the site.

Figure 7 below shows these formal watercourses in blue with the Project area in red.

Within the site ephemeral, overland flow paths are present. It is noted that different agencies have different classifications of these flow paths. DRDMW have determined that the overland flow path, mapped as orange on Figure 7, is a 'drainage feature' and does not constitute a formal watercourse under the *Water Act 2000*.

During agency consultation, SeqWater confirmed that under the assessment of the Vegetation Management Act 1999, these overland flow paths are considered to Stream Order 1. For the purpose of this assessment and code compliance, the overland flow path within the site boundary, including the three farm dams present, are considered as Stream Order 1 features.

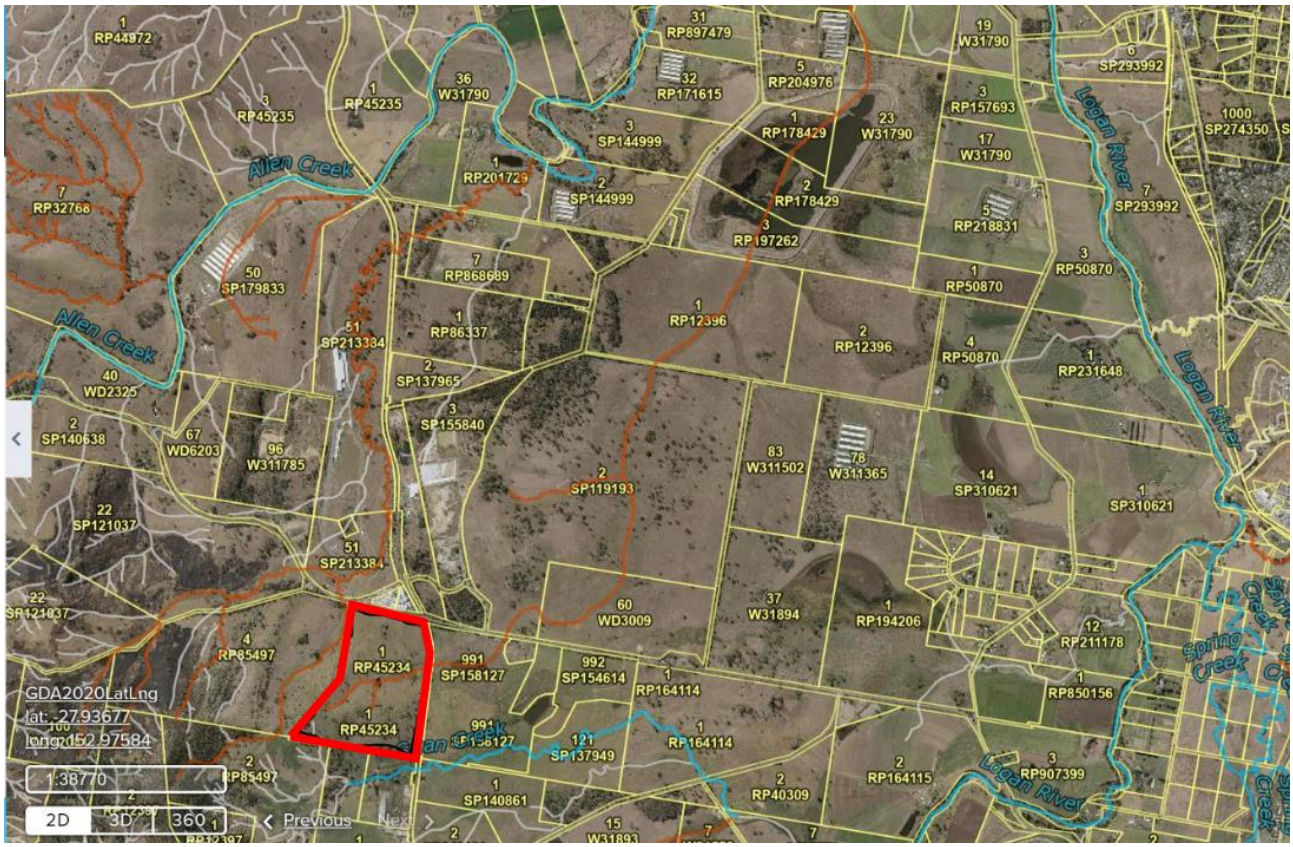


Figure 7: Existing Watercourses (source: QLD Globe)

5.4 Existing Flood Behaviour

Hydraulic modelling has been completed to assess the risk of flooding within the site and adjacent Lots. A summary of the hydraulic modelling assessment is provided in this section.

Flooding offsite associated with the Logan River is noted as potentially significant to site access and operations. The flood risk along Logan River is presented in the Queensland Flood Mapping Phase 3b, Logan River Flood Mapping Study (Department of Natural Resources and Mines, December 2014) with the 1% AEP + CC (SSP 2-4.5) Peak Flood Depth map presented in Appendix G.

5.4.1 Hydraulic Model Setup

The hydraulic modelling was undertaken using TUFLOW (version 2023-03-AA). The TUFLOW model adopted a direct rain on grid approach in order to generate flows for the contributing catchment in lieu of a full hydrology model.

The hydraulic model extent, shown in Figure 8 captures the sub-catchments upstream of the Project area and extends to the downstream control (Beaudesert Boonah Road).

The model has a grid cell size of 2 m with a southwest-northeast orientation, aligned with the major flowpath through the Project area.

The model topography utilised LiDAR (1 m resolution) flown in 2011 in addition to topographical feature survey captured in May 2023. The survey was used preferentially to create the model topography where available.

The model terrain roughness was specified according to aerial photography. The drainage culverts have been defined based on survey and site photographs.

Rainfall within the TUFLOW model extent was applied using the ARR to TUFLOW utility within QGIS. The rainfall was modelled as a 2d_rf polygon element, distributing flow across the entirety of the model boundary in a direct rainfall modelling approach. Losses were applied in TUFLOW by land use material type.

Hydrological modelling of future climate change was developed based on the updated guidelines in ARR2019 v4.2. The Shared Socio-economic Pathway (SSP) 2, known as the “middle of the road” scenario, which corresponds to RCP 4.4 used in previous climate change calculations recommended by ARR. This pathway is characterized by moderate emissions reduction with slow progress towards the Sustainable Development Goals.

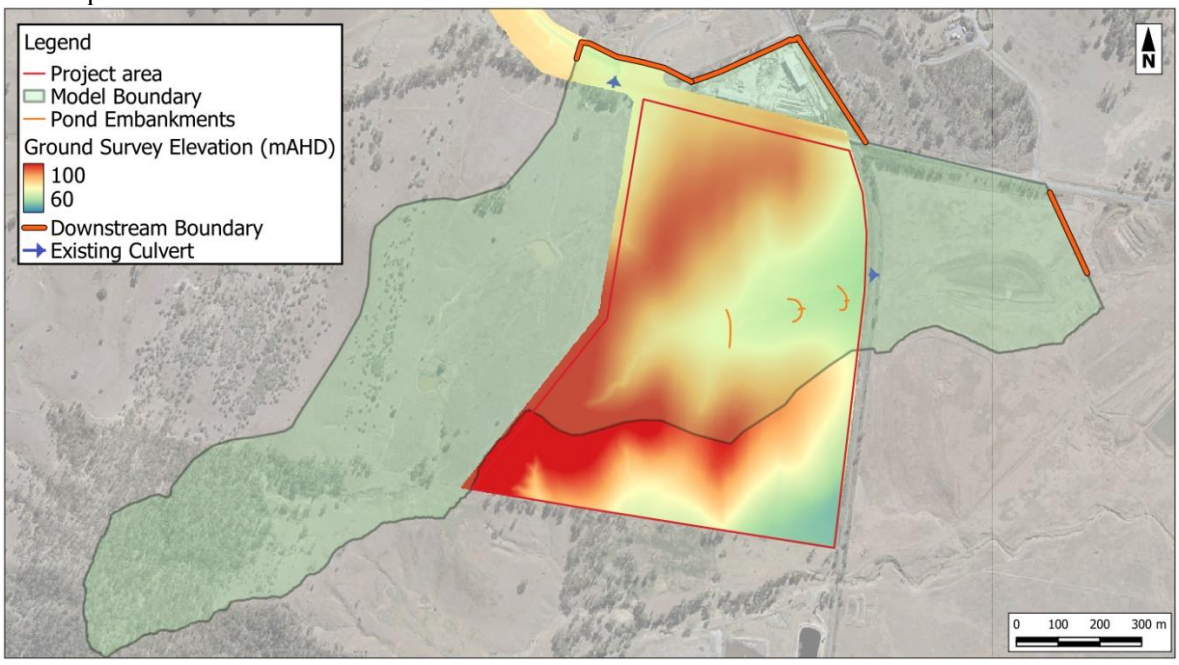


Figure 8: Existing Case TUFLOW Model Setup

5.4.2 Existing Flood Risk

The TUFLOW model was simulated for the 63.2% Annual Exceedance Probability (AEP) event through to the 1% AEP + CC (SSP2-4.5) event. For each AEP, full simulation of storm events from 10 minutes to 6 hours for the ensemble of temporal patterns were carried out.

The peak flood depth results from the existing conditions model simulation are presented in Figure 9 for the 1% AEP + CC (SSP2-4.5) event. Additional flood mapping is presented in Appendix F.

The existing condition results demonstrate that:

- Flooding is generally contained within watercourse/stream corridors, with flows following the natural topography of the site, collecting within the cascading farm dams. Some ponding is observed against the rail and road embankments.
- A shallow overland flowpath is observed passing along a depression at the southend of the Development footprint.
- Beaudesert-Boonah Road is shown to be overtopped in the 1% AEP + CC (SSP2-4.5) event at the road culvert crossing northwest of the project site.
- The railway is shown to be flood free in the 1% AEP + CC (SSP2-4.5) event.

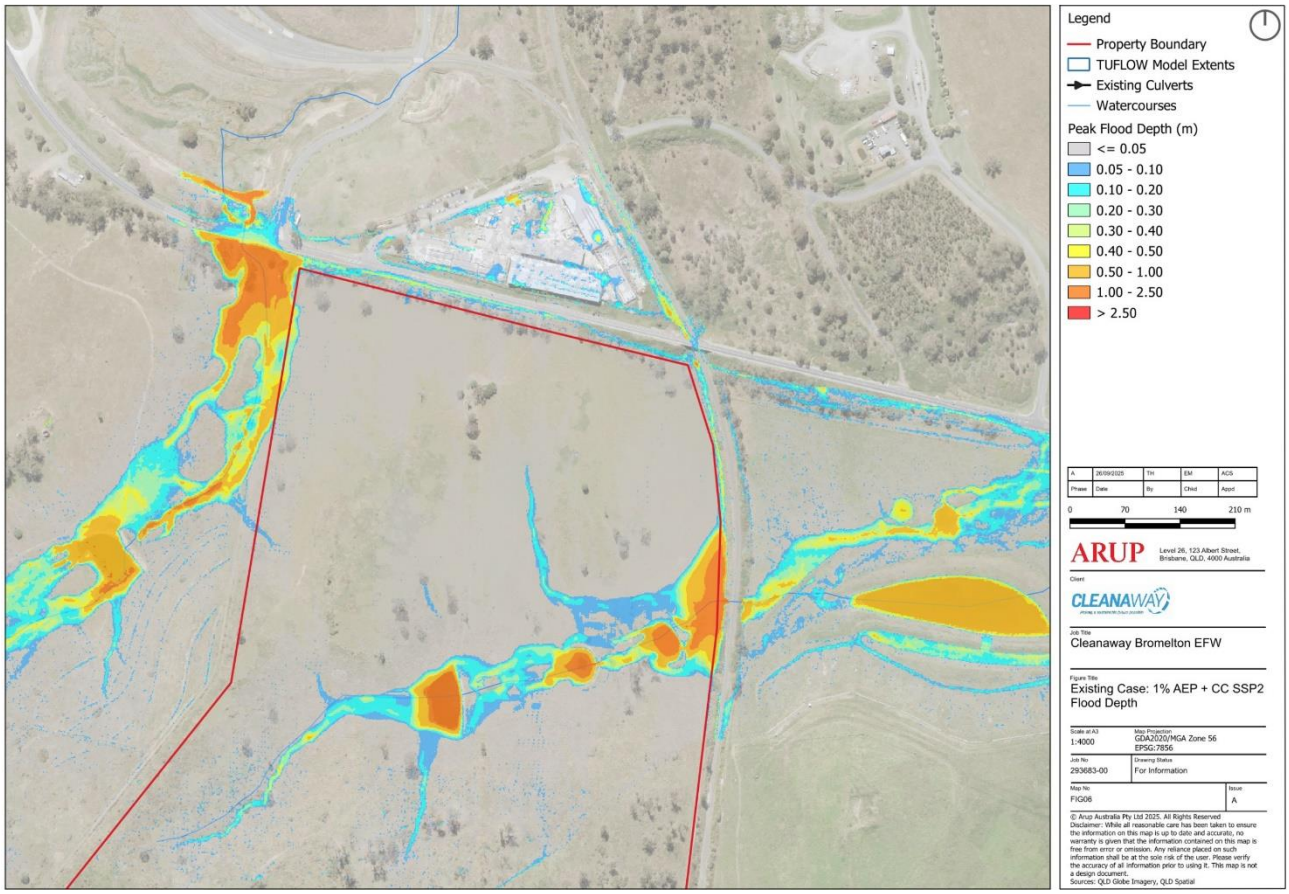


Figure 9: Existing Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Depth

6. Concept Engineering Design

6.1 Levels and Grading

Site levels are to be terraced to respond to existing site topography with roads used to overcome level differences between the main building platforms. Extensive earthworks are required to re-grade the site to create large platforms with shallow gradients, suitable to accommodate the proposed buildings and operational hardstands. Site investigations completed to date (see Land and Groundwater Report by Douglas Partners for further details) indicate that excavations will primarily be in residual clay aside from the lower part of the waste bunker which may reach bedrock.

The site entrance connects to Beaudesert Boonah Road at approximately RL 85.0 mAHD. The main access road slopes up to approximately 89.5 mAHD at the weighbridge and then up to RL 93.0 mAHD as it approaches the de-coupling area, located on the existing ridge.

The de-coupling area, EfW building, Air Cooled Condenser (ACC), APCr and staff parking area adjacent to the administration building are all located within the upper plateau of the site, between RL 93.0 and 94.75 mAHD. This balances between cuts in central areas and fill in eastern and western parts as the platform is wider than the existing ridge.

The IBA facility is split into two connected platforms; the IBA maturing platform and the IBA sorting platform. The IBA sorting platform is linked to the hardstand around the EfW building and is set higher with an RL 92.0 mAHD at the west end. The platform grades to the east with the low point at RL 89.0 mAHD. . The IBA maturing platform is set lower than the IBA sorting platform and varies between RL 88.0 mAHD and 84.5 mAHD. The concept design site layout is presented in Figure 10.

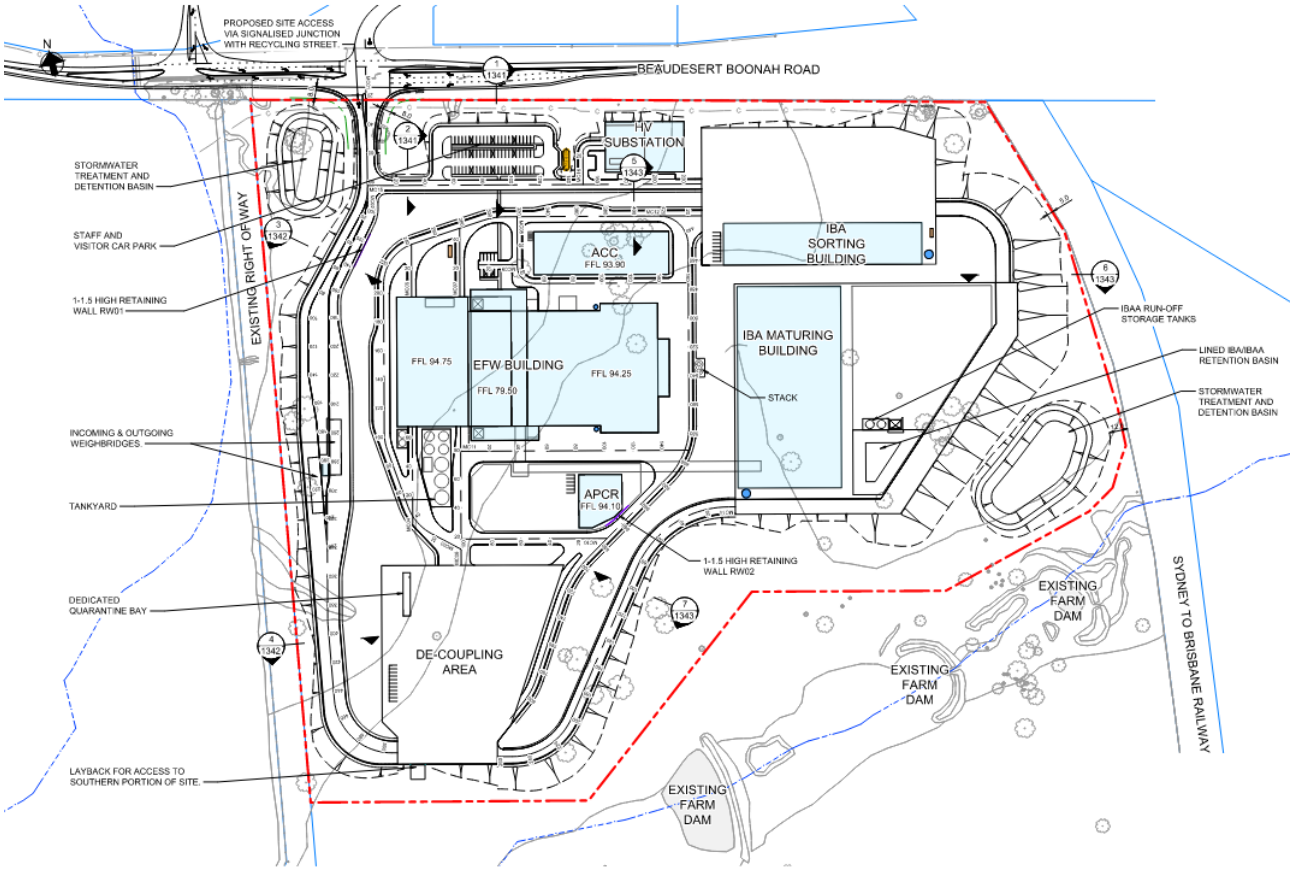


Figure 10: Concept Design Site Plan

This configuration places the EfW building, more than 100m away from Beaudesert-Boonah Road and 250m clear of the railway corridor.

Access roads have maximum longitudinal gradient of 5%, which is considered suitable for the proposed trucks. Hardstands have been designed at concept stage to comprise a uniform crossfall between 1% and 3%. During later design stages there is opportunity to re-visit these gradings and adjust to optimise bulk earthworks volumes.

Hardstand surfaces typically fall away from the building perimeter to the outer kerb line at 2% to 3% crossfall. To encourage overland flows and prevent ponding outside the EfW building, the longitudinal gradient on both sides of the building falls to the east. Fill batters near the eastern boundary of the site tie into existing ground levels a minimum 5.0m inside the Lot Boundary. Existing levels along the railway corridor and road corridor boundaries are maintained. There are no retaining walls proposed adjacent, or within 5m of the railway corridor along the eastern boundary of the site.

Sag points in the road network are positioned adjacent to proposed stormwater treatment and detention basins to maximise capture of stormwater runoff in the basins prior to site discharge.

The development's grading directs water away from buildings; towards the attenuation basins present within the Project area and subsequent, downstream overland flow paths. In the 1% AEP flood event, the highest water level in the overland flow path is RL 81.1 mAHD. Finished floor levels of all habitable buildings within the application sit above RL 88.0 with the EfW building more than 10 m higher than the 1% AEP flood level.

A number of internal retaining walls, less than 2.0m high are proposed to overcome level difference between roadways and adjacent hardstand. These are shown in Figure 10 and within the concept civil design drawings contained within Appendix B. Surplus spoil material maybe placed in areas of the site beyond the legislative offsets.

6.1.1 Setbacks and Clearances from Surface Flow Paths

As highlighted in Section 5.3, guidance from SeqWater considers that the hydro-lines representing the overland flow which runs through the central portion of the subject site is classified as a Stream Order 1. A similar hydro-line is present to the west of the site and is also classified as a Stream Order 1.

The design has sought to maintain sufficient clearance from these mapped hydro-lines to minimise impacts to existing overland flow paths. Drawing BERC-ARU-BNE-CICW-DRG-1030, contained within Appendix B demonstrates that the proposed development layout provides clearances in accordance with P025 of Seqwater's Development Guidelines.

Table 3: Development Setback Assessment

Seqwater Development Guideline Performance Outcome	Area	Setback Provided	Notes
PO25 / A025.1 Earthworks do not occur within 25m setback to a stream order 1 – 3.	Hydro-line south of development footprint	26.0m	Setback achieved. Setback noted is to a drainage feature.
	Hydro-line west of development site.	26.0m	Setback achieved 25m offset from hydro-line sits outside Lot Boundary
PO28 / A028.2 The storage or handling of dangerous goods, hazardous substances or environmentally hazardous materials with an aggregate quantity greater than 200L or 200kg and less than 1000L or 1000kg maintains minimum 100m separation distance to a watercourse.	Hydro-line south of development footprint	124m	Setback achieved. It is noted that the setback is measured from a drainage feature and not a formal watercourse.
	Hydro-line west of development site.	115m	Setback achieved.

6.2 Stormwater Management

The over-arching strategy of the stormwater design is to:

1. Retain existing farm dams serving the southern part of the central catchment (catchment 2) allowing un-developed areas of this catchment to maintain existing drainage regime.
2. Maintain existing drainage regime within the southern catchments (catchments 3 & 4) of the site.
3. Generally maintain pre-development catchment distribution.
4. Retain current stormwater discharge locations and flow rates via use of detention basins.
5. Provide catchment wide stormwater quality improvement measures at centralised locations.
6. Collect rainwater and re-use to offset high process demands.
7. Provide specific measures locally to serve areas of higher risk.

Outfalls from each basin will be piped and daylight to existing overland flow paths and channel. Flows would exit the Project area overland and discharge to existing drainage features:

- The northern stormwater basin, serving catchment 1, will discharge into an existing swale within the western portion of the site. This swale conveys flows into an existing channel within the road corridor passing under Beaudesert Boonah Road via the box culverts.
- The eastern basin, serving catchment 2, will discharge into the existing overland flow path downstream of the farm dam and passes under the rail corridor via the 1.85 m high culvert.

6.2.1 Stormwater Quantity

The Bromelton SDA requires that stormwater quantity is managed in accordance with QUDM and Australian Rainfall and Runoff – where referenced by QUDM. The design criteria used for BERC is as follows:

- Pipework and attenuation basins sized for the 10% AEP return event as per Table 7.3.1 of QUDM, 2016 Edition, for central business and commercial development.
- Secondary control for waterway stability to limit post development peak 1yr ARI event discharge to the pre-development peak 1yr ARI event as per Section 3.2.1 of QUDM.
- Intensity Frequency Duration (IFD) Design rainfall intensity data from the Bureau of Meteorology (BoM) website – from Bromelton.

Table 4: Rainfall Data from Bromelton

Duration (Mins)	Average Recurrence Interval (rainfall in mm/hr)						
	1 Yr	2 Yr	5 Yr	10 Yr	20 Yr	50 Yr	100 Yr
1	138	156	213	252	290	340	378
2	112	127	172	204	236	281	315
3	106	119	162	192	221	263	295
4	101	114	155	184	212	250	280
5	97	110	150	177	204	240	267
10	80.3	91	124	147	169	197	218
15	68.2	77.2	106	125	143	167	185
20	59.1	67	91.5	108	124	145	161
25	52.3	59.2	80.8	95.4	110	128	143
30	46.9	53.1	72.5	85.6	98.4	115	128
45	36	40.7	55.6	65.8	75.9	89.5	100
60	29.4	33.2	45.4	53.8	62.3	73.8	82.7
90	21.8	24.6	33.7	40.1	46.6	55.6	62.7
120	17.6	19.8	27.2	32.5	37.8	45.3	51.3
180	12.9	14.6	20.1	24.1	28.3	34.1	38.8

Duration (Mins)	Average Recurrence Interval (rainfall in mm/hr)						
	1 Yr	2 Yr	5 Yr	10 Yr	20 Yr	50 Yr	100 Yr
270	9.58	10.8	15	18.1	21.3	25.8	29.4
360	7.79	8.82	12.3	14.9	17.5	21.3	24.3
540	5.89	6.69	9.4	11.4	13.5	16.4	18.8
720	4.87	5.55	7.83	9.53	11.3	13.7	15.8
1080	3.77	4.31	6.13	7.47	8.87	10.8	12.4
1440	3.15	3.62	5.17	6.31	7.49	9.12	10.4
1800	2.74	3.16	4.53	5.53	6.56	8	9.15
2160	2.45	2.82	4.06	4.96	5.88	7.17	8.19
2880	2.04	2.36	3.4	4.15	4.92	5.99	6.84
4320	1.54	1.79	2.59	3.15	3.73	4.55	5.2
5760	1.24	1.44	2.08	2.54	3	3.66	4.18
7200	1.03	1.19	1.73	2.11	2.49	3.03	3.47
8640	0.873	1.01	1.46	1.78	2.1	2.56	2.94
10080	0.75	0.867	1.25	1.53	1.81	2.19	2.52

With respect to the existing catchment plan (see Figure 6), the development footprint is contained within catchments 1 and 2. Catchments 3 and 4 to the south are not impacted by the Project.

Pre-development discharge rates were determined using the Rational Method for rural catchments as per QUDM which is considered applicable as the catchment areas are significantly less than 25 km². Time of concentration was determined using Friends equation for overland flow as outlined in Section 4.6.6 of QUDM.

Table 5: Pre Development Stormwater Discharge & Assessment Parameters

Item	Catchment 1	Catchment 2
Area	8.77 ha	13.83 ha
Average slope	4.8%	5.2%
Time of Concentration	78.4 mins	16.1 mins
Impervious Fraction	0 (Open Space and Parks)	0 (Open Space and Parks)
Co-efficient of Discharge C_{10}	0.46	0.46
Pre-Development Flow Rate (10 Yr ARI)	0.510 m³/s	0.76 m³/s

The re-grading of land with the development footprint has resulted in a catchment re-distribution summarised in Table 6 and Figure 11. Each catchment is served by a combined bio-retention and detention basin.

Table 6: Comparison of Pre and Post Development Catchment Areas within developed footprint

Catchment	Pre-Development	Post Development
Catchment 1	8.77 ha	6.238 ha
Catchment 2 (within development footprint)	13.83 ha	15.252 ha
Development Footprint Total	22.60 ha	21.49 ha
IBAA Hardstand*	0	1.11 ha
Total (Check)	22.60 ha	22.60 ha

* Note this catchment drains to separate IBAA retention basin and is excluded from stormwater system and detention calculations.



Figure 11: Post-Development Catchment Plan (Note – Red Line denotes split between catchments 1 & 2)

A piped stormwater system will convey flows via an inlet Gross Pollutant Trap (GPT) into the bio-retention basin. In smaller rainfall events, stormwater will have an extended detention time within the bio-retention basin for treatment. In larger events, those over and above the 1Yr ARI event, stormwater flows will overtop the bio-retention basin and be contained in the detention portion of the basin. This part of the basin shall be between 1.2 m and 1.8 m deep and incorporate a gradient towards the basin's outfall. Refer to Section 6.2.3 for further details on the stormwater basin configuration.

Bromelton SDA references Queensland Urban Drainage Manual as the design basis for stormwater quantity. Table 7.3.1 of QUDM, see Table 6 below, notes a minimum 2yr ARI design event for Industrial development and 10yr ARI for central business and commercial development. Considering the scale and importance of this development the 10yr ARI was used as the minor storm event and to size the on-site detention provisions. The design basis is that the storage volume determined by matching post development flows to the pre-development condition for the 10Yr ARI event.

Table 7: Extract of Table 7.3.1 from QUDM

Table 7.3.1 – Recommended design average recurrence intervals (ARI) and annual exceedence probabilities (AEP) for the minor system

Development category [1]		ARI (yrs)	AEP
Central business and commercial		10	10%
Industrial		2	39%
Urban residential high density – greater than 20 dwelling units/ha		10	10%
Urban residential low density – 6 to 20 dwelling units/ha		2	39%
Rural residential – 2 to 5 dwelling units/ha		2	39%
Open space – parks, etc.		1	63%
Major road	Kerb and channel flow	10 [2]	10%
	Cross drainage (culverts)	50 [3]	2%
Minor road	Kerb and channel flow	[4]	[4]
	Cross drainage (culverts)	10 [3]	10%

Notes:

[1] The terms used in this table are described in the Glossary (Chapter 13) and Table 7.3.3.

[2] The design AEP for the minor drainage system in a major road must be that indicated for the major road, not that for the development category of the adjacent area.

[3] Refer to discussion in Section 7.3.7.

[4] Refer to relevant development category (above).

Detention basins have been sized in accordance with AustRoads Part 5A (AustRoads 2023) as required by TMR's Road Drainage Manual (TMR, 2019). Basins were sized following the calculations outlined in Section 7.2.7 of this guide with the Rational method used to determine the inflow volume.

In reference to the post development catchment plan, hardstands and roofs were assumed to be 100% impervious with landscaped areas allocated 5% imperviousness to consider footpaths, plinths and other ancillary items that arise from design development.

A complex control comprising orifice shall be used to limit flows in the 10Yr ARI event. The basin volumes presented below exclude the volume associated with the 300 mm freeboard above the design storage level. A 150-200mm deep overflow spillway will be provided at each basin to safely convey flows exceeding the design storm 10Yr ARI event. Flows discharging from each detention basin, via a controlled outlet structure with scour protection, will shed overland beyond the site boundary into existing drainage features in adjacent lots.

Table 8 summarises the key basin components.

Table 8: Detention basin design

Item	Catchment 1 Basin	Catchment 2 Basin
Basin Storage Volume	596m³	2,411m³
Base Level	82.40 mAHD	72.80 mAHD
Discharge Rate (10Yr ARI)	0.51m³/s	0.76m³/s

The exact details of the complex control and spillway will be developed as part of detailed design. Detention basin volumes and configurations may be refined during later design stages to reflect design development. Calculations for initial detention basin sizing are included within Appendix C.

6.2.2 Overland Flow

An existing overland flow path is positioned centrally within catchment 2 (refer Figure 6) which flows west to east through the site. The flow path starts at a natural gully near the western boundary and flows to a low point near the cross-drain culvert which passes under the railway embankment.

The drainage feature feeds three farm dams that can be seen on the topographical survey and from aerial imagery (excerpt in Figure 12).



Figure 12: Aerial Image of site showing location of Existing Farm Dams (Source: Google Maps)

The farm dams sit outside of the development footprint and along with the primary overland flow path, will be retained in their present condition. One of the stormwater detention basins will discharge flows to this overland flow path, downstream of all three farm dams.

Minor gullies and flow paths within the developed portion of the site will be filled by the works and will be drained via the proposed stormwater systems.

Natural overland flow paths within the southern catchment of the site will also be retained in their present condition.

6.2.3 Proposed Water Quality

Stormwater quality design criteria outlined within Table 7 of Bromelton SDA references several engineering standards which are not consistent. Seqwater (a referral agency) has the most stringent pollution reduction targets which are noted as being higher than Water Sensitive Urban Design guidelines for South East Queensland and Scenic Rim Regional Council's requirements.

Consultation with Seqwater during the design process (see Appendix E) was undertaken to understand their position on these differences. A comparison of these targets is outlined in Table 9 with the Seqwater targets used as per performance outcome A14.3.

Table 9: Stormwater Pollutant Reduction Targets

Pollutant Type	WSUD Technical Guidelines for South East Queensland Reduction Targets	Seqwater Reduction Targets
Total Suspended Solids (TSS)	80%	**85%**
Total Phosphorus (TP)	60%	**65%**
Total Nitrogen (TN)	45%	**45%**
Gross Pollutants	90%	**95%**

The development footprint of the Project area is approximately 22.6 ha in size and occupies all of existing catchment 1 and part of existing catchment 2 (refer Figure 6). For the purposes of the post-development water quality analysis these have been termed the northern and southern catchment. Both the northern and southern catchments have a similar water quality treatment train comprising:

- Rainwater harvesting on key buildings including EfW building, IBA maturing and sorting buildings (all part of the southern catchment).
- Collection of roads and hardstands via inlet pits with piped conveyance.
- Proprietary Gross Pollutant Trap (GTP) upstream of stormwater basins.
- Integrated bio-retention basin and detention basin.

In total, four roof rainwater harvesting tanks are proposed:

- Two 100 kL tanks at EfW building, each serving half of the roof catchment.
- One 100 kL tank at IBA maturating building.
- One 100 kL tank at IBA sorting building.

Each rainwater harvesting tank will have an overflow pipe which discharges to the trunk stormwater network.

The catchment areas associated with the IBA maturing hardstand, drained to a separate retention basin, has been excluded from the water quality assessment.

Bio-retention basins have been modelled to feature an impermeable liner and 500 mm thick filter media layer which promotes the removal of particulates and soluble contaminants that may be present in the stormwater runoff. A typical section through the combined bio-retention and on-site detention basin is shown Figure 13 and within the concept engineering drawings (Appendix B).

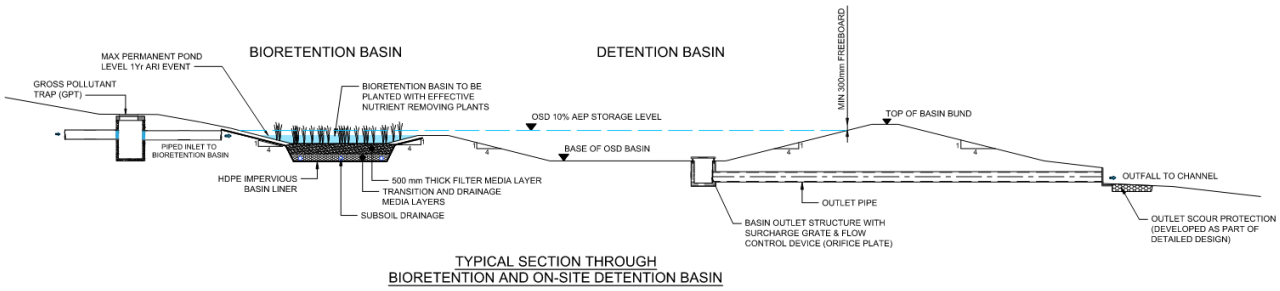


Figure 13: Bio-retention and On-Site Detention Basin Configuration

Table 10 confirms key characteristics of the northern and southern catchments, and the pollutant reduction targets achieved respectively. MUSIC modelling was completed in accordance with Queensland - MUSIC Guidelines November 2018 for industrial land use. Schematisations for the MUSIC water quality models are shown in Figures 14 and 15 with further details contained in Appendix D.

Table 10: Water Quality Parameters Modelled

Design Parameter	Northern Catchment	Southern Catchment
WQ Basin Bypass	0.65 ha (10.4%) All landscaped areas.	2.4 ha (15.7%) All landscaped areas south of roads and hardstands
GPT Unit	CDS 1512	CDS 2028
Footprint of Bio-Retention Basin	450 m²	900 m²
Rainwater Harvesting Tanks	N/A	4 x 100kL

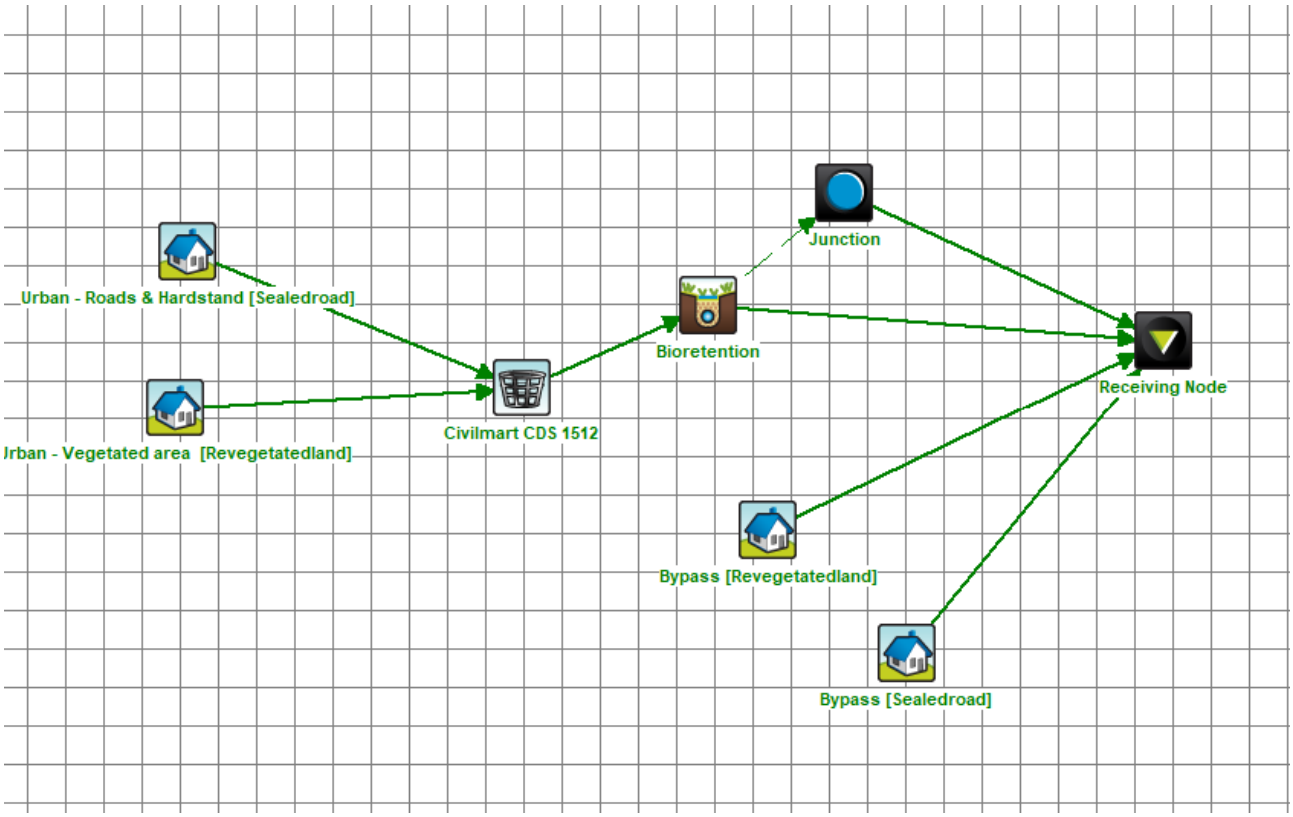


Figure 14: MUSIC Model Schematisation for Northern Catchment

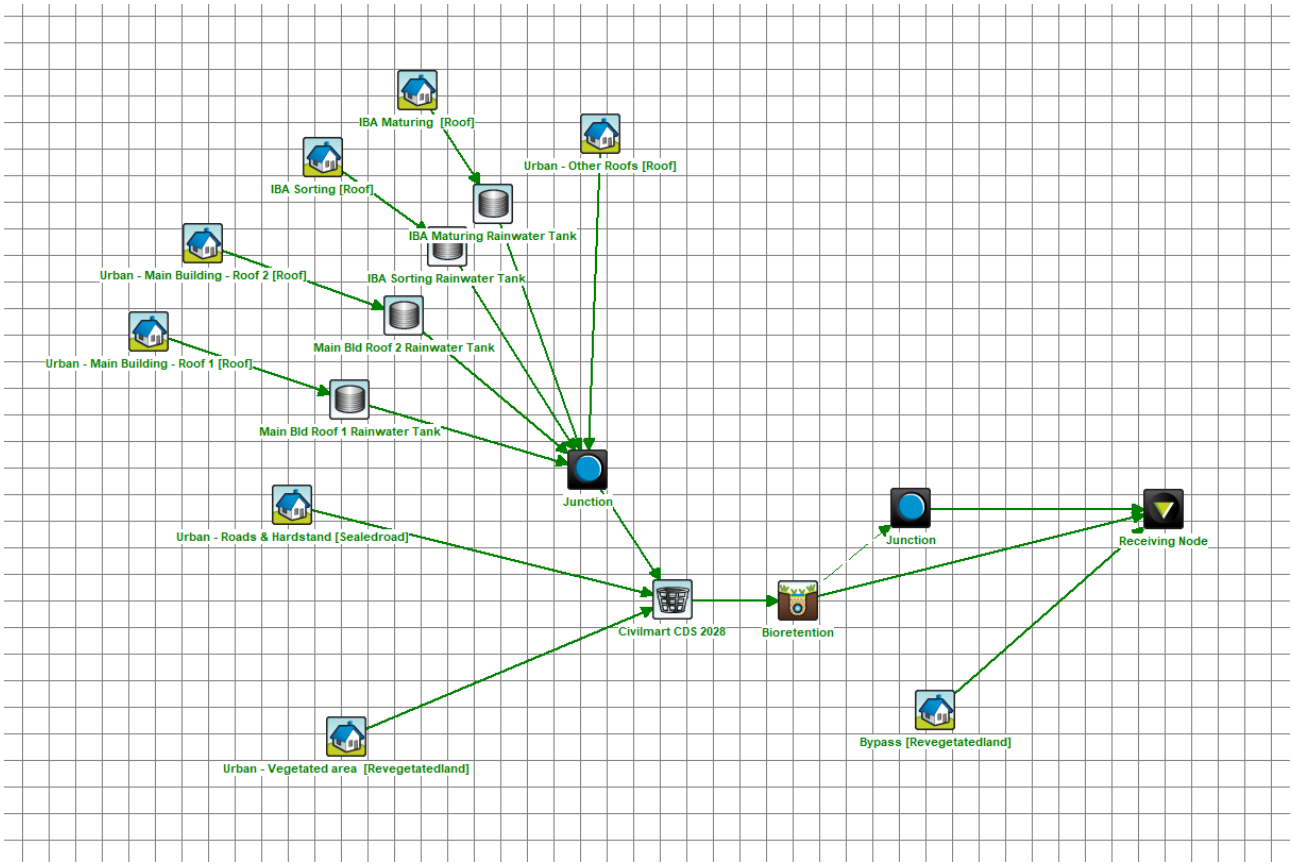


Figure 15: MUSIC Model Schematisation for Southern Catchment

The pollution reduction results from the MUSIC model are summarised in Table 11. These results demonstrate compliance with the more onerous targets set by Seqwater in Acceptable Outcome AO14.3.

Table 11: Summary of MUSIC Model Results

Pollutant	Target Reduction (Seqwater)	Northern Catchment	Compliant	Southern Catchment	Compliant
Flow Reduction (ML/yr)	N/A	3%	N/A	18.4%	N/A
Total Suspended Solids (kg/yr)	85%	87.6%	Y	85.0%	Y
Total Phosphorus (kg/yr)	65%	76.8%	Y	69.5%	Y
Total Nitrogen (kg/yr)	45%	46.2%	Y	48.7%	Y
Gross Pollutants (kg/yr)	95%	99.2%	Y	99.4%	Y

MUSIC modelling also highlights that the re-use of runoff, via rainwater harvesting, reduces the quantity of water flowing from the Project area in regular rainfall events. In particular, the rainwater harvesting tanks serving the main EfW building and IBA buildings provides a secondary source of process water which yields a flow reduction greater than 15% per annum in the context of the southern catchment.

Bio-retention footprint, configurations and the size of rainwater harvesting tanks may be refined during later design stages to reflect design development.

6.2.4 Runoff From Sensitive Areas

The stormwater system is serving building roofs, roads, general vehicle hardstands and landscaped areas. As such, stormwater runoff is considered to be typical to other industrial development.

Potentially contaminated materials within the waste mix delivered to site will be covered on delivery and will not be unloaded, transferred or stored externally, minimising the possibility for these materials to leach into the stormwater system which is serving roofs and hardstands. The receival hall itself is a fully enclosed building which has specific management measures to deal with any spills that may occur within the building.

Specific components of the facility require supplementary measures, and these are outlined below.

IBA / IBAA Stockpiles

The maturing incinerator bottom ash stockpiles can contain heavy metals and high salt content which are to be kept separate from the trunk stormwater system. Concentrations of contaminants within stockpiles and associated runoff are highly variable, dependant on factors such as waste feedstock composition, age of stockpile, duration of storage within IBA sorting and maturing buildings, size of stockpile, climatic conditions in prior days/weeks and rainfall intensity.

IBA stockpiles are initially matured inside the three-sided IBA maturation building. The IBA once matured is transferred by conveyor to the fully enclosed IBA sorting process building where the IBA is processed by removing metals and grading to create IBAA. The IBAA is transferred by conveyor back to the IBAA hardstand where it is then stockpiled. Runoff from the IBAA hardstand is to be drained to a separate lined retention basin via an inlet GPT. This basin is to be lined with either impermeable membrane or geosynthetic clay liner (GCL) with minimum permeability (K) of $1x10^{-9}$ m/s and will be bunded to prevent collection of non-contaminated flows from general hardstand areas.

The concept design of the lined retention basin assumes:

- Hardstand catchments of 1.11 ha with durable, impermeable surface (excludes IBA maturing building roof and circulation road which will be separated by kerbed upstand).
- Sizing guidance has been taken from Victorina EPA Guideline “Siting, design operations and rehabilitation of landfills”.
- This guideline recommends design for 90th percentile wet year (2 consecutive years) or a 1-in-20 year storm.
- Water balance uses 90th Percentile wet year (calcs for worst year only), using monthly data from BOM for Bromelton. The 90th %ile year is 1165 mm however the design takes into consideration intensities and rainfalls associated with peak 24hr period for a 1 in 20 year storm event.
- Peak 24 hr rainfall intensity of 7.49 mm/hr.
- Minimum storage volume of 1,995 m^3.

During operation the management of stormwater runoff in the IBAA stockpile area includes:

- Runoff from the IBA maturing building roof will drain into a min 100 kL rainwater harvesting tank for re-use within the process. Overflow from rainwater tank discharges to trunk stormwater network.
- Inlet sump to collect and remove larger sediments and pollutants that may be present on hardstand prior to discharge into lined retention basin. Materials captured in the sump will be periodically removed and disposed of at a suitable facility.
- Recovered water from the lined retention basin is to be pumped into storage tanks with minimum capacity 150 kL., treated and reused to maintain moisture levels in IBAA stockpiles (moisture aids the carbonation/maturation process) and for stockpile dust suppression and hardstand wetting.
- In the event of the lined retention basin approaching its capacity the operator will make provision to tanker off-site collected runoff to a licensed facility.

The exact configuration of the drainage system in the IBAA maturing hardstand, the lined retention basin and an IBA/IBAA management plan will be developed as part of detailed design.

Diesel and Oil

2No diesel storage tanks are proposed adjacent to the main EfW building. These tanks will be double skinned and designed in accordance with AS 1940:2017. Spill response kits shall be provided on site.

An oil and water separator has been included at the point of discharge from the HV substation area. Noting that there is potential for accidental releases of oil or fuel from vehicles and machinery, as is the case for any industrial development. Spill management plans will form part of the wider operational management plan to deal with rare, major incidents such as a damaged/faulty vehicle.

Although not included within the MUSIC model, both the GPT units and bio-retention basins are known to remove particulate and soluble contaminants including hydro-carbons and heavy metals. Independent testing of the CDS unit indicates an 80% removal efficiency of both heavy metals and hydro-carbons/oils which could treat runoff in the event of localised spills within the site roadway.

Sewer Infrastructure

There is currently no formal sewerage infrastructure within the broader Bromelton SDA precinct. Preliminary discussions with Queensland Urban Utilities indicate that there are no formal proposals to construct a sewer along Beaudesert Boonah Road.

On-site sewer holding tanks are proposed to cater for sewage wastewater (kitchen, toilets) for each of the buildings which will house staff (EfW building and IBA admin). These retention systems will be fully contained, sized for 7 days capacity, with no overflow to landscaped areas. Effluent will be transported off-site as required when these holding tanks approach capacity.

The concept design provisions for a 25,000 L sewer holding tank capacity serving the EfW building and a 50,000 L sewer retention capacity serving the IBA sorting building. These sewer holding tanks, as shown in concept engineering drawing BERC-ARU-BNE-CICW-DRG-1801, have been positioned a minimum 100 m clear of the mapped Stream Order 1 hydro-lines and are compliant with performance outcomes P02 and P07 of Seqwater's Development Guideline.

The exact position and size of the sewer holding tanks will be finalised as part of detailed design.

At future design stages landscape irrigation utilising treated wastewater may be explored, subject to the necessary site assessments and approvals. The Proponent shall investigate the opportunity to connect to a future precinct gravity sewer should this be provided by Queensland Urban Utilities.

6.2.5 Erosion and Sediment Control Plan (ESCP)

A preliminary site geotechnical investigation (Douglas Partners, 2023) found that the site has a 100-300 mm layer of topsoil which overlays a thick layer of residual clay. Geological mapping from the CSIRO indicates that the site sits in a zone defined as having an extremely low probability of Acid Sulphate Soils occurrence.

Careful planning with regard to the phasing of clearing, excavation, stockpiling, and filling stages across the development footprint will be required to effectively manage runoff from the site during construction. This will need to be considered in relation to the implementation of mitigation and control measures and stormwater runoff quality monitoring. Given the steeply sloping nature of the site, additional velocity control measures such as check dams and rip rap within channels are recommended to reduce scouring.

A detailed Soil and Water Management Plan is to be developed for the construction stage, with reference to relevant guidelines.

Potential strategies to control sediment and erosion during the construction phase include:

- Shaker pads at construction access points
- Sediment fences
- Cut-off drains.

- Check dams.
- Sediment basins.

Concept sediment and erosion control measures are shown in the engineering plans contained in Appendix B. The final design, sizing and location of these measures will be determined by the Contractor based on the proposed phasing of site works.

The Contractor will be responsible for monitoring the quality of stormwater discharged from the construction area via sedimentation basins during construction. To comply with requirements of the Department of Environment, Tourism, Science and Innovation (DETSI) authorised under the *EP Act*, the Contractor is recommended to follow the guidelines contained within Best Practice Erosion and Sediment Control (BPESC) document and the Healthy Land and Water ESC Toolkit.

6.3 Flood Impact Assessment

The concept design surface, surface roughness delineation and associated site drainage were tested in the hydraulic model to inform potential flood risk at the Project area under a range of flood conditions. The design case model setup is presented in Figure 18.

Flood mapping showing flood depth, hazard, flood level impacts and flood velocity impacts for the 63.2% AEP through to the 1% AEP + CC (SSP2-4.5) event are presented in flood maps under Appendix F.

The design conditions 1% AEP + CC (SSP2-4.5) peak flood depth results presented in Figure 19 showed that the critical site elements are located outside the peak 1% AEP + CC (SSP2-4.5) peak flood extents.

The design conditions modelling 1% AEP + CC (SSP2-4.5) peak flood depth difference presented in Figure 20 showed that no adverse off-site flood impacts are observed due to the proposed works. The proposed stormwater detention basins are shown to retain a portion of the local runoff flows within the site, resulting in a decrease in off-site flood flows.

Notably it is observed that there is no worsening in flood depth or hazard to:

1. Beaudesert Boonah Road in 1% AEP + CC (SSP2-4.5) event.
2. Railway corridor or to railway infrastructure in 1% AEP + CC (SSP2-4.5) event.

Table 12 shows the peak flows arriving at existing off-site hydraulic structures in events up to and including the 1% AEP + CC (SSP2-4.5) event at the two key locations presented in Figure 18 (i.e. (A) Railway Culvert and (B) Road Culvert). As shown, there is no increase in peak flow off-site as a result of the project.

Table 12: Comparison of Peak Flows at Existing Off-Site Culvert Crossings

Flood Event (AEP)	Location A – Railway Culvert		Location B – Beaudesert Road Culvert	
	Existing Case Peak Flow (m^3/s)	Design Case Peak Flow (m^3/s)	Existing Case Peak Flow (m^3/s)	Design Case Peak Flow (m^3/s)
1% AEP	8.2	7.0	15.1	14.7
2% AEP	6.7	5.7	14.7	14.0
5% AEP	4.8	4.0	10.0	9.7
10% AEP	3.3	2.5	8.1	7.9
20% AEP	3.1	2.4	6.5	5.5
1% AEP + CC (SSP2-4.5)	10.6	10.0	10.9	10.8

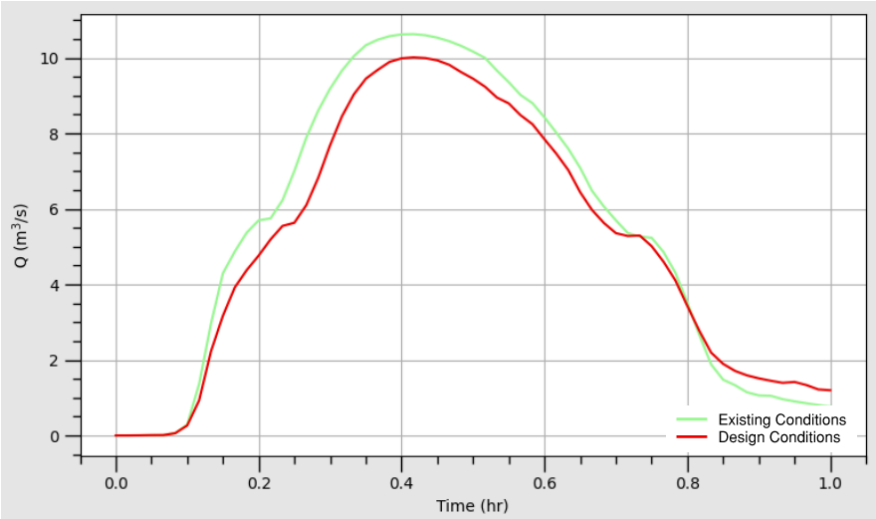


Figure 16: 1% AEP + CC (SSP2-4.5) Flow Comparison at Location (A) Railway Culvert

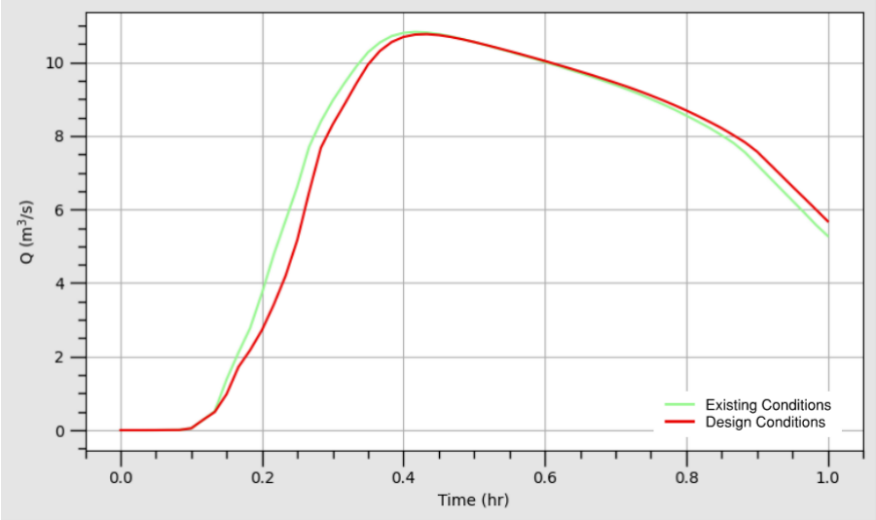


Figure 17: 1% AEP + CC (SSP2-4.5) Flow Comparison at Location (B) Beaudesert Road Culvert

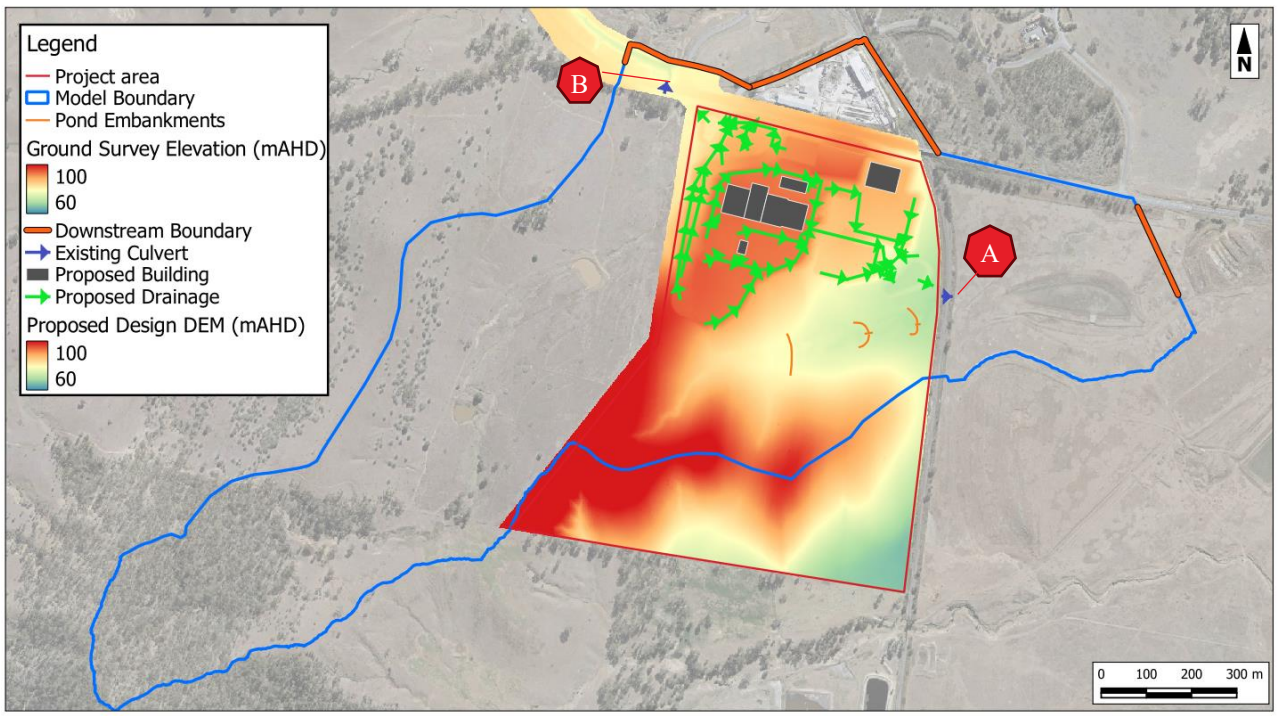


Figure 18: Design Case TUFLOW Model Setup and Reporting Location

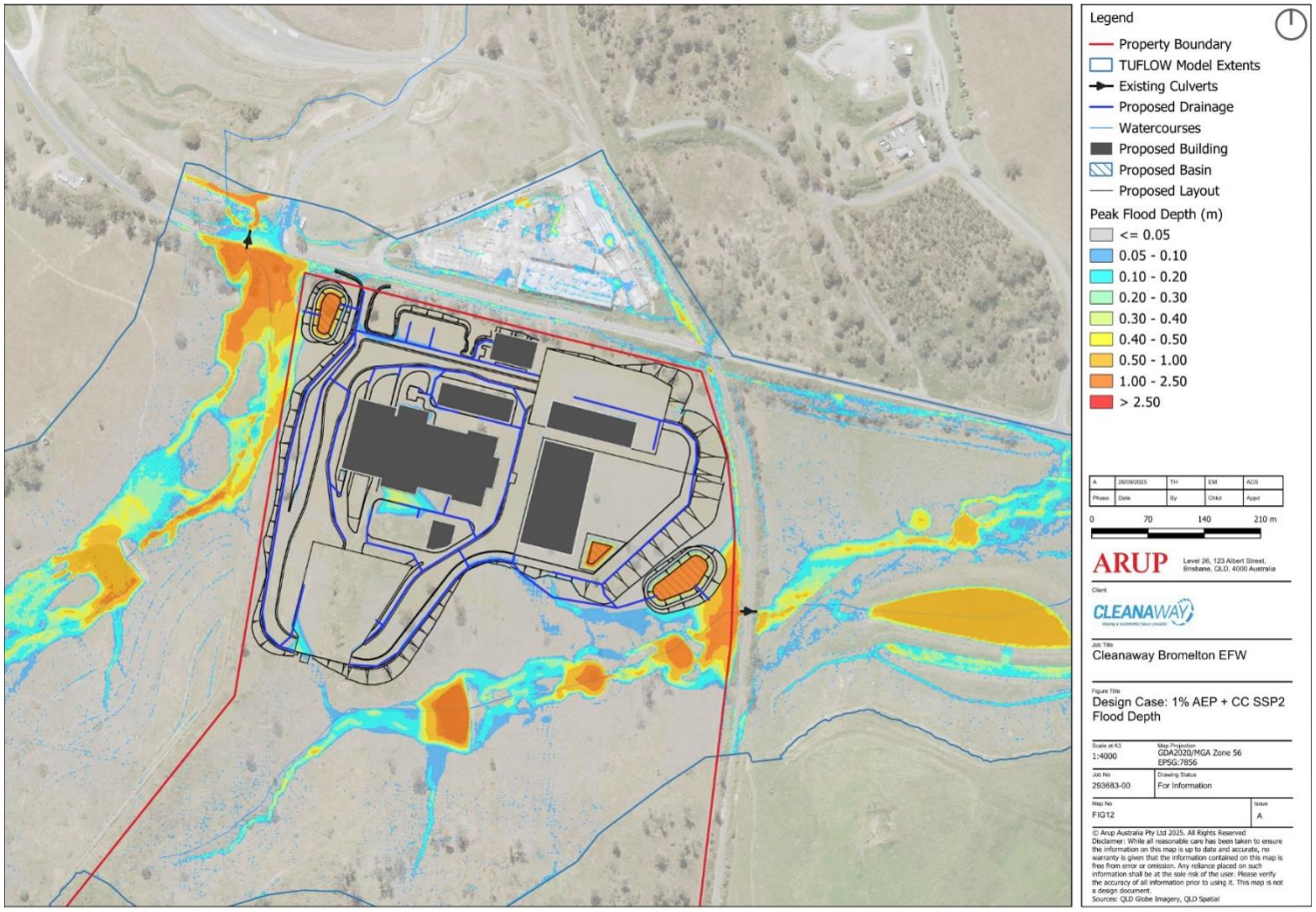


Figure 19: Design Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Depth

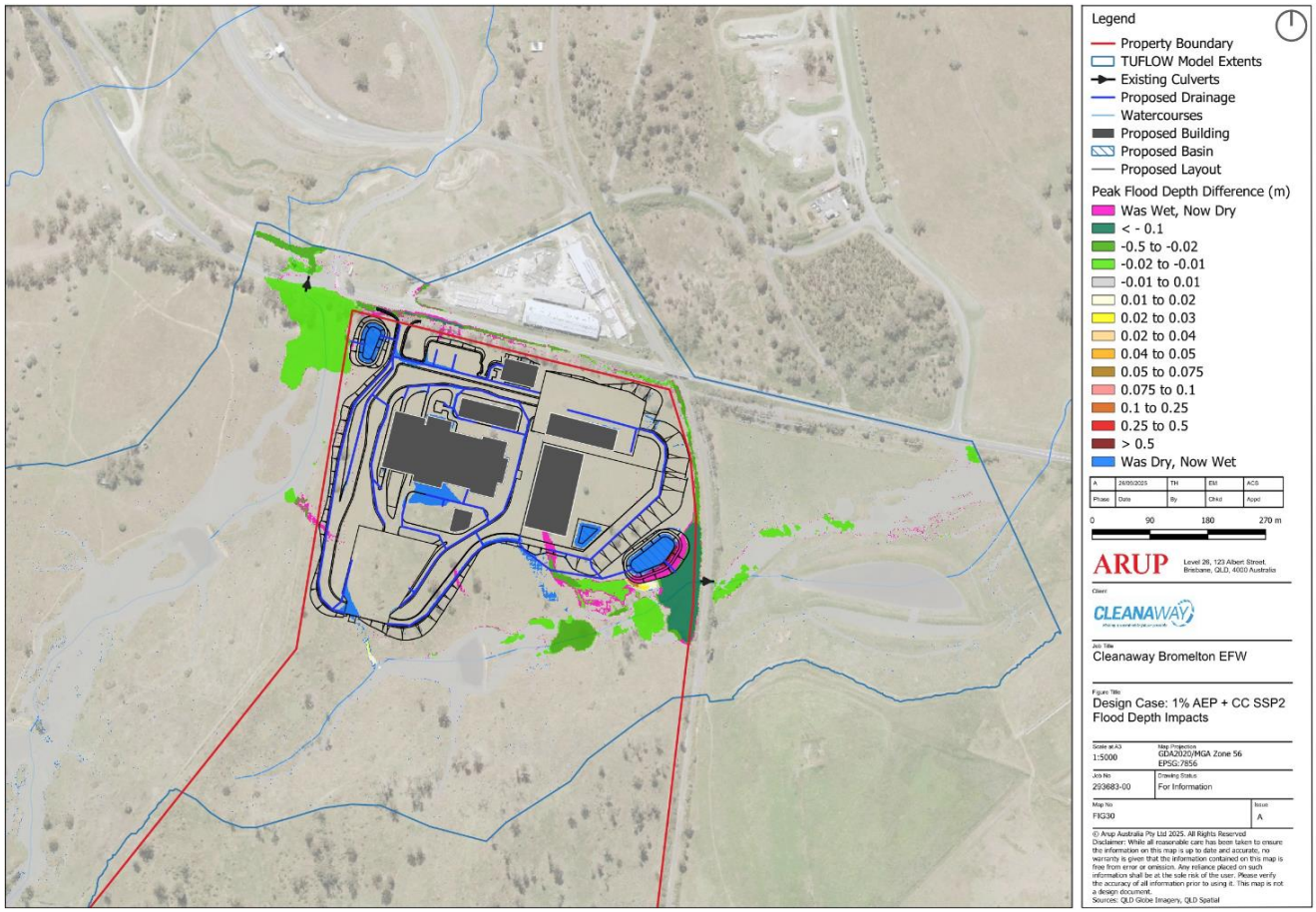


Figure 20: Design Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Impact (Change in peak flood depth)

7. Assessment of Surface Water Risks

7.1 Construction

7.1.1 Water Quality

Construction activities have the potential to impact off-site watercourses should contaminated waters or high volumes of sediment discharge from the site.

Site won earthworks materials will be suitably stockpiled, clear of temporary overland flow paths and surrounded with silt fences, to prevent sediments being washed out.

A construction sediment and erosion control plan will be developed by the Contractor that considers the construction phasing and site topography. This shall develop the proposed configuration outlined in Section 6.2.5. Ongoing monitoring of water quality discharging from the site will be undertaken to demonstrate compliance with regulatory requirements.

Fuels and chemicals stored on site to support construction works will be securely stored to avoid accidental spillages discharging from the site compound.

7.1.2 Flood Risk Management

The development footprint, and in particular the main EfW building, sits at the top of the local catchment. There are no flows from upstream sites that would naturally drain towards the project site.

All construction compounds and main construction access tracks are to be located outside of the existing 1% AEP flood extent. The establishment of temporary drainage on site as outlined in Section 6.2.5 will be important to safely manage site stormwater runoff, diverting flows around key areas of excavation and minimise the risk of flooding within the development footprint during construction.

The use of sediment basins will control the discharge rate of stormwater runoff during construction works.

7.2 Operation

7.2.1 Stormwater Management

The Project results in a significant portion of farming land being transformed into industrial usage with increased areas of hardstand. Such increases in imperviousness can simultaneously reduce the time of concentration and increase stormwater flow rates discharging from the site if not managed.

The concept civil design includes a considered stormwater management strategy comprising water collection and re-use, pit and pit network and downstream bio-retention and on-site detention basins. The pit and pipe network and on-site detention basins have been sized for the 10-year ARI event. Peak stormwater flows, up to and including the 10-year ARI (10% AEP) event will be equal to or lower than pre-development conditions as per requirements within Bromelton SDA and QUDM.

7.2.2 Stormwater Quality

If not adequately managed, the industrialisation within the development footprint and subsequent vehicle trafficking has the potential to increase the level of contamination within stormwater discharging from the site.

MUSIC modelling, as detailed in Section 6.2, has been completed which demonstrates that the proposed water sensitive urban design and water recycling measures achieve pollution reduction targets stipulated by Seqwater. These targets, described in Performance Outcome P014, are to protect drinking water supply environmental values and facilitate the achievement of water quality objectives for receiving waters.

A separate, lined retention pond, serving the IBA maturing hardstand area, is proposed to collect potentially contaminated runoff. This runoff will be captured and collected water re-used within the maturation process.

Oil and water separator is proposed to serve stormwater drainage connection from the HV substation area in the unlikely event of a spillage or equipment failure.

7.2.3 Flood Risk

The development footprint sits on the ridgeline of the existing catchment. Key buildings, such as the EfW and APCr storage building are set above RL 88 mAHD, some 8 m higher than the detention basins located near the northern and eastern boundaries of the site. Design levels shed water away from the buildings towards the stormwater system and subsequently to the detention basins. It is therefore considered that the buildings within BERC have minimal risk of flooding.

The proposed stormwater management system, including on-site detention basins, controls stormwater flows discharging from the site. Flood modelling of the post-development scenario has demonstrated that the project does not result in a material worsening of the operating performance of the state controlled road or the rail transport infrastructure adjacent to the site. Indeed, the stormwater management measures are shown to reduce peak flows exiting the site in the 1% AEP + CC (SSP2-4.5) event. There is no worsening in flood hazard along Beaudesert Boonah Road in a 1% AEP + CC (SSP2-4.5) event.

Furthermore, it is noted that flood modelling of the post-development scenario has demonstrated that there is no concentration of flows at the rail corridor.

8. Proposed mitigation of impacts

This section outlines proposed mitigation and management measures that have been developed to mitigate the potential surface water and flooding impacts of the project during construction and operation.

8.1 Construction

Table 13 shows the mitigation measures for managing surface water related environmental impacts during construction.

Table 13: Construction mitigation measures for Surface Water & Flooding

ID	Mitigation measure	Timing
HYD01	Implement a Soil and Water Management Plan comprising suitable erosion and sediment control measures such as cut-off drains, shaker pads, check dams and sediment basins. This will improve the quality of stormwater runoff from the site and minimise downstream environmental impacts.	Construction
HYD02	Reuse stormwater collected in sediment basins for dust suppression.	Construction
HYD03	The water quality of stormwater discharged from the site will be monitored by the contractor to ensure water quality objectives are met.	Construction
HYD04	Locate site facilities and construction access tracks away from existing overland flow paths and identified 1% AEP flood extent.	Construction
HYD05	Locate earthworks stockpiles clear from overland flow paths created as part of the Soil and Water Management Plan.	Construction

8.2 Operation

The design for the Project includes numerous features that will act to mitigate hydrology, surface water and flooding impacts. Table 14 shows the management and mitigation measures incorporated within design that will act to reduce surface water and flood impacts.

Table 14: Operational mitigation measures for Surface Water & Flooding

ID	Mitigation measure	Timing
HYD101	The design includes two on-site detention basins which have been sized such that post development stormwater discharge rates match the pre-development condition in accordance with the requirements of QUDM.	Operation
HYD102	The design incorporates water sensitive urban design elements which enable the proposal to meet pollutant reduction targets nominated by Seqwater, including Rainwater harvesting tanks to collect runoff from the main building and reuse it for the EfW process.	Operation
HYD103	Oil and Water separator included at point of discharge from HV substation to cater for potential oil spills.	Operation
HYD104	The design elements involving the storage or processing of potentially hazardous waste have been located outside the 1% AEP flood extents and above the PMF flood level	Operation

ID	Mitigation measure	Timing
HYD105	Potential downstream flood impacts are mitigated by the inclusion of two on-site detention basins.	Operation
HYD106	All buildings within the development footprint are positioned well above the 1% AEP flood level.	Operation
HYD107	IBAA Retention Basin Management An IBA specific management plan will be prepared by the Operator to maintain the function and capacity of the IBA retention basin. This includes: • Regular cleaning and removal of inlet GPT. • Monitoring or weather forecasts and on-site rainfall to anticipate inflow. • Data logger and telemetry device to measure water level in the retention basin and record data. • Arranging for license waste contractor to transport collected runoff from the retention basin to a licensed facility, if it is approaching capacity. • Periodic inspection and maintenance of key equipment of the closed cycle arrangement (pumps, storage tank(s), retention basin etc)	Operation

9. Conclusions

A stormwater management and flood risk assessment has been completed for the Project area. Existing site conditions have been investigated and potential risks identified through the methodology presented.

The relevant environmental and planning regulations have been considered and addressed throughout the design development.

Risks have been assessed throughout the construction and operation stages with appropriate mitigation measures identified.

Key outcomes from this assessment are:

- An existing overland flow path, including three farm dams sit outside of the development footprint and will be retained in their present condition.
- Existing overland flow paths in the southern half of the Project area are not affected by the construction or operation of BERC.
- All buildings have been set above 1% AEP flood level plus freeboard.
- A stormwater strategy has been provided which minimises off-site impacts. This design features a series of pits and pipes, rainwater harvesting tanks, water quality treatment devices, bio-retention and detention basins. Pits, pipes and detention basins have been designed accordance with the QUDM and ARR such that post development discharge flows match pre-development discharges for a 10-year ARI event.
- MUSIC modelling demonstrates that the proposed water sensitive urban design and water recycling measures achieve necessary pollution reduction targets required by Seqwater and comply with performance outcome PO14.
- Rainwater harvesting has been integrated within the design with 4No rainwater harvesting tanks provided. Captured water will be re-used as process water.
- A separate, lined retention basin is proposed to serve the IBA maturing hardstand. Detained water is to be captured and re-used as part of the maturation process of the stockpiled ash materials.
- Flood modelling of the post-development scenario has demonstrated that the Project does not result in a material worsening of the operating performance of the state-controlled road, rail or transport infrastructure adjacent to the site in the 1% AEP event.
- Stormwater runoff does not create or exacerbate a safety hazard in the state transport infrastructure.

9.1 Compliance with State Codes

The following section summarises how relevant performance outcomes within the State Codes have been met and highlights relevant sections of this report.

It is noted that although the project does involve development in a state controlled road or road environment that the site boundary abuts with state owned or managed road and rail corridors.

Table 15: Assessment of State Code 1 (road)

Performance Outcome	How Outcome is Met	Section
PO2 – The design and construction of the development does not adversely impact the structural integrity or physical condition of the state-controlled road or road transport infrastructure.	The private development does not adversely impact the structural integrity or physical condition of the state controlled road (Beaudesert-Boonah Road) or road transport infrastructure.	Section 6.1
PO8 – Stormwater runoff or overland flow from the development site does not create or exacerbate a safety hazard for users of the state-controlled or road transport infrastructure.	The design maintains existing points of discharge from the site. Stormwater management measures have been integrated into the design detain flows such that post-development flows are not greater than pre-development flows. The flood impact assessment demonstrates that there are no adverse impacts on state controlled roads and no increase in flood hazard rating.	Sections 6.2, 6.3 and Appendix F.
PO9 - Stormwater runoff or overland flow from the development site does not result in a material worsening of the operating performance of the state-controlled road or road transport infrastructure	Stormwater management measures have been integrated into the design detain flows such that post-development flows are not greater than pre-development flows. The flood impact assessment demonstrates that there are no adverse impacts on state controlled roads.	Section 6.3 and Appendix F
PO10 - Stormwater runoff or overland flow from the development site does not adversely impact the structural integrity or physical condition of the state-controlled road or road transport infrastructure.	Stormwater runoff is managed via detention basins to limit post-development flows to pre-development rates resulting in no adverse impacts to the structural integrity or physical condition of the state controlled road (Beaudesert-Boonah Road) or road transport infrastructure.	Section 6.2.1 and 6.3
PO11 – Development ensures that stormwater is lawfully discharged.	The proposed development maintains existing points of discharge and does not create any new points of discharge to a state controlled road. Development does not concentrate flows to a state-controlled road. Development does not worsen the condition of an existing lawful point of discharge. Stormwater management measures have been integrated into the design detain flows such that post-development flows are not greater than pre-development flows.	Section 6.2.1 and 6.3
PO12 - Development does not result in a material worsening of flooding impacts within a state controlled road.	Potential downstream flood impacts are mitigated by the inclusion of two on-site detention basins.	Section 6.3 and Appendix F

Performance Outcome	How Outcome is Met	Section
	The flood impact assessment demonstrates that there are no adverse impacts on state controlled roads.	
PO13 - Drainage infrastructure does not create a safety hazard for users in the state-controlled road.	Drainage infrastructure associated with the development is wholly contained within the development site, except at the lawful point of discharge. Privately owned stormwater infrastructure can be access and maintained from within the development site.	Section 6.2
PO14 - Drainage infrastructure associated with, or within, a state-controlled road is constructed, and designed to ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage	The application does not propose new drainage infrastructure within a state controlled road. Planned upgrades to a state controlled road will be developed in conjunction with TMR.	Section 6.2
PO35 - Excavation, boring piling, blasting and fill compaction do not adversely impact the physical condition or structural integrity of a state controlled road or road transport infrastructure.	The proposed buildings are wholly contained within the Subject site boundary. Piling works, associated with the EfW Building are positioned >100m away from the state controlled road. Earthworks associated with the development are wholly contained within the Subject site boundary.	Section 6.1 and Appendix B.

Table 16: Assessment of State Code 2 (rail)

Performance Outcome	How Outcome is Met	Section
PO1 - Development does not create a safety hazard within the railway corridor.	The private development does not adversely impact the structural integrity or physical condition of the railway corridor.	Section 6.1
PO2 - Development does not cause damage to the railway corridor, rail transport infrastructure or other rail infrastructure.	The proposed development does not encroach into the railway corridor, nor does it change ground levels at the eastern boundary.	Section 6.1
PO3 - Development does not interfere with, or obstruct, the rail transport infrastructure or other rail infrastructure.	The proposed development does not encroach into the railway corridor, nor does it change ground levels at the eastern boundary. No obstruction to the rail infrastructure is caused as a result of the development.	Section 6.1
P04 - Development does not adversely impact the structural integrity or physical condition of the railway, other rail infrastructure or the railway corridor by adding or removing loading	The proposed development does not encroach into the railway corridor, nor does it change ground levels at the eastern boundary. Fill batters near the eastern boundary of the site tie into existing ground levels a minimum 5.0m inside the Lot Boundary.	Section 6.1
PO11 – Buildings, and structures with publicly accessible or communal areas within 20 metres from the centreline of the nearest railway track are designed	No buildings are proposed within 20.0m of the railway corridor.	Section 6.1 & architectural site plans.

Performance Outcome	How Outcome is Met	Section
and constructed to prevent projectiles from being thrown onto a railway.	The site is secured with perimeter fencing preventing general public access.	
PO12 - Stormwater runoff or overland flow from the development site does not create or exacerbate a safety hazard in a railway corridor.	The design maintains existing points of discharge from the site. Stormwater management measures have been integrated into the design detain flows such that post-development flows are not greater than pre-development flows. The flood impact assessment demonstrates that there are no adverse impacts on state controlled railway and no increase in flood hazard rating.	Sections 6.2, 6.3 and Appendix F.
PO13 - Stormwater runoff or overland flow from the development site does not result in a material worsening of operating performance of the railway corridor, rail transport infrastructure or other rail infrastructure.	Stormwater runoff is managed via detention basins to limit post-development flows to pre-development rates resulting in no adverse impacts to the operating performance of the railway corridor, rail transport infrastructure or other rail infrastructure.	Section 6.2.1 and 6.3
PO14 - Stormwater runoff or overland flow from the development site does not interfere with the structural integrity or physical condition of the railway corridor, rail transport infrastructure or other rail infrastructure.	The proposed development maintains existing points of discharge and does not create any new points of discharge to the railway corridor. Development does not concentrate flows to existing flow paths/points of discharge. Development does not worsen the condition of an existing lawful point of discharge. Stormwater management measures have been integrated into the design detain flows such that post-development flows are not greater than pre-development flows.	Section 6.2 & 6.3 & Appendix F.
PO15 - Development does not result in a material worsening of flooding impacts within a railway corridor.	Stormwater runoff is managed via detention basins to limit post-development flows to pre-development rates resulting in no adverse impacts to the operating performance of the railway corridor, rail transport infrastructure or other rail infrastructure. The flood impact assessment demonstrates there is no material worsening of flood impacts within the railway corridor.	Section 6.3 and Appendix F.
PO16 - Drainage infrastructure does not create a safety hazard in a railway corridor.	Stormwater infrastructure associated with the development is wholly contained within the Subject Site and does not require access to the railway corridor to maintain.	Section 6.2
PO33 - Excavation, boring piling, blasting and fill compaction do not adversely impact the physical condition or structural integrity of a state controlled road or road transport infrastructure.	The proposed development does not encroach into the railway corridor, nor does it change ground levels at the eastern boundary. Fill batters near the eastern boundary of the site tie into existing ground levels a minimum 5.0m inside the Lot Boundary. Piles are required to support the main EfW building however this building is located >250m from the railway corridor.	Section 6.1 and Appendix B.

Performance Outcome	How Outcome is Met	Section
PO34 - Filling and excavation material does not cause an obstruction or nuisance in the railway corridor.	The proposed development does not encroach into the railway corridor, nor does it change ground levels at the eastern boundary. Fill batters near the eastern boundary of the site tie into existing ground levels a minimum 5.0m inside the Lot Boundary.	Section 6.1 and Appendix B

Table 17: Assessment of State Code 22

Performance Outcome	How Outcome is Met	Section
PO4 - Development is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment.	The site masterplan layout has been developed with key buildings located within the central portion of the site allowing space for stormwater quality improvement devices to treat runoff prior to discharge from site. The design demonstrates compliance with the Acceptable Outcomes listed in AO14.3 within Seqwater's development guidelines GDE-00001 V2.	Section 6.2.3

9.2 Compliance with SeqWater Guidelines

The following section summarises how relevant performance outcomes within the State Codes have been met and highlights relevant sections of this report.

Table 18: Assessment of Seqwater Development Guideline 2024 Final

Performance Outcome	How Outcome is Met	Section
PO1 – Development maintains adequate separation distances to watercourses and water bodies and avoids areas of flood inundation to protect drinking water.	The site masterplan layout has been developed such that all buildings and operational hardstands, used to stockpile materials, are located more than 100m from Stream Order 1 watercourse in accordance with Table 5 of Development Guidelines.	Section 6.1 and Appendix B.
PO2 – Development does not discharge wastewater unless demonstrated to not compromise the drinking water supply environmental values.	Runoff associated with the IBA maturing hardstand is stored within a lined retention basin and re-used on site in a closed cycle irrigation scheme to wet maturing stockpiles of bottom ash material (aggregate). In rare occasions, runoff will be transferred off-site when the lined retention basin in nearing capacity.	Section 6.2.4
PO7 – Development provides and on-site sewerage management system that is designed, constructed and managed in a way that does not compromises the environmental values for the supply of drinking water.	Two sewer holding tanks, with minimum 7 day capacity will be provided as part of the development. These tanks are located above the 0.5% AEP flood event (including climate change factors). No discharge from these holding tanks to the water supply source is proposed. The Proponent will enter into a contract with a licensed waste removal contractor for scheduled pump out of sewage.	Section 6.2.4 and Appendix B.

Performance Outcome	How Outcome is Met	Section
PO10 Development protects and enhances riparian vegetation so that it protects against bank erosion and filters sediments, nutrients and other pollutants to ensure the environmental values for the supply of drinking water are not compromised.	The development footprint is shown to be >25m from a Stream Order 1 hydroline. The proposal includes landscaping treatment on fill batters to stabilise slopes and protect against bank erosion.	Section 6.1 and architectural reports.
PO11 Stormwater drainage conveys runoff in a manner that: a) minimises risk to public safety, the environment and drinking water source areas; and b) provides a lawful point of discharge from each lot; and c) does not worsen drainage impacts on neighbouring sites.	The stormwater design complies with the Acceptable Outcomes listed in AO14.3 within Seqwater's development guidelines GDE-00001 V2. The stormwater designs maintains existing points of discharge from site with the stormwater basins provided restricting post-development flows to pre-development rates. The flood impact assessment completed demonstrates no adverse impacts on neighbouring sites.	Section 6.2.1, 6.2.3 and 6.3
PO12 Development is sited, designed, constructed and managed to avoid or where it is not possible to avoid, minimise adverse impacts on the environmental values and water quality of surface and ground water from: a) altered quality and hydrology; and b) the release and mobilisation of nutrients and sediments.	The development's masterplan has been developed such that all buildings and operational hardstands, used to stockpile materials, are located more than 100m from Stream Order 1. The stormwater design complies with the Acceptable Outcomes listed in AO14.3 within Seqwater's development guidelines GDE-00001 V2, minimising the release of nutrients and sediments. A preliminary erosion and sediment control plan has been prepared. This will be developed and modified by the General Contractor at the construction stage.	Section 6.2
PO13- Manage stormwater at the construction phase to protect drinking water supply environmental values and facilitate the achievement of water quality objectives for receiving waters.	A preliminary erosion and sediment control plan has been prepared. This will be developed and modified by the General Contractor at the construction stage to demonstrate compliance with the objectives listed in Table A of the SPP.	Section 6.2.5
PO14 – Development is located and designed to improve stormwater quality so that water source areas achieve aquatic ecosystem water quality objectives including drinking water supply environmental values.	The development's stormwater design incorporates stormwater quality improvement devices including rainwater harvesting, GPT's and bio-retention basins. MUSIC modelling completed demonstrates that the design achieves the stormwater management design objectives outlined in Acceptable Outcome AO14.3	Section 6.1 and 6.2.3
PO16 – Development avoids and minimises changes to the existing surface water natural hydrological regime to ensure: a) there is no change to the reference high-flow and low flow duration frequency curves, low-flow spells frequency curve and mean annual flow to	The site layout is focused on the northern portion of the site avoiding any changes to the southern catchments on the site. The existing overland flow path and farm dams are retaining in their present condition. The design maintains existing points of stormwater discharge to the site with stormwater basins detaining flows such post-	Section 6.2.1, 6.2.2 and 6.2.3

Performance Outcome	How Outcome is Met	Section
and from waterway as a result of the development; b) any relevant flows into waterways comply with the relevant flow objectives of the applicable water plan for the area; and c) the collection and re-use of stormwater occurs so there is no increase to the velocity or volume of stormwater flows entering a waterway.	developments flows do not exceed pre-development flows. The stormwater design complies with the Acceptable Outcomes listed in AO14.3 within Seqwater's development guidelines GDE-00001 V2, minimising the release of nutrients and sediments.	
PO25 The siting and design of earthworks minimises impacts on the natural landform that may cause contamination or interfere with the flow of any overland flow path, watercourse, waterbody or water supply source.	The site layout is focused on the northern portion of the site avoiding any changes to the southern catchments on the site. The existing overland flow path and farm dams are retaining in their present condition. Earthworks are not located within 25m of a Stream Order 1. Earthworks are not located below the 1% AEP event of primary overland flow paths.	Section 6.1 and Appendix B.
PO28: Development either: a) does not involve the manufacturing or storage of hazardous materials and chemicals within drinking water source areas; or b) is designed so dangerous good, hazardous substances or environmentally hazardous materials are stored and handles in a manner that minimises the potential for the release of hazardous materials and chemicals to drinking water source areas during a potential contamination event.	The design has been developed such that the primary EfW building, which is where hazardous materials and chemicals are located, has been positioned within the central, high point of the developed area. This means that dangerous goods, hazardous materials are located a minimum 100m from a watercourse and located above the 1% AEP flood event (including climate change factors). For further details on the storage of these materials, refer to the Hazards and Risks Technical Report.	Section 6.1 and Hazards and Risks Technical Report

10. References

Australian Rainfall and Runoff (Ball, et al. 2019), AR&R guidelines

AustRoads 2023. AustRoads Part 5A Guide to Road Design Part 5: Drainage-General and Hydrology Considerations.

Bromelton State Development Area Development Scheme, December 2017.

Department of Environment, Land, Water and Planning (DELWP), 2019. Guidelines for Development in Flood Affected Areas.

Douglas Partners 2023. Preliminary site geotechnical investigation.

Environmental Protection Policy (Water) 2009.

Queensland – MUSIC Guidelines, 2018.

Queensland Urban Drainage Manual, 4th Edition, 2016.

Seqwater 2024. Seqwater Development Guidelines: Water Quality Management in Drinking Water Catchments (GDE-00001 V2)

TMR 2019. Manual Road Drainage September 2019.

Water Sensitive Urban Design – Technical Design Guidelines for South East Queensland, Version 1 June 2006.

Appendix A - Topographical Survey

BEAUDESERT

BOONAH

ROAD

BRISBANE

SYDNEY

PALTWAY

51
SP213384

3
RP858122

4
SP207168

2
RP45732

4
RP85497

3
RP85497

281
SP130095

991
SP158127

Emt C
SP140860

1
RP45234

SEE SHEET 2

SEE SHEET 3

SEE SHEET 4

SEE SHEET 5

SEE SHEET 6

SEE SHEET 7

SEE SHEET 8

SEE SHEET 9

SEE SHEET 10

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid–Spheroid Seperation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

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Note 2:
The title boundaries as shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Note 3:
Exposed services (shown hereon) only, were located at the time of the survey. Underground services (where found) have been located by A.U.S. Locators Pty Ltd and are shown as part of this survey. Where such services exist, reference should be made to records at the relevant authority.
Note 4:
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LINETYPE LEGEND

- STORM WATER
- UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY
- UNDERGROUND TELECOMMUNICATIONS
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE (Back of Kerb / Invert of Kerb / Edge of Bitumen)

HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

SYMBOL LEGEND

- EPP – Denotes Electricity Power Pole
- Denotes Light Pole
- Denotes Telstra Pit
- Denotes Sign
- Denotes Electricity Pit

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GRAPHIC SCALE (IN METRES)

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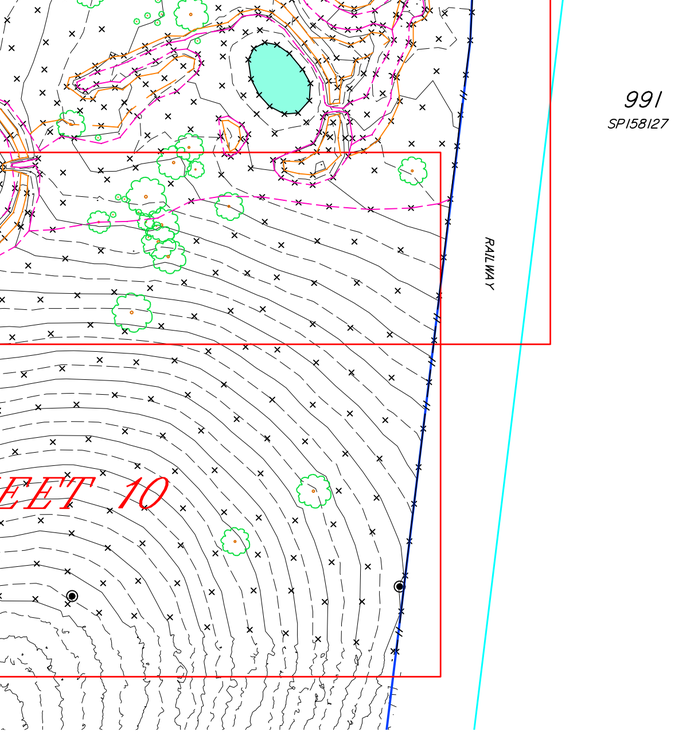
1:1500@A1 1:3000@A3

EXTENT OF GROUND SURVEY

SCALE 1: 5000

LINETYPE LEGEND

– Denotes Area of Ground Survey
All areas outside of this line have been surveyed by Aerial LiDAR



B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
–	ORIGINAL ISSUE	5/05/2023	AD
A'MENT	REVISION DETAILS	DATE	INIT

IMPORTANT NOTE:
This plan is presented at a scale of 1: 1. To convert to MGA Coordinates scale all data around TBM A (Not Shown)(492094.496, 6905859.412) by a scale factor of 0.999581341

Beaudesert Boonah Road Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
DRAWN	AD
CHECKED	AD
Scale	1:1500
Drawing Number	4577-02 B

LEVEL DATUM AHD
FROM PSM 163769
R.L. 43.457m

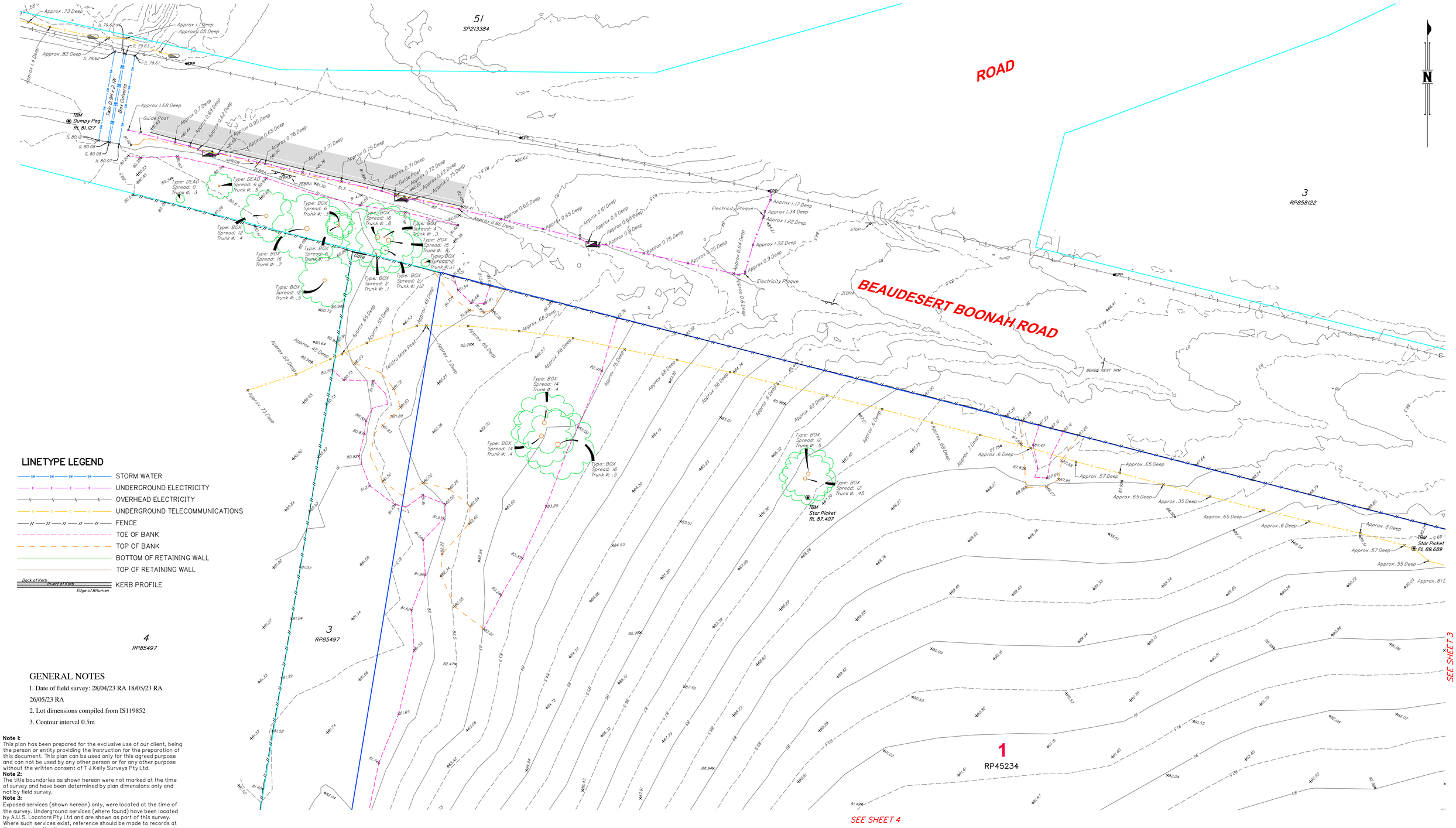
MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

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Email: admin@kellynet.com.au
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- OVERHEAD ELECTRICITY
- UNDERGROUND TELECOMMUNICATIONS
- FENCE
- TOE OF BANK
- TOP OF BANK
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2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

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- – Denotes Light Pole
- – Denotes Telstra Pit
- – Denotes Sign
- – Denotes Electricity Pit

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B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
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A'MENT	REVISION DETAILS	DATE	INIT

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

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MGA Coordinate System Datum Information	
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Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
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Origin Mark Coordinates	E: 492,094.496
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GRAPHIC SCALE (IN METRES)
8 0 8 16 24 32 40
1:400@A1 1:800@A3

Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02 B

LEVEL DATUM AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

TJ KELLY SURVEYS PTY LTD
CONSULTING SURVEYORS & TOWN PLANNERS
A.C.N. 058 752 417
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Phone: (07) 5541 4722
Facsimile: (07) 5541 4723
Email: admin@kellynet.com.au
Web : www.kellynet.com.au

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

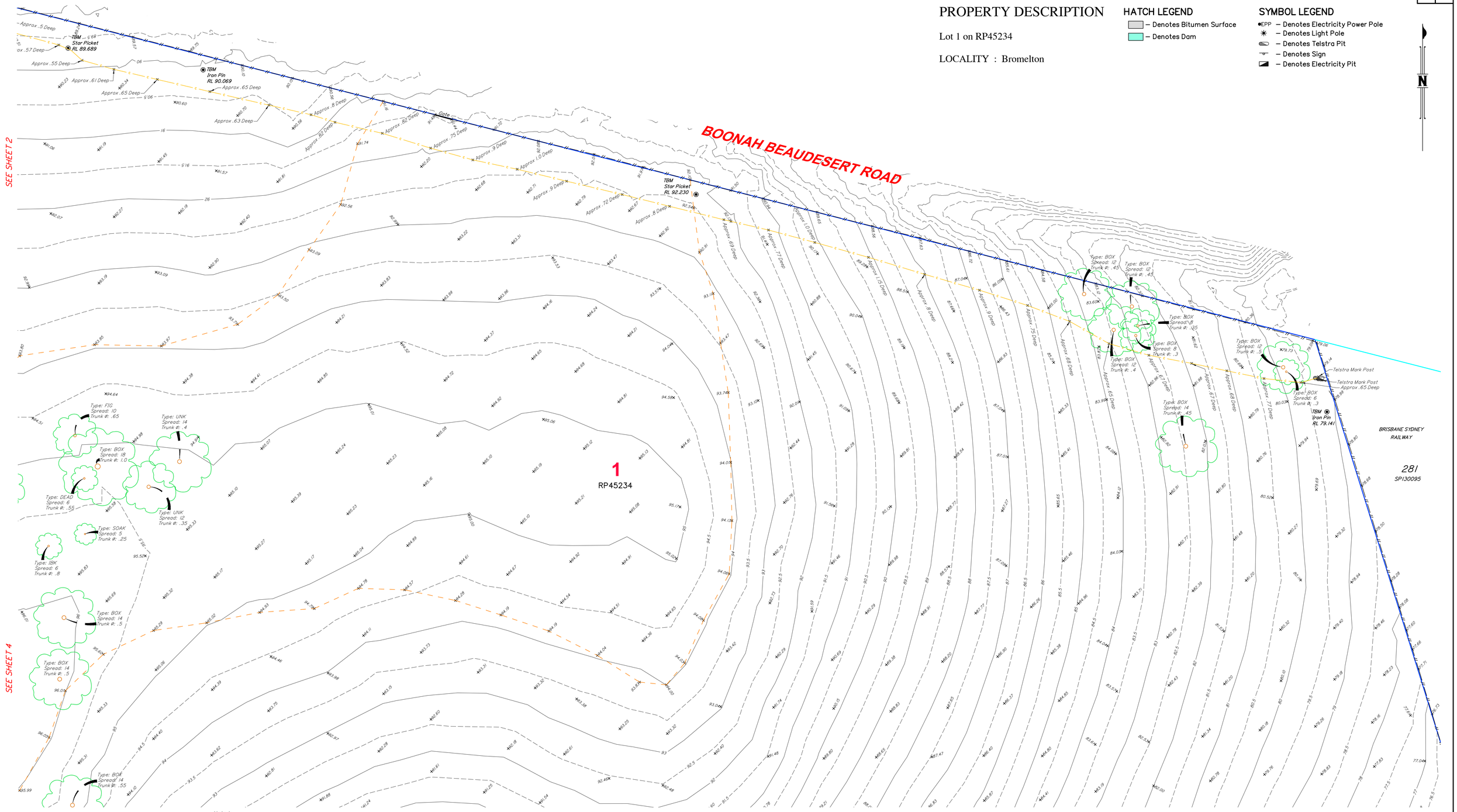
HATCH LEGEND

- Denotes Bitumen Surface
- Denotes Dam

SYMBOL LEGEND

- EPP – Denotes Electricity Power Pole
- Denotes Light Pole
- Denotes Telstra Pit
- Denotes Sign
- Denotes Electricity Pit

N



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LINETYPE LEGEND

- STORM WATER
- UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY
- UNDERGROUND TELECOMMUNICATIONS
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE (Back of Kerb, Invert of Kerb, Edge of Bitumen)

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496 N: 6,905,859.412 RL: 83.457
Geoid–Spheroid Seperation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

IMPORTANT NOTE:
This plan is presented at a scale of 1: 1. To convert to MGA Coordinates scale all data around TBM A (Not Shown)(492094.496, 6905859.412) by a scale factor of 0.999581341

GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

GRAPHIC SCALE (IN METRES)

8 0 8 16 24 32 40

1:400@A1 1:800@A3

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A'MENT	REVISION DETAILS	DATE	INIT
B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
–	ORIGINAL ISSUE	5/05/2023	AD

Beaudesert Boonah Road Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02 B

LEVEL DATUM AHD FROM PSM 163769 R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

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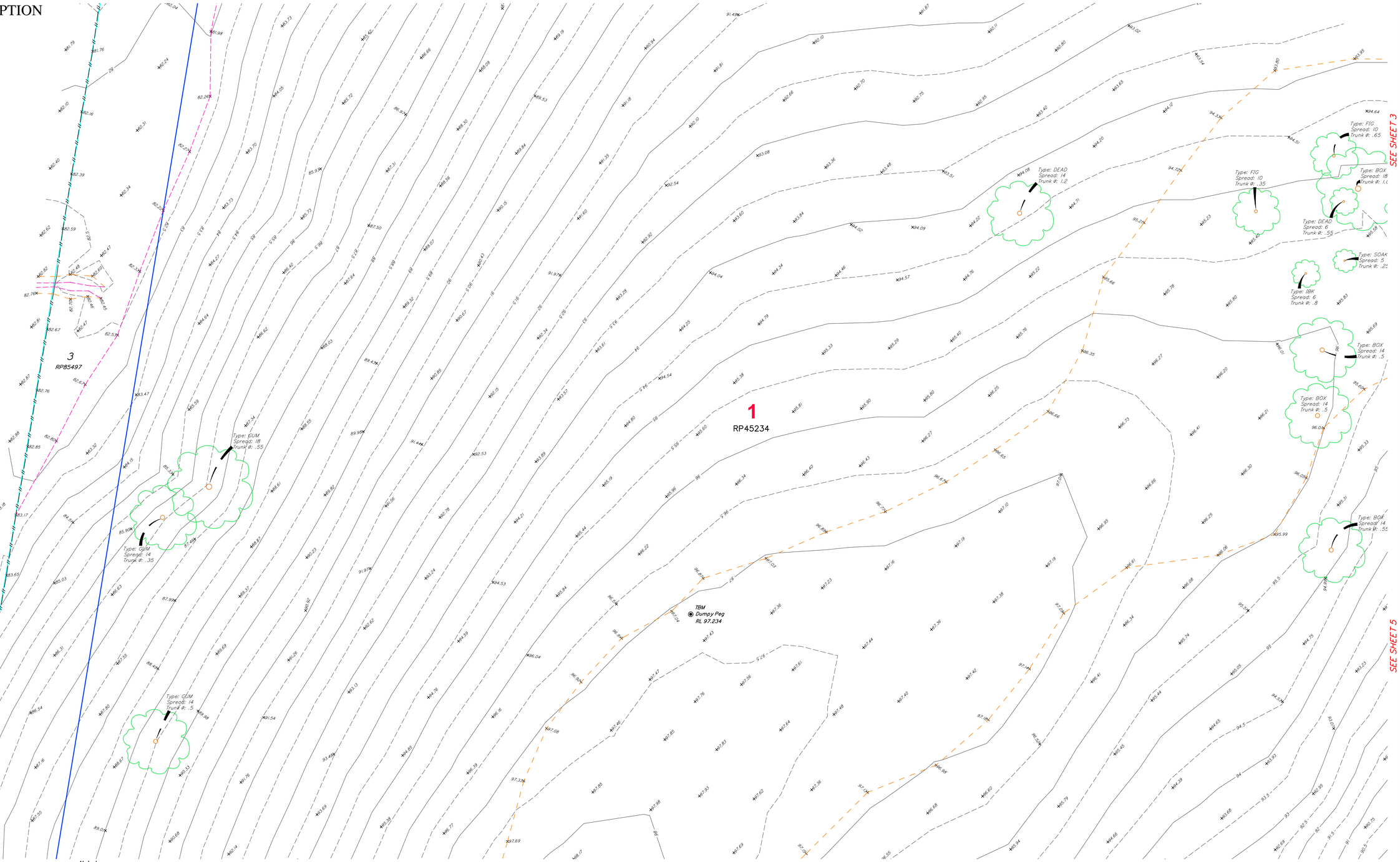
SEE SHEET 2

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton





GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
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3. Contour interval 0.5m

B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
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- OVERHEAD ELECTRICITY
- UNDERGROUND TELECOMMUNICATIONS
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE (Back of Kerb / Invert of Kerb / Edge of Bitumen)

IMPORTANT NOTE:
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MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid–Spheroid Seperation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

SYMBOL LEGEND

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- – Denotes Telstra Pit
- – Denotes Sign
- – Denotes Electricity Pit

HATCH LEGEND

- – Denotes Bitumen Surface
- – Denotes Dam

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GRAPHIC SCALE (IN METRES)

8 0 8 16 24 32 40

1:400@A1 1:800@A3

Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02 B

LEVEL DATUM AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

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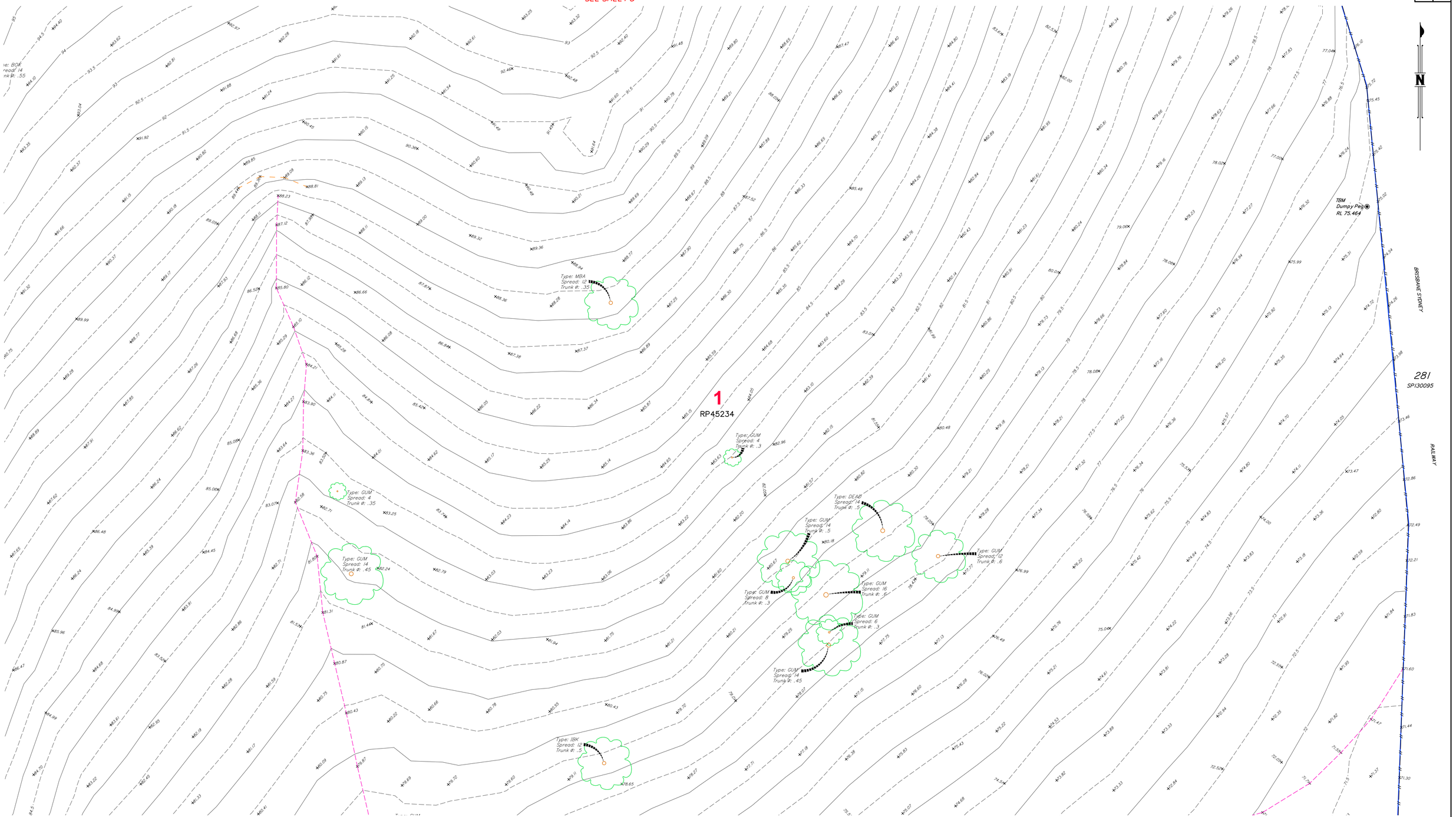
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SEE SHEET 3

SEE SHEET 4

SEE SHEET 6



SEE SHEET 9

HATCH LEGEND

– Denotes Bitumen Surface

– Denotes Dam

GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
–	ORIGINAL ISSUE	5/05/2023	AD
A'MENT	REVISION DETAILS	DATE	INIT

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- OVERHEAD ELECTRICITY
- UNDERGROUND TELECOMMUNICATIONS
- FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- KERB PROFILE (Back of Kerb / Invert of Kerb / Edge of Bitumen)

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Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid–Spheroid Seperation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

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PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

GRAPHIC SCALE (IN METRES)

8 0 8 16 24 32 40

1:400@A1 1:800@A3

Beaudesert Boonah Road Bromelton	DATE 5/05/2023
	JOB NO 4577
	DWG FILE 4577-02B
	DRAWN AD
	CHECKED AD
Cleanaway Operations Pty Ltd	Scale 1:400
Detail & Level Survey	Drawing Number 4577-02 B

LEVEL DATUM AHD FROM PSM 163769 R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

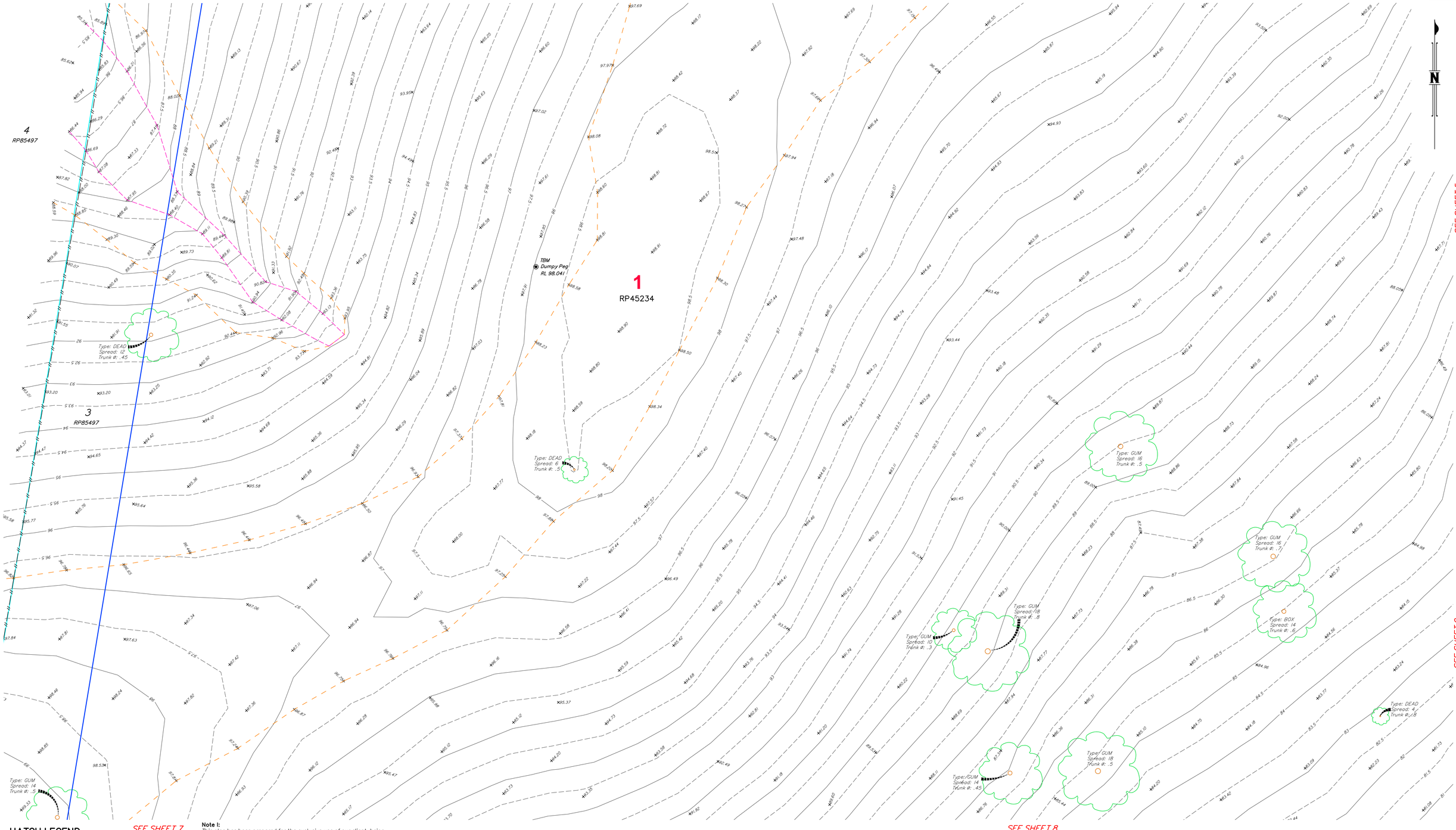
LOCAL AUTHORITY : Scenic Rim R.C.

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SEE SHEET 4



HATCH LEGEND

— Denotes Bitumen Surface

— Denotes Dam

GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
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AMENT	REVISION DETAILS	DATE	INIT

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PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

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Coordinate System	MGA2020 Zone 56
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Geoid	Ausgeoid2020
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Origin Mark Coordinates	E: 492,094.496
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8 0 8 16 24 32 40

1:400@A1 1:800@A3

Beaudesert Boonah Road
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Cleanaway Operations Pty Ltd

Detail & Level Survey

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LEVEL DATUM AHD
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R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

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2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

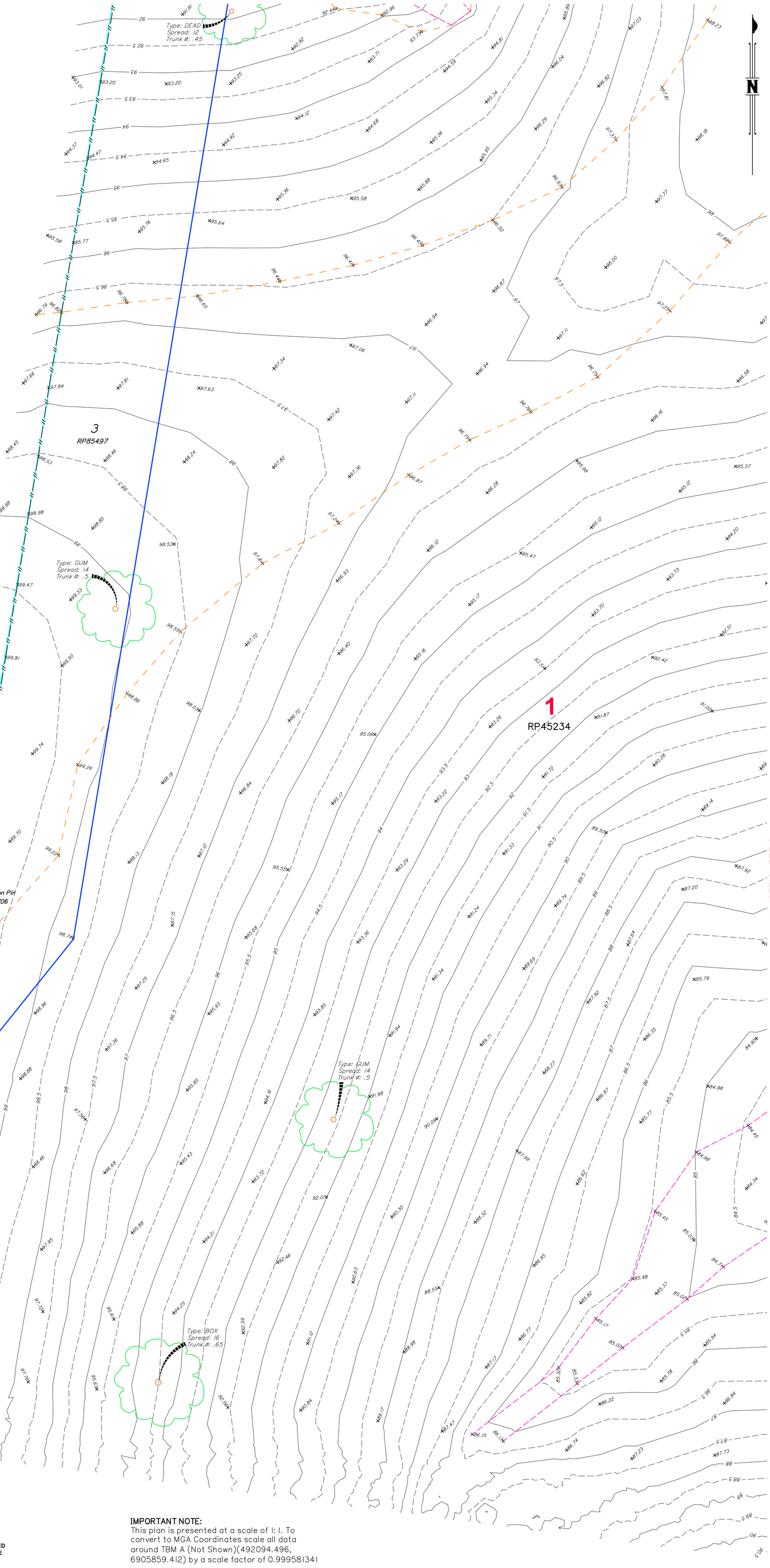
PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

SEE SHEET 6

SEE SHEET 8



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R.L. 43.457m

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SEE SHEET 6

SEE SHEET 5

SEE SHEET 7

SEE SHEET 9

SEE SHEET 10

Type: GUM
Spread: 16
Trunk ø: .5

Type: GUM
Spread: 16
Trunk ø: .7

Type: BOX
Spread: 14
Trunk ø: .6

Type: GUM
Spread: 18
Trunk ø: .8

Type: GUM
Spread: 10
Trunk ø: .3

Type: DEAD
Spread: 4
Trunk ø: .8

Type: GUM
Spread: 18
Trunk ø: .5

Type: GUM
Spread: 14
Trunk ø: .45

Type: DEAD
Spread: 14
Trunk ø: .8

1
RP45234

Dam

Type: GUM
Spread: 14
Trunk ø: .4

Type: BOX
Spread: 20
Trunk ø: .8

Type: MBA
Spread: 10
Trunk ø: .35

TBM
Star Picket
RL 85.338

GENERAL NOTES

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3. Contour interval 0.5m

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GRAPHIC SCALE (IN METRES)

8 0 8 16 24 32 40

1:400@A1 1:800@A3

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A'MENT	REVISION DETAILS	DATE	INIT
B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
A	ADD TELECOMMUNICATIONS LOCATIONS	19/05/2023	AD
–	ORIGINAL ISSUE	5/05/2023	AD

Beaudesert Boonah Road Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
DRAWN	AD
CHECKED	AD
Scale	1:400
Drawing Number	4577-02 B

LEVEL DATUM AHD
FROM PSM 163769
R.L. 43.457m

MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

TJ KELLY SURVEYS PTY LTD
CONSULTING SURVEYORS & TOWN PLANNERS
A.C.N. 058 752 417

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Phone: (07) 5541 4722
Facsimilie: (07) 5541 4723
Email: admin@kellynet.com.au
Web : www.kellynet.com.au

SEE SHEET 6

SEE SHEET 5

SEE SHEET 8

SEE SHEET 10

N

1
RP45234

Dam

TBM
Iron Pin
RL 71.044

1800 high
Dome Culvert
IL 69.84
IL 69.68

BRISBANE S'DNEY RAILWAY

281
SP130095

Type: GUM
Spread: 10
Trunk ø: .4

Type: GUM
Spread: 3
Trunk ø: .4

Type: GUM
Spread: 12
Trunk ø: .55

Type: DEAD
Spread: 0
Trunk ø: .3

Type: DEAD
Spread: 0
Trunk ø: .4

Type: GUM
Spread: 8
Trunk ø: .3

Type: DEAD
Spread: 0
Trunk ø: 1.0

Type: DEAD
Spread: 10
Trunk ø: .8

Type: DEAD
Spread: 0
Trunk ø: .45

Type: DEAD
Spread: 0
Trunk ø: .4

Type: DEAD
Spread: 0
Trunk ø: .3

Type: DEAD
Spread: 0
Trunk ø: .35

Type: DEAD
Spread: 0
Trunk ø: .35

Type: DEAD
Spread: 12
Trunk ø: .6

Type: DEAD
Spread: 0
Trunk ø: .3

Type: DEAD
Spread: 0
Trunk ø: .35

Type: DEAD
Spread: 0
Trunk ø: .55

Type: BOX
Spread: 10
Trunk ø: .35

Type: STUMP
Spread: 0
Trunk ø: .5

Type: BOX
Spread: 12
Trunk ø: .6

Type: BOX
Spread: 0
Trunk ø: .75

Type: DEAD
Spread: 0
Trunk ø: .35

Type: DEAD
Spread: 0
Trunk ø: .7

Type: DEAD
Spread: 0
Trunk ø: .45

Type: DEAD
Spread: 8
Trunk ø: .6

Type: DEAD
Spread: 0
Trunk ø: .3

Type: DEAD
Spread: 6
Trunk ø: .5

Type: DEAD
Spread: 0
Trunk ø: .3

Type: DEAD
Spread: 12
Trunk ø: .9

Type: DEAD
Spread: 6
Trunk ø: .45

Type: GUM
Spread: 14
Trunk ø: .6

Type: BOX
Spread: 12
Trunk ø: .6

Type: BOX
Spread: 3
Trunk ø: .35

Type: BOX
Spread: 12
Trunk ø: .6

Type: BOX
Spread: 10
Trunk ø: .4

Type: GUM
Spread: 10
Trunk ø: .35

Type: GUM
Spread: 14
Trunk ø: .4

IMPORTANT NOTE:
This plan is presented at a scale of 1: 1. To convert to MGA Coordinates scale all data around TBM A (Not Shown)(492094.496, 6905859.412) by a scale factor of 0.999581341

GENERAL NOTES

1. Date of field survey: 28/04/23 RA 18/05/23 RA 26/05/23 RA
2. Lot dimensions compiled from IS119852
3. Contour interval 0.5m

B	ADD EASTERN END OF RAIL CULVERT	31/05/2023	AD
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—	ORIGINAL ISSUE	5/05/2023	AD
AMENT	REVISION DETAILS	DATE	INIT

Note 1:
This plan has been prepared for the exclusive use of our client, being the person or entity providing the instruction for the preparation of this document. This plan can be used only for this agreed purpose and can not be used by any other person or for any other purpose without the written consent of T J Kelly Surveys Pty Ltd.

Note 2:
The title boundaries as shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

Note 3:
Exposed services (shown hereon) only, were located at the time of the survey. Underground services (where found) have been located by A.U.S. Locators Pty Ltd and are shown as part of this survey. Where such services exist, reference should be made to records at the relevant authority.

Note 4:
Depths to underground services shown on this plan are provided by a cable locating service and are approximate only.

Note 5:
All depths to services are indicative only and should not be relied upon for design or construction works without further investigation to fully locate identified services.
No guarantee can be given that the services shown on this plan are accurate, complete or in fact are the services identified.

Note 6:
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LINETYPE LEGEND

- SW SW SW SW — STORM WATER
- E E E E — UNDERGROUND ELECTRICITY
- OVERHEAD ELECTRICITY
- C C C C — UNDERGROUND TELECOMMUNICATIONS
- // // // // // // — FENCE
- TOE OF BANK
- TOP OF BANK
- BOTTOM OF RETAINING WALL
- TOP OF RETAINING WALL
- Back of Kerb / Invert of Kerb / Edge of Bitumen — KERB PROFILE

SYMBOL LEGEND

- EPP — Denotes Electricity Power Pole
- — Denotes Light Pole
- — Denotes Telstra Pit
- — Denotes Sign
- — Denotes Electricity Pit

MGA Coordinate System Datum Information	
Coordinate System	MGA2020 Zone 56
Geodetic Datum	GDA2020
Geoid	Ausgeoid2020
Origin Mark	TBM A (PSM 163769)
Origin Mark Coordinates	E: 492,094.496
	N: 6,905,859.412
	RL: 83.457
Geoid–Spheroid Seperation (N)	N = 40.367
Scale factor (To Grid)	0.999581341

HATCH LEGEND

- — Denotes Bitumen Surface
- — Denotes Dam

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GRAPHIC SCALE
(IN METRES)
8 0 8 16 24 32 40
1:400@A1 1:800@A3

PROPERTY DESCRIPTION

Lot 1 on RP45234

LOCALITY : Bromelton

Beaudesert Boonah Road Bromelton

Cleanaway Operations Pty Ltd

Detail & Level Survey

DATE	5/05/2023
JOB NO	4577
DWG FILE	4577-02B
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LEVEL DATUM AHD
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MERIDIAN: MGA2020 Zone 56 Vide SmartNetAus

LOCAL AUTHORITY : Scenic Rim R.C.

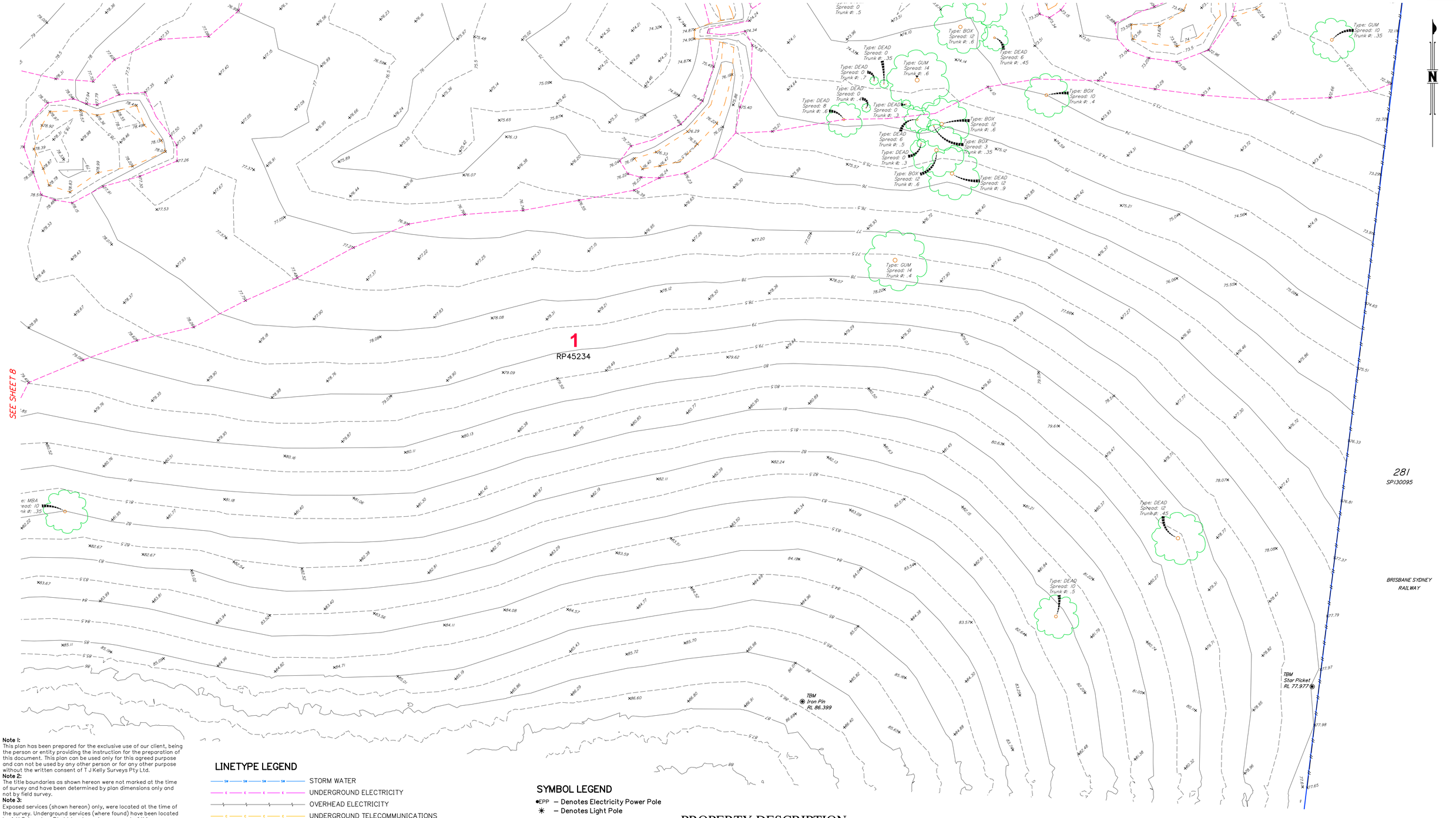
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SEE SHEET 9

SEE SHEET 8



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Beaudesert Boonah Road
Bromelton

Cleanaway Operations Pty Ltd

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Email: admin@kellynet.com.au
Web : www.kellynet.com.au

Appendix B – Concept Civil Design Drawings

BERC - INFRASTRUCTURE

CIVIL ENGINEERING



AERIAL GPS open street maps @ 2023

LOCALITY PLAN
NTS

DRAWING No.	DESCRIPTION
BERC-ARU-BNE-CICW-DRG-1001	GENERAL - COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
BERC-ARU-BNE-CICW-DRG-1005	GENERAL - NOTES
BERC-ARU-BNE-CICW-DRG-1006	GENERAL - LEGEND
BERC-ARU-BNE-CICW-DRG-1010	EXISTING SITE - PLAN
BERC-ARU-BNE-CICW-DRG-1020	PROPOSED SITE - PLAN
BERC-ARU-BNE-CICW-DRG-1021	PROPOSED SITE PLAN - DEVELOPMENT FOOTPRINT
BERC-ARU-BNE-CICW-DRG-1030	PROPOSED SITE PLAN -CLEARANCES FROM DEVELOPMENT FOOTPRINT
BERC-ARU-BNE-CICW-DRG-1080	DEMOLITION AND SITE CLEARANCE - PLAN
BERC-ARU-BNE-CICW-DRG-1101	SOIL AND WATER MANAGEMENT - PLAN
BERC-ARU-BNE-CICW-DRG-1191	SOIL AND WATER MANAGEMENT - DETAILS
BERC-ARU-BNE-CICW-DRG-1201	BULK EARTHWORKS - PLAN
BERC-ARU-BNE-CICW-DRG-1241	BULK EARTHWORKS - SITE SECTIONS - SHEET 1
BERC-ARU-BNE-CICW-DRG-1242	BULK EARTHWORKS - SITE SECTIONS - SHEET 2
BERC-ARU-BNE-CICW-DRG-1243	BULK EARTHWORKS - SITE SECTIONS - SHEET 3
BERC-ARU-BNE-CICW-DRG-1244	BULK EARTHWORKS - SITE SECTIONS - SHEET 4
BERC-ARU-BNE-CICW-DRG-1245	BULK EARTHWORKS - SITE SECTIONS - SHEET 5
BERC-ARU-BNE-CICW-DRG-1341	CIVIL WORKS - TYPICAL CROSS SECTIONS - SHEET 1
BERC-ARU-BNE-CICW-DRG-1342	CIVIL WORKS - TYPICAL CROSS SECTIONS - SHEET 2
BERC-ARU-BNE-CICW-DRG-1343	CIVIL WORKS - TYPICAL CROSS SECTIONS - SHEET 3
BERC-ARU-BNE-CICW-DRG-1351	CIVIL WORKS - MC01 LONGITUDINAL SECTIONS - SHEET 1
BERC-ARU-BNE-CICW-DRG-1352	CIVIL WORKS - MC01 LONGITUDINAL SECTIONS - SHEET 2
BERC-ARU-BNE-CICW-DRG-1353	CIVIL WORKS - MC02 LONGITUDINAL SECTIONS
BERC-ARU-BNE-CICW-DRG-1354	CIVIL WORKS - MC13 LONGITUDINAL SECTIONS
BERC-ARU-BNE-CICW-DRG-1355	CIVIL WORKS - MC14 LONGITUDINAL SECTIONS
BERC-ARU-BNE-CICW-DRG-1356	CIVIL WORKS - MC15 LONGITUDINAL SECTIONS
BERC-ARU-BNE-CICW-DRG-1466	CIVIL WORKS - VEHICLE SWEPT PATH - PLAN - SHEET 1
BERC-ARU-BNE-CICW-DRG-1467	CIVIL WORKS - VEHICLE SWEPT PATH - PLAN - SHEET 2
BERC-ARU-BNE-CICW-DRG-1468	CIVIL WORKS - VEHICLE SWEPT PATH - PLAN - SHEET 3
BERC-ARU-BNE-CICW-DRG-1469	CIVIL WORKS - VEHICLE SWEPT PATH - PLAN - SHEET 4
BERC-ARU-BNE-CICW-DRG-1470	CIVIL WORKS - VEHICLE SWEPT PATH - PLAN - SHEET 5
BERC-ARU-BNE-CICW-DRG-1601	STORMWATER - PRE-DEVELOPMENT CATCHMENT - PLAN
BERC-ARU-BNE-CICW-DRG-1605	STORMWATER - PROPOSED CATCHMENT - PLAN
BERC-ARU-BNE-CICW-DRG-1611	STORMWATER - PLAN - SHEET 1
BERC-ARU-BNE-CICW-DRG-1612	STORMWATER - PLAN - SHEET 2
BERC-ARU-BNE-CICW-DRG-1613	STORMWATER - PLAN - SHEET 3
BERC-ARU-BNE-CICW-DRG-1614	STORMWATER - PLAN - SHEET 4
BERC-ARU-BNE-CICW-DRG-1615	STORMWATER - PLAN - SHEET 5
BERC-ARU-BNE-CICW-DRG-1641	STORMWATER - LONGITUDINAL SECTIONS - SHEET 1
BERC-ARU-BNE-CICW-DRG-1642	STORMWATER - LONGITUDINAL SECTIONS - SHEET 2
BERC-ARU-BNE-CICW-DRG-1643	STORMWATER - LONGITUDINAL SECTIONS - SHEET 3
BERC-ARU-BNE-CICW-DRG-1644	STORMWATER - LONGITUDINAL SECTIONS - SHEET 4
BERC-ARU-BNE-CICW-DRG-1645	STORMWATER - LONGITUDINAL SECTIONS - SHEET 5
BERC-ARU-BNE-CICW-DRG-1646	STORMWATER - LONGITUDINAL SECTIONS - SHEET 6
BERC-ARU-BNE-CICW-DRG-1647	STORMWATER - LONGITUDINAL SECTIONS - SHEET 7
BERC-ARU-BNE-CICW-DRG-1648	STORMWATER - LONGITUDINAL SECTIONS - SHEET 8
BERC-ARU-BNE-CICW-DRG-1649	STORMWATER - LONGITUDINAL SECTIONS - SHEET 9
BERC-ARU-BNE-CICW-DRG-1650	STORMWATER - LONGITUDINAL SECTIONS - SHEET 10
BERC-ARU-BNE-CICW-DRG-1651	STORMWATER - LONGITUDINAL SECTIONS - SHEET 11
BERC-ARU-BNE-CICW-DRG-1652	STORMWATER - LONGITUDINAL SECTIONS - SHEET 12
BERC-ARU-BNE-CICW-DRG-1653	STORMWATER - LONGITUDINAL SECTIONS - SHEET 13
BERC-ARU-BNE-CICW-DRG-1691	STORMWATER - MISCELLANEOUS DETAILS
BERC-ARU-BNE-CICW-DRG-1700	PAVEMENT - PLAN
BERC-ARU-BNE-CICW-DRG-1791	PAVEMENT - PROFILES
BERC-ARU-BNE-CICW-DRG-1801	UTILITIES - PLAN
BERC-ARU-BNE-CICW-DRG-1802	OFF-SITE WATER AND SEWER PLAN

NOT FOR CONSTRUCTION

Scales

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 NOT TO SCALE

Discipline CIVIL

ARUP
Arup, Level 5, 151 Clarence St
Sydney, NSW, 2000
Tel +61 (02) 9320 9320 Fax +61 (02) 9320 9321
www.arup.com

CONSULT AUSTRALIA
Member Firm
Arup Pty Ltd
ABN 18 000 966 165

Drawing Title
GENERAL
COVER SHEET, LOCALITY PLAN AND DRAWING INDEX

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1001**	**C**

Do not scale

© Arup

GENERAL

1. DRAWINGS TO BE READ IN CONJUNCTION WITH FEED REPORT BERC-ARU-BNE-GLDM-RPT-0002.
2. DRAWINGS PRODUCED SHOW PRELIMINARY DESIGN AND ARE PROVIDED IN SUPPORT OF A DEVELOPMENT LICENSE APPLICATION.THEY DO NOT REPRESENT DETAILED DESIGN OR CONSTRUCTION LEVEL INFORMATION.
3. FEED DESIGNS PRESENTED ARE BASED UPON "MASTERPLAN LAYOUT REV P, JULY 2025", BY RAMBOLL.
4. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
5. ALL DIMENSIONS ON DETAILS ARE IN MILLIMETRES UNLESS STATED OTHERWISE. ALL PLANS AND LEVELS ARE EXPRESSED IN METRES.
6. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATIONS INVOLVED MUST BE TAKEN UP WITH THE ENGINEER / PRINCIPAL'S REPRESENTATIVE BEFORE THE WORK COMMENCES.
7. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE ENGINEER FOR A DECISION BEFORE PROCEEDING WITH THE WORK.
8. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE FOR ALL ENGINEERING INSPECTIONS. ALL INSPECTIONS AND CERTIFICATIONS TO BE INCLUDED IN CONTRACTORS COST.
9. BUILDING FROM THESE DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE PRINCIPAL CERTIFYING AUTHORITY.
10. THE WORD 'ENGINEER' USED IN THESE NOTES REFER TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF ARUP AUSTRALIA PTY LTD.
11. ALL CONSTRUCTION ACTIVITIES SHALL COMPLY WITH THE RELEVANT CURRENT WORKPLACE HEALTH AND SAFETY LEGISLATION.

SITEWORKS

1. ORIGIN OF LEVELS:- AUSTRALIAN HEIGHT DATUM (A.H.D)
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK.
3. ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS, THE SPECIFICATIONS AND THE DIRECTIONS OF THE PRINCIPAL'S REPRESENTATIVE.
4. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE PRINCIPAL'S REPRESENTATIVE. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
5. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
6. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
7. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER COMMUNICATIONS OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.
8. ON COMPLETION OF PIPE INSTALLATION ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL. INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS IN ACCORDANCE WITH ALL LOCAL COUNCIL REQUIREMENTS.
9. PROVIDE 10mm WIDE EXPANDING CORK JOINTS BETWEEN CONCRETE PAVEMENTS AND ALL BUILDINGS, WALLS, FOOTINGS, COLUMNS, KERBS, DISH DRAINS, GRATED DRAINS, BOLLARD FOOTINGS ETC.
10. CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS.
11. ALL BATTERS TO BE GRASS LINED WITH MINIMUM 100 TOPSOIL AND APPROVED COUCH LAID AS TURF U.N.O.
12. MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.
13. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY DIVERSION DRAINS AND MOUNDS TO ENSURE THAT AT ALL TIMES EXPOSED SURFACES ARE FREE DRAINING AND WHERE NECESSARY EXCAVATE SUMPS AND PROVIDE PUMPING EQUIPMENT TO DRAIN EXPOSED AREAS.
14. ON COMPLETION OF WORKS ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL INCLUDING, BUT NOT LIMITED TO, KERBS, FOOTPATHS, CONCRETE AREAS, GRASS AND LANDSCAPED AREAS.

SURVEY

1. SURVEYS FOR THIS DESIGN ARE SUPPLIED BY: TJ KELLY SURVEYS PTY LTD DATED 26/05/2023 - REF 4577-02 REV B. SURVEYS ARE MGA2020 ZONE 56
2. ALL BEARINGS AND DISTANCES BY SURVEY.

EROSION AND SEDIMENT CONTROL MEASURES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE IN ACCORDANCE WITH LANDCOM "SOILS AND CONSTRUCTION MANUAL VOLUME 1, MARCH 2004".
2. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.
3. THE PRINCIPAL'S REPRESENTATIVE WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THIS SPECIFICATION.
4. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.
5. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
   A) INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
   B) UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENTS SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.
6. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
7. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
8. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS. INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
9. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
10. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
11. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
12. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
13. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE PRINCIPAL'S REPRESENTATIVE.
14. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

ROADWORKS GENERAL

1. THE CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS ONLY AS SUPPLIED BY THE APPOINTED SURVEYORS.
2. SERVICES SHOWN ON THESE PLANS ARE LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE OR CORRECT. ALL SERVICE LOCATIONS ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. NO WORK TO BE CARRIED OUT ON ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.
4. VEHICULAR ACCESS AND ALL SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO AREAS AFFECTED BY CONSTRUCTION.
5. ALL RUBBISH, BUILDINGS, SHEDS, FENCES, AND POWER POLES ARE TO BE REMOVED IN ACCORDANCE WITH THE SPECIFICATION.
6. NO TREES TO BE REMOVED OTHER THAN THOSE AFFECTED BY THE WORKS.
7. CONTRACTOR TO INSTALL ROOT CONTROL BARRIERS ALONG LENGTH OF KERBS AND RETAINING WALLS ADJACENT TO LANDSCAPED AREAS.

STORMWATER DRAINAGE

1. ALL KERB INLET PITS (ON GRADE) TO BE BENCHED AND STREAMLINED, PITS OVER 1.2 m IN DEPTH TO BE PROVIDED WITH STEP IRONS AND REINFORCED IN ACCORDANCE WITH AS 4198.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa AT 28 DAYS U.N.O.
3. TAIL OUT DRAINS TO BE PROVIDED WITH COUCH LINED INVERT, JUTE STABILISED BATTERS, STRAWBALE AND GEOTEXTILE SEDIMENT FILTERS EVERY 10 m.
4. PRIOR TO THE FINAL INSPECTION A CCTV INSPECTION AND REPORT IS TO BE UNDERTAKEN FOR ALL STORMWATER PIPES AND CULVERTS THAT ARE PART OF THE DRAINAGE SYSTEM.
5. STRUCTURAL CERTIFICATION IS REQUIRED FOR CONSTRUCTION OF MAJOR AND NON STANDARD STORMWATER DRAINAGE STRUCTURES. THE CONTRACTOR TO ARRANGE FOR A HOLD POINT FOR CONSTRUCTION INSPECTIONS WITH A SUITABLY QUALIFIED ENGINEER AS APPOINTED BY THE CONTRACTOR TO PROVIDE IN WRITING A STRUCTURAL CERTIFICATE AT COMPLETION OF WORKS.
6. CONNECT DOWNPIPES TO THE STORMWATER SYSTEM AS EARLY AS POSSIBLE.
7. CONTRACTOR TO PROVIDE ROOT CONTROL BARRIERS FOR DRAINAGE PIPES WITHIN LANDSCAPED AREAS.
8. ALL 225 DIA. DRAINAGE PIPES AND LARGER SHALL BE CLASS "4" APPROVED SPIGOT AND SOCKET FRC OR RCP PIPES WITH RUBBER RING JOINTS. (U.N.O.)
9. ALL PIPE JUNCTIONS UP TO AND INCLUDING 450 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
10. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
11. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
12. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50 mm CONCRETE BED (OR 75 mm THICK BED OF 12 mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75 mm THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200 mm ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150 mm LAYERS TO 98% STANDARD MAX. DRY DENSITY.
13. BEDDING SHALL BE (U.N.O.) TYPE HS2, IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
14. WHERE STORMWATER LINES PASS UNDER FLOOR SLABS, SEWER GRADE RUBBER RING JOINTS ARE TO BE USED.
15. WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS UNSLOTTED UPVC SEWER GRADE PIPE SHALL BE USED.
16. PROVIDE 3.0 m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK, AT UPSTREAM END OF EACH PIT.

NOT FOR CONSTRUCTION

Scales

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: NOT TO SCALE

Discipline: CIVIL

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ABN 18 000 966 165

Drawing Title: GENERAL NOTES

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1005**	**C**

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A1

EXISTING FEATURES

- LOT BOUNDARY
- DRIVEWAY, PATHWAY OR CYCLE WAY
- TOP OF BATTER
- BOTTOM OF BATTER
- KERB AND GUTTER — KERB AND GUTTER
- KERB ONLY — KERB ONLY
- KERB INLET PIT
- DISH DRAIN — DISHED CROSSING
- FENCE
- EDGE OF GARDEN
- x15.83 — SPOT LEVEL
- BOLLARDS
- 17.0 — EXISTING CONTOURS
- EXISTING TREE
- STORMWATER EASEMENT

EXISTING UTILITIES

- ELECTRICAL (OVERHEAD)
- E — ELECTRICAL (UNDERGROUND)
- C — COMMS (UNDERGROUND)
- SW — STORMWATER
- CROSS DRAINAGE
- W(D) — WATER (CLASS D)

PROPOSED UTILITIES

- EO — ELECTRICAL (OVERHEAD)
- W — WATER
- S — SEWER

PROPOSED CIVIL WORKS

- EXTENT OF WORKS BOUNDARY
- EDGE OF PAVEMENT
- MINOR CONTOUR
- 17.0 — MAJOR CONTOUR
- SA — SA KERB
- SM — SM KERB
- VC — VEHICULAR CROSSING
- GIVEWAY LINE
- PROPOSED EXTERNAL RETAINING WALL
- LAND DEDICATION TO TMR FOR POTENTIAL FUTURE ROAD UPGRADE.
- BUILDING EXTEND

PROPOSED DRAINAGE

- STORMWATER PIPE AND FLOW DIRECTION
- Ø375 — PIPE SIZE
- STORMWATER GRATED INLET PIT
- INSPECTION PIT
- HEADWALL
- 14\1 — PIT LABEL LINE NUMBER 01 / PIT NUMBER 1
- PERIMETER SWALE
- TRENCH DRAIN
- RETAINING WALL SUBSOIL DRAINAGE (PERFORATED PIPE)
- CUT-OFF CHANNEL DRAIN
- FP — FLUSHING POINT
- SCOUR PROTECTION
- CATCHMENT BOUNDARY LANDSCAPE
- CATCHMENT BOUNDARY ROAD PATHWAY
- CATHCMENT BOUNDARY BYPASS

QUEENSLAND GLOBE DATA

- HYDROLINES

PAVEMENT

- RP1 JOINTED REINFORCED CONCRETE PAVEMENT (JRCP)
- FP1 GRANULAR PAVEMENT WITH THIN ASPHALT SURFACING (CARPARK)
- FP2 FULL DEPTH ASPHALT PAVEMENT (WORKING AREAS)
- RP2 CONCRETE FOOTPATH

PROPOSED BULK EARTHWORKS

- × BEL: 23.021m — BULK EARTHWORKS LEVEL

PROPOSED EROSION AND SEDIMENT CONTROL MEASURES

- TEMPORARY CONSTRUCTION EXIT
- CONSTRUCTION COMPOUND
- SEDIMENT FENCE
- STOCKPILE
- FILTER SOCK
- RISING MAIN
- CHANNEL
- TEMPORARY PIPE & HEADWALL
- EARTH BANK
- ROCK CHECK DAM
- SEDIMENT BASIN
- SUMP

NOT FOR CONSTRUCTION

Scales

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

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Discipline: CIVIL

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Drawing Title: GENERAL LEGEND

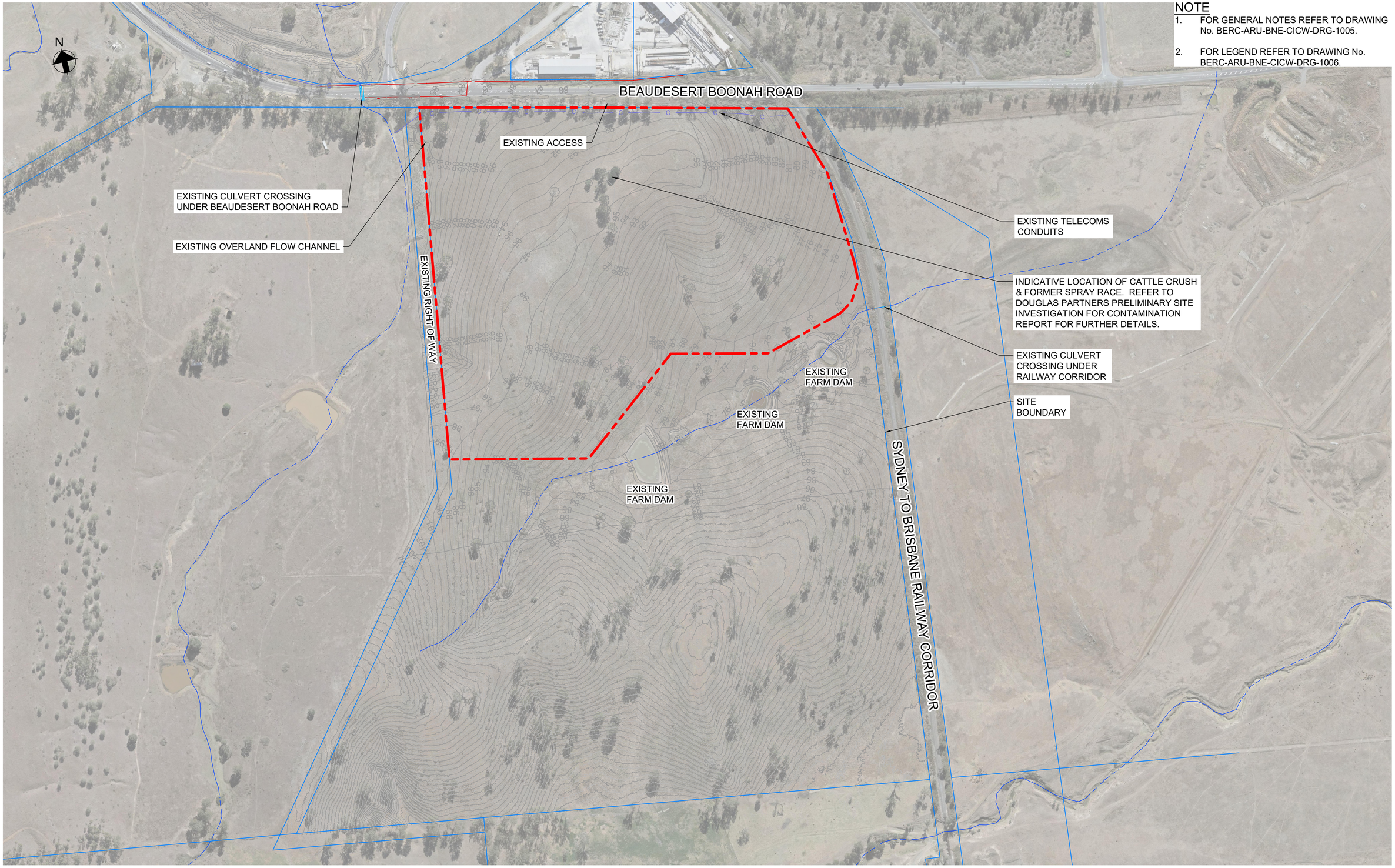
Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1006**	**C**

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A1



NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

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Scale at A1 1:2500m

Discipline CIVIL

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Drawing Title

EXISTING SITE PLAN

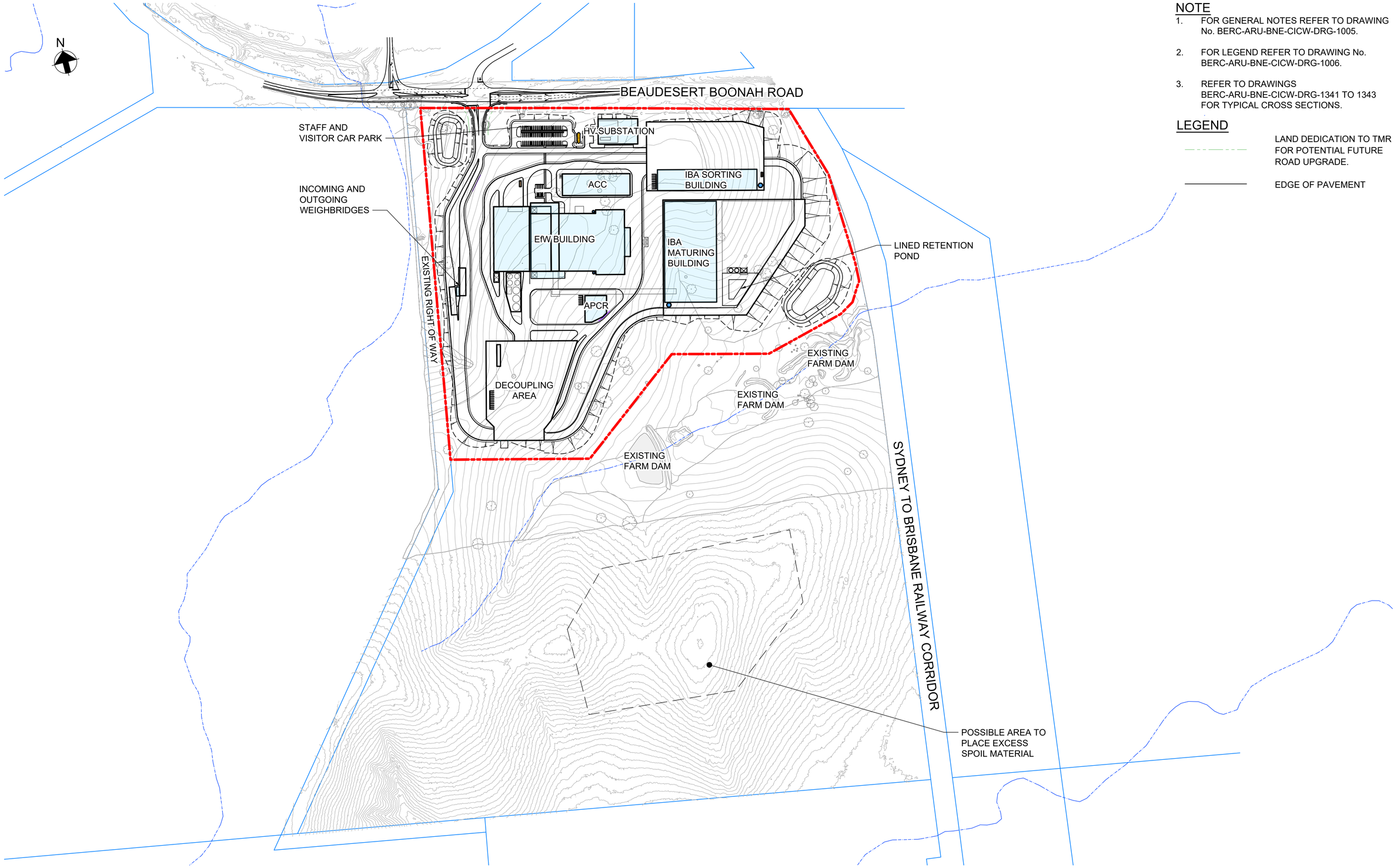
Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1010**	**C**

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NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. REFER TO DRAWINGS BERC-ARU-BNE-CICW-DRG-1341 TO 1343 FOR TYPICAL CROSS SECTIONS.

LEGEND

LAND DEDICATION TO TMR FOR POTENTIAL FUTURE ROAD UPGRADE.

EDGE OF PAVEMENT

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
D	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				

Issue	Date	By	Chkd	Appd
C	26.09.25	PDA	ERA	EGM
ISSUE FOR ADEQUACY REVIEW				
B	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
A	22.07.25	PDA	ERA	EGM
ISSUED FOR INFORMATION				

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:2500m

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Drawing Title

PROPOSED SITE PLAN

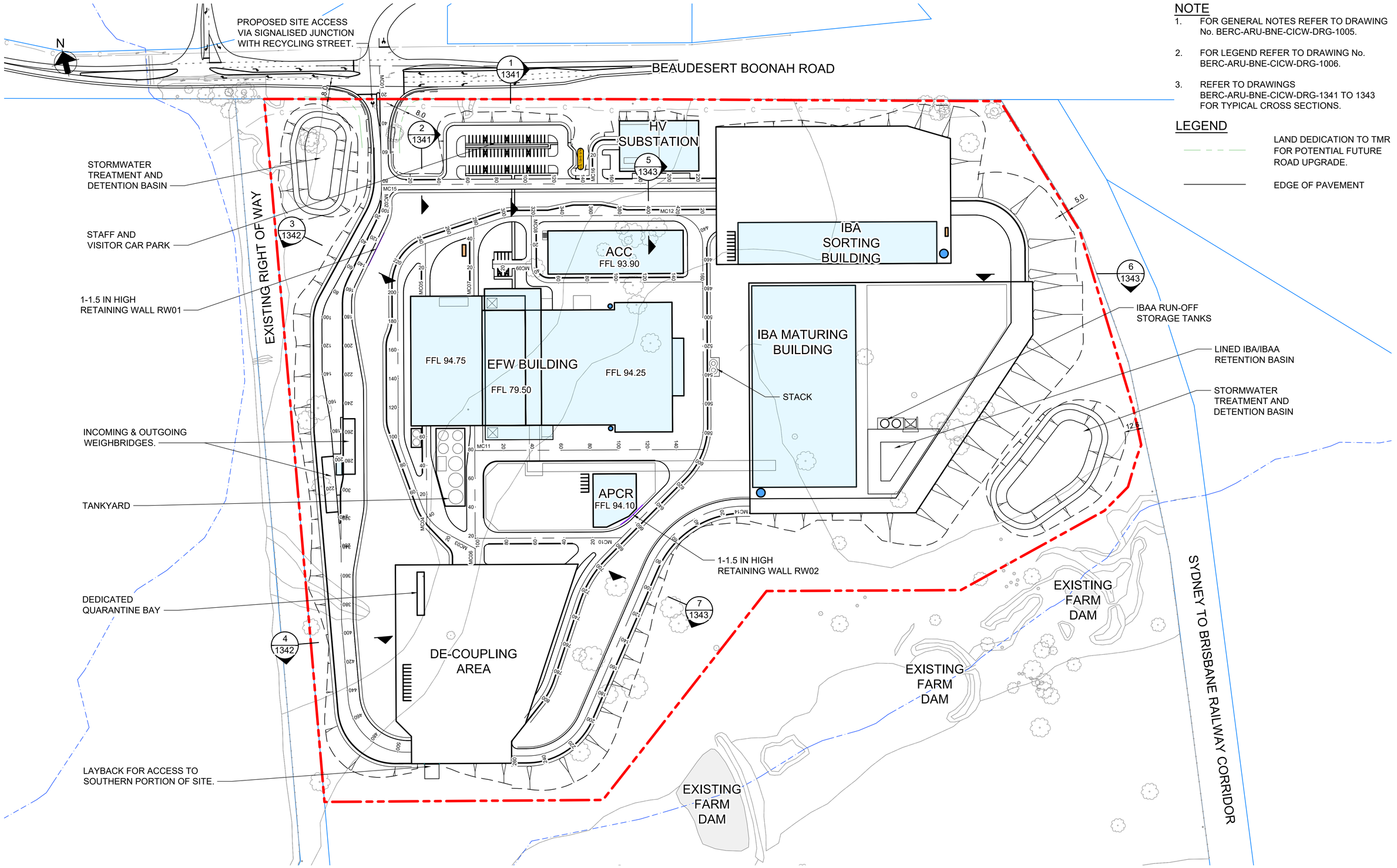
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FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1020**	**D**

Do not scale

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NOTE

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2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. REFER TO DRAWINGS BERC-ARU-BNE-CICW-DRG-1341 TO 1343 FOR TYPICAL CROSS SECTIONS.

LEGEND

- LAND DEDICATION TO TMR FOR POTENTIAL FUTURE ROAD UPGRADE.
- EDGE OF PAVEMENT

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m

1:1250(A1)/1:2500(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
D	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				

Issue	Date	By	Chkd	Appd
C	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
B	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
A	22.07.25	PDA	ERA	EGM
ISSUED FOR INFORMATION				

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: 1:1250m

Discipline: CIVIL

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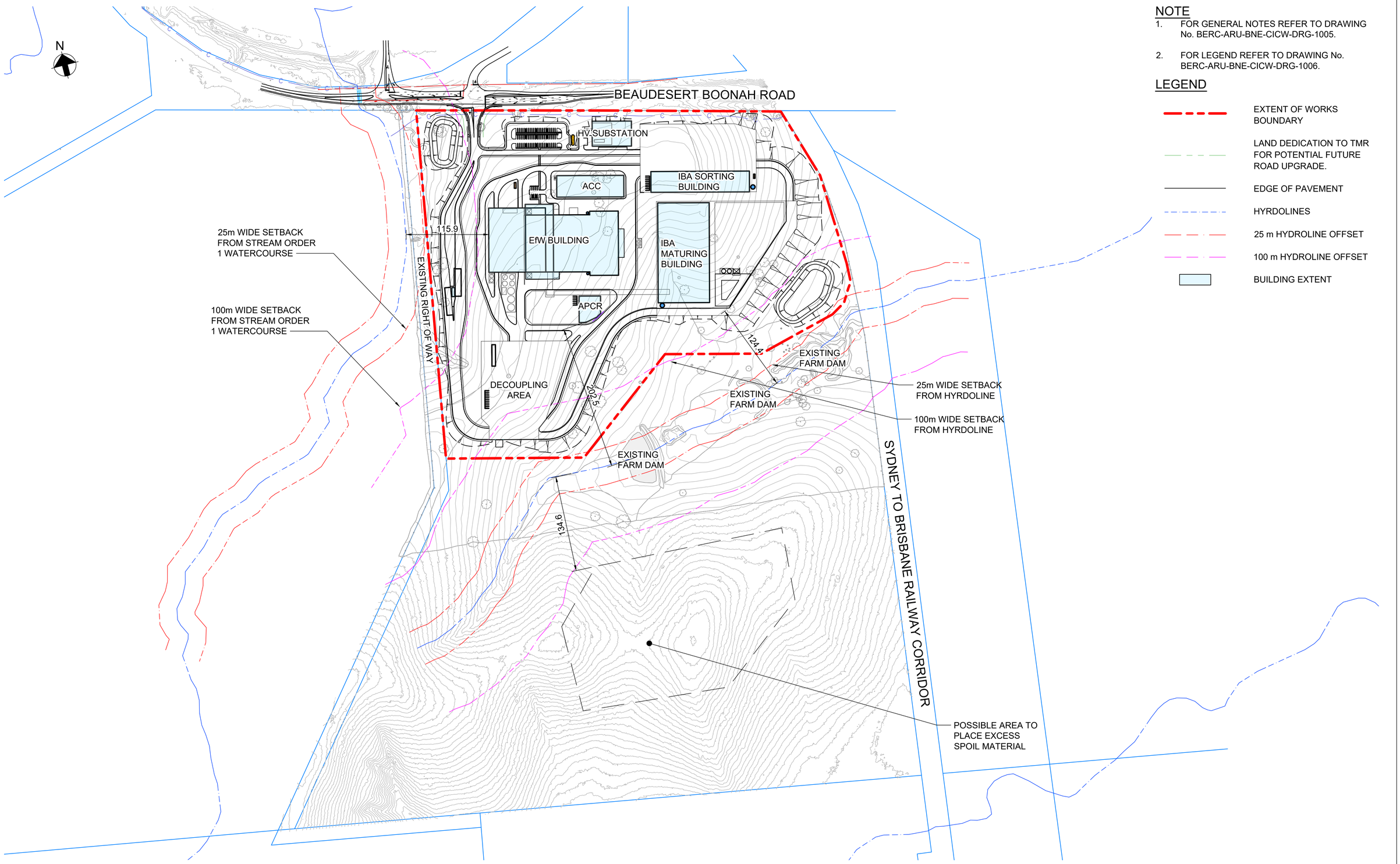
Drawing Title: PROPOSED SITE PLAN - DEVELOPMENT FOOTPRINT

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1021**	**D**

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NOTE

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2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND

- EXTENT OF WORKS BOUNDARY
- LAND DEDICATION TO TMR FOR POTENTIAL FUTURE ROAD UPGRADE.
- EDGE OF PAVEMENT
- HYRDOLINES
- 25 m HYDROLINE OFFSET
- 100 m HYDROLINE OFFSET
- BUILDING EXTENT

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: 1:2500m

Discipline: CIVIL

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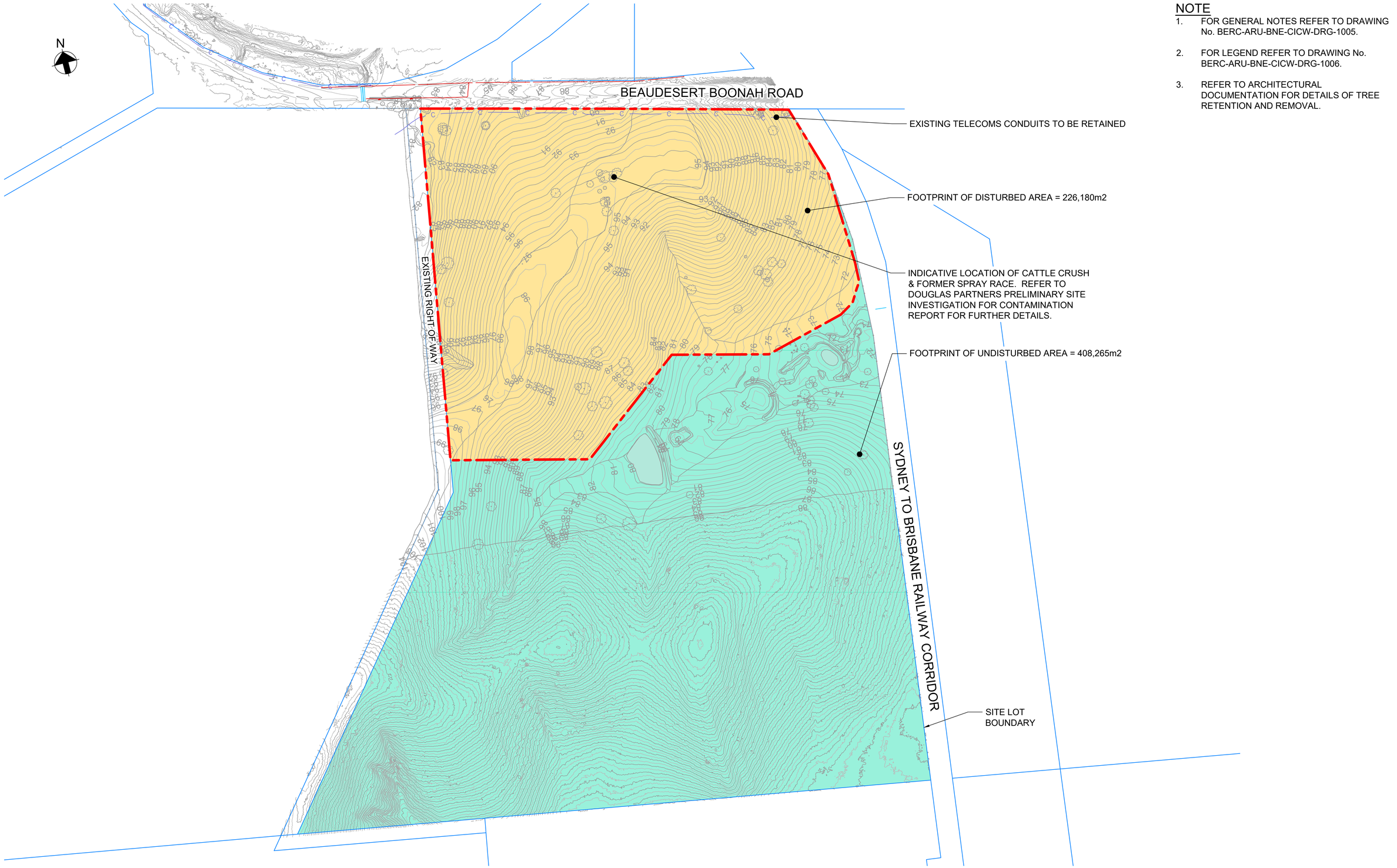
Drawing Title: PROPOSED SITE PLAN - CLEARANCES FROM DEVELOPMENT FOOTPRINT

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1030**	**C**

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2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. REFER TO ARCHITECTURAL DOCUMENTATION FOR DETAILS OF TREE RETENTION AND REMOVAL.

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:2500m

Discipline CIVIL

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Drawing Title

DEMOLITION AND SITE CLEARANCE PLAN

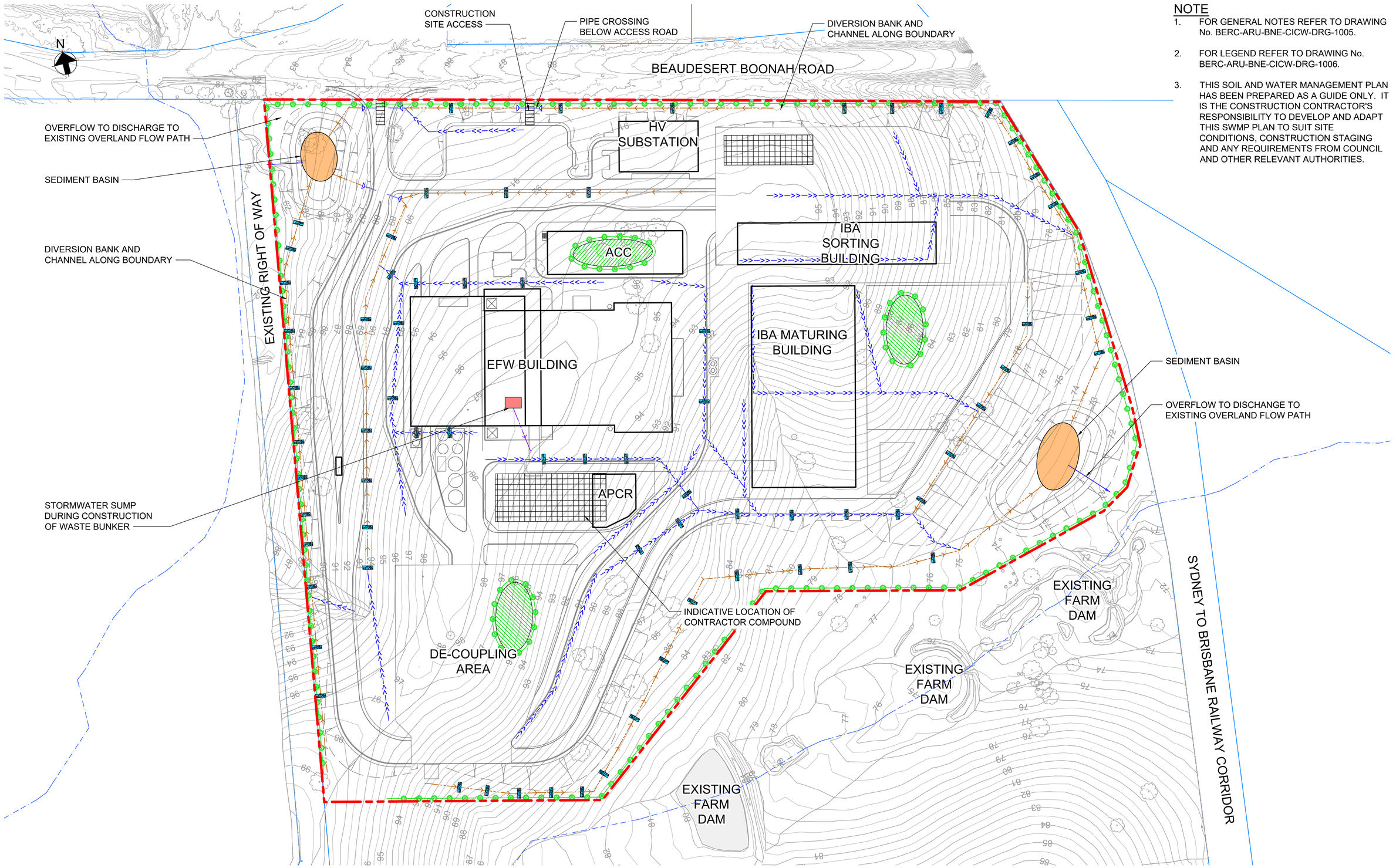
Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1080**	**C**

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2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. THIS SOIL AND WATER MANAGEMENT PLAN HAS BEEN PREPARED AS A GUIDE ONLY. IT IS THE CONSTRUCTION CONTRACTOR'S RESPONSIBILITY TO DEVELOP AND ADAPT THIS SWMP PLAN TO SUIT SITE CONDITIONS, CONSTRUCTION STAGING AND ANY REQUIREMENTS FROM COUNCIL AND OTHER RELEVANT AUTHORITIES.

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m

1:1250(A1)/1:2500(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:1250m

Discipline CIVIL

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Drawing Title

SOIL AND WATER MANAGEMENT PLAN

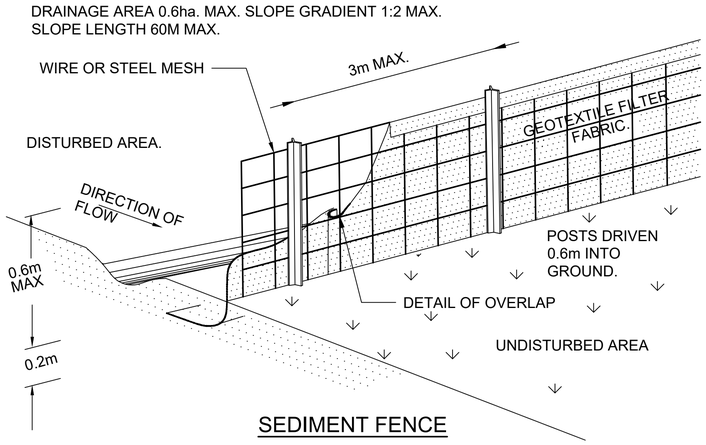
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FOR APPROVAL

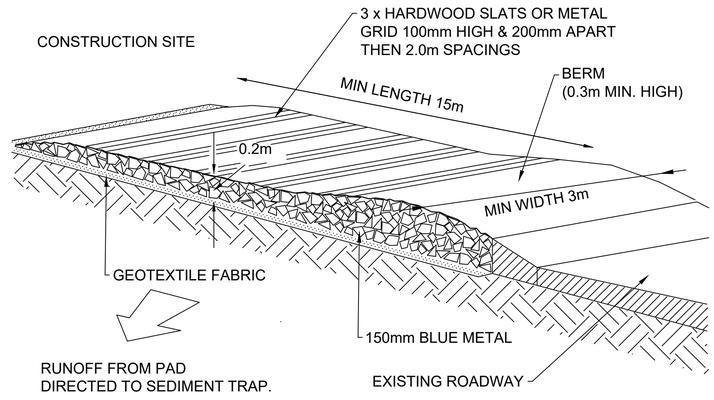
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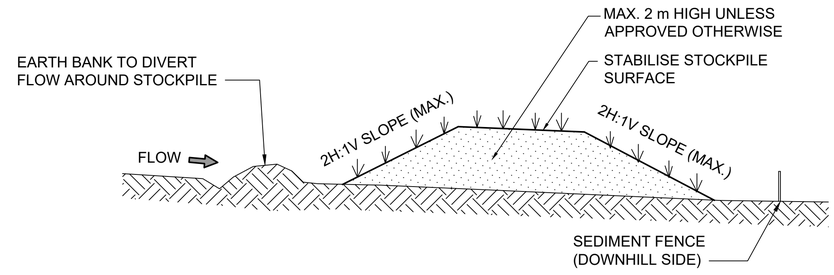
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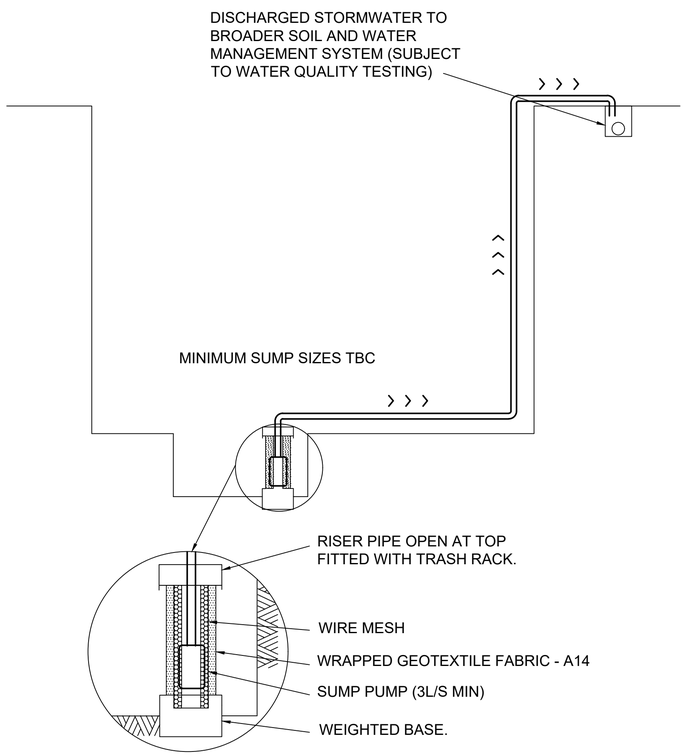
SEDIMENT FENCE



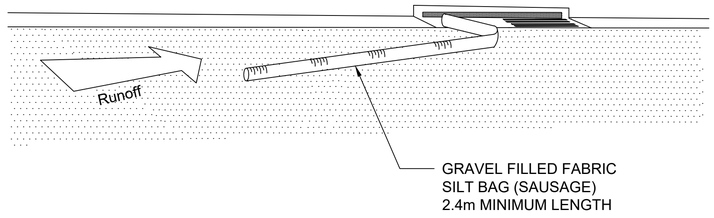
TEMPORARY CONSTRUCTION EXIT



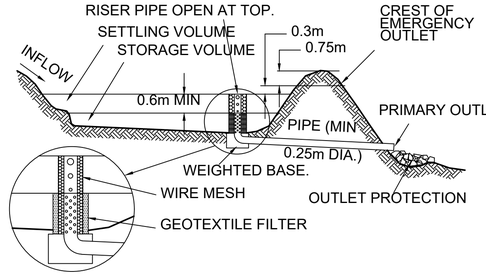
STOCKPILE



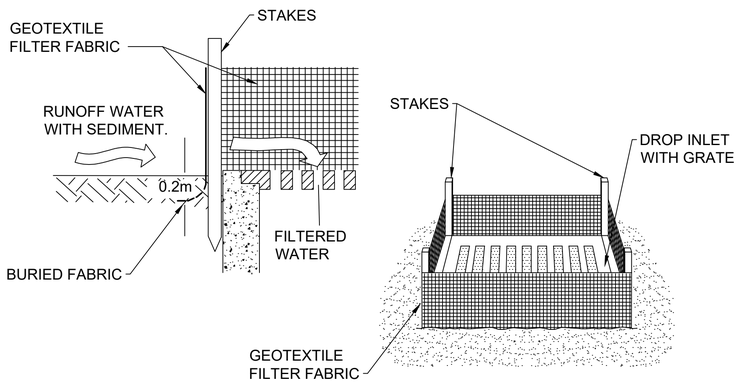
STORMWATER SUMP AND OUTLET



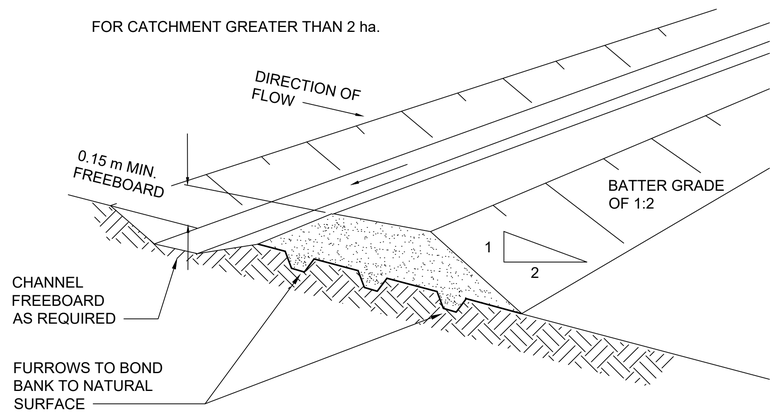
FABRIC STOCKING
KERB INLET SEDIMENT TRAP



CROSS SECTION OF TYPICAL SEDIMENT BASIN



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP



DIVERSION BANK AND CHANNEL

NOT FOR CONSTRUCTION

Scales

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name:
Signature: Date:

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 NOT TO SCALE

Discipline CIVIL

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Arup Pty Ltd
ABN 18 000 966 165

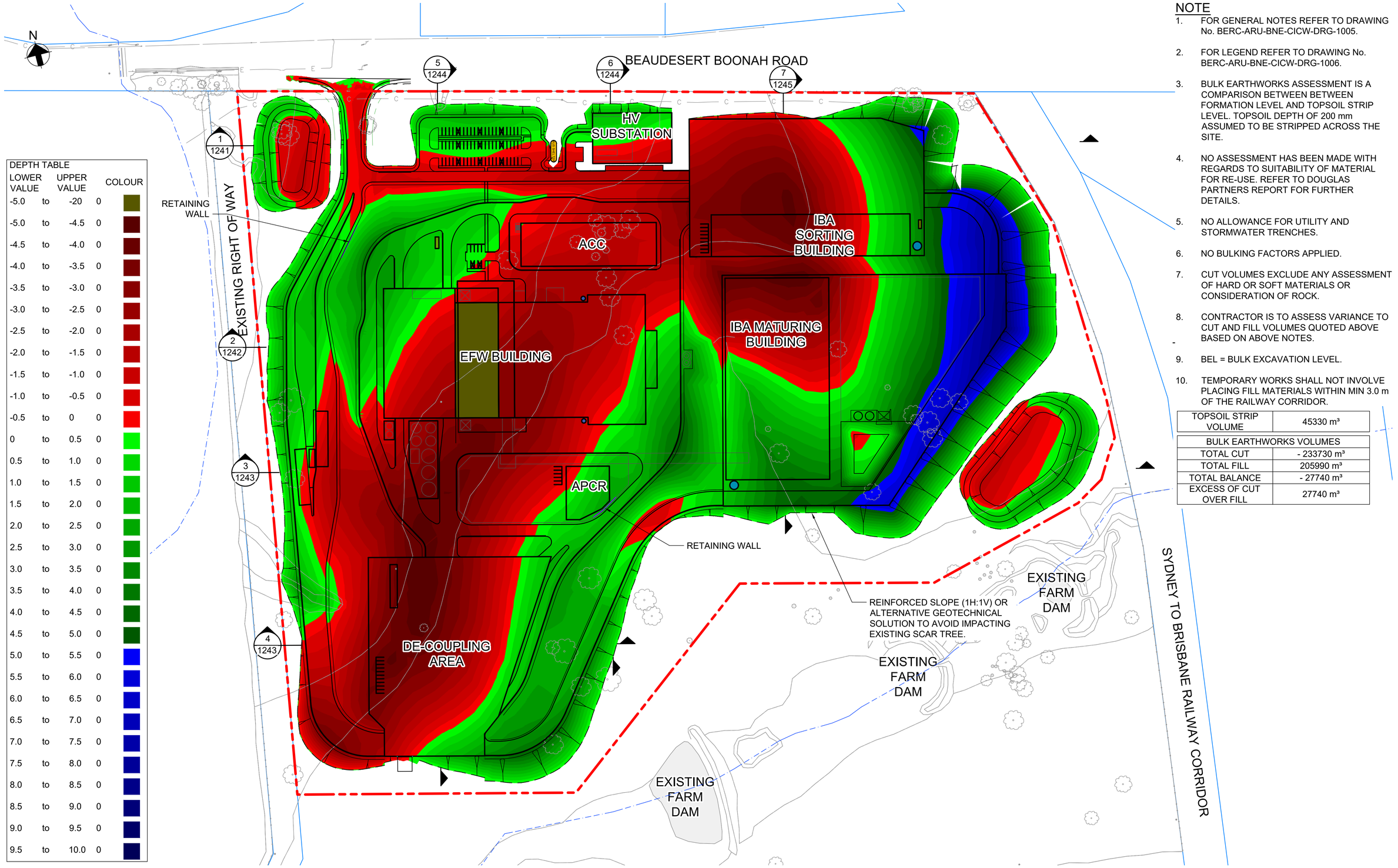
Drawing Title
EROSION AND SEDIMENT CONTROL DETAILS

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	BERC- ARU-BNE-CICW-DRG-1191	C

Do not scale

© Arup



DEPTH TABLE

LOWER VALUE		UPPER VALUE		COLOUR
-5.0	to	-20	0	
-5.0	to	-4.5	0	
-4.5	to	-4.0	0	
-4.0	to	-3.5	0	
-3.5	to	-3.0	0	
-3.0	to	-2.5	0	
-2.5	to	-2.0	0	
-2.0	to	-1.5	0	
-1.5	to	-1.0	0	
-1.0	to	-0.5	0	
-0.5	to	0	0	
0	to	0.5	0	
0.5	to	1.0	0	
1.0	to	1.5	0	
1.5	to	2.0	0	
2.0	to	2.5	0	
2.5	to	3.0	0	
3.0	to	3.5	0	
3.5	to	4.0	0	
4.0	to	4.5	0	
4.5	to	5.0	0	
5.0	to	5.5	0	
5.5	to	6.0	0	
6.0	to	6.5	0	
6.5	to	7.0	0	
7.0	to	7.5	0	
7.5	to	8.0	0	
8.0	to	8.5	0	
8.5	to	9.0	0	
9.0	to	9.5	0	
9.5	to	10.0	0	

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. BULK EARTHWORKS ASSESSMENT IS A COMPARISON BETWEEN BETWEEN FORMATION LEVEL AND TOPSOIL STRIP LEVEL. TOPSOIL DEPTH OF 200 mm ASSUMED TO BE STRIPPED ACROSS THE SITE.
4. NO ASSESSMENT HAS BEEN MADE WITH REGARDS TO SUITABILITY OF MATERIAL FOR RE-USE. REFER TO DOUGLAS PARTNERS REPORT FOR FURTHER DETAILS.
5. NO ALLOWANCE FOR UTILITY AND STORMWATER TRENCHES.
6. NO BULKING FACTORS APPLIED.
7. CUT VOLUMES EXCLUDE ANY ASSESSMENT OF HARD OR SOFT MATERIALS OR CONSIDERATION OF ROCK.
8. CONTRACTOR IS TO ASSESS VARIANCE TO CUT AND FILL VOLUMES QUOTED ABOVE BASED ON ABOVE NOTES.
9. BEL = BULK EXCAVATION LEVEL.
10. TEMPORARY WORKS SHALL NOT INVOLVE PLACING FILL MATERIALS WITHIN MIN 3.0 m OF THE RAILWAY CORRIDOR.

TOPSOIL STRIP VOLUME	45330 m³

BULK EARTHWORKS VOLUMES	
TOTAL CUT	- 233730 m³
TOTAL FILL	205990 m³
TOTAL BALANCE	- 27740 m³
EXCESS OF CUT OVER FILL	27740 m³

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
Issue	Date	By	Chkd	Appd

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: 1:2500m

Discipline: CIVIL

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Drawing Title: BULK EARTHWORKS PLAN

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1201**	**C**

Do not scale

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A1

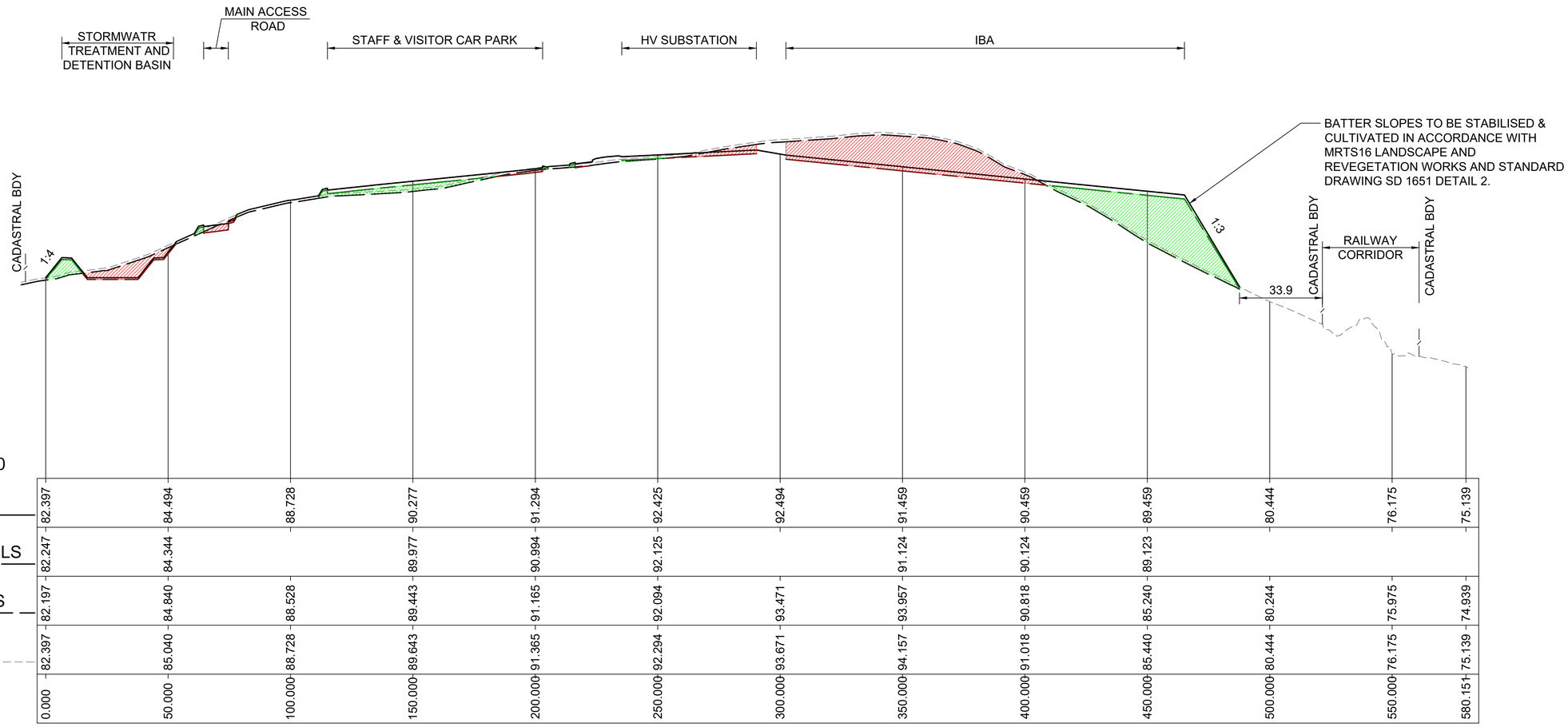
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND:

CUT

FILL



DATUM RL (m) 66.0													
DESIGN LEVELS	82.397	84.494	88.728	90.277	91.294	92.425	92.494	91.459	90.459	89.459	80.444	76.175	75.139
FORMATION LEVELS	82.247	84.344		89.977	90.994	92.125		91.124	90.124	89.123			
STRIPPED LEVELS	82.197	84.840	88.528	89.443	91.165	92.094	93.471	93.957	90.818	85.240	80.244	75.975	74.939
EXISTING LEVELS	82.397	85.040	88.728	89.643	91.365	92.294	93.671	94.157	91.018	85.440	80.444	76.175	75.139
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	580.151

SECTION 1 C-1201
SCALE H 1:1000
V 1:200

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m
1:1000(A1)/1:2000(A3)
2 0 2 4 6 8 10m
1:200(A1)/1:400(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 AS SHOWN

Discipline CIVIL

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ABN 18 000 966 165

Drawing Title
BULK EARTHWORKS
SITE SECTIONS
SHEET 1

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1241**	**C**

Do not scale

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A1

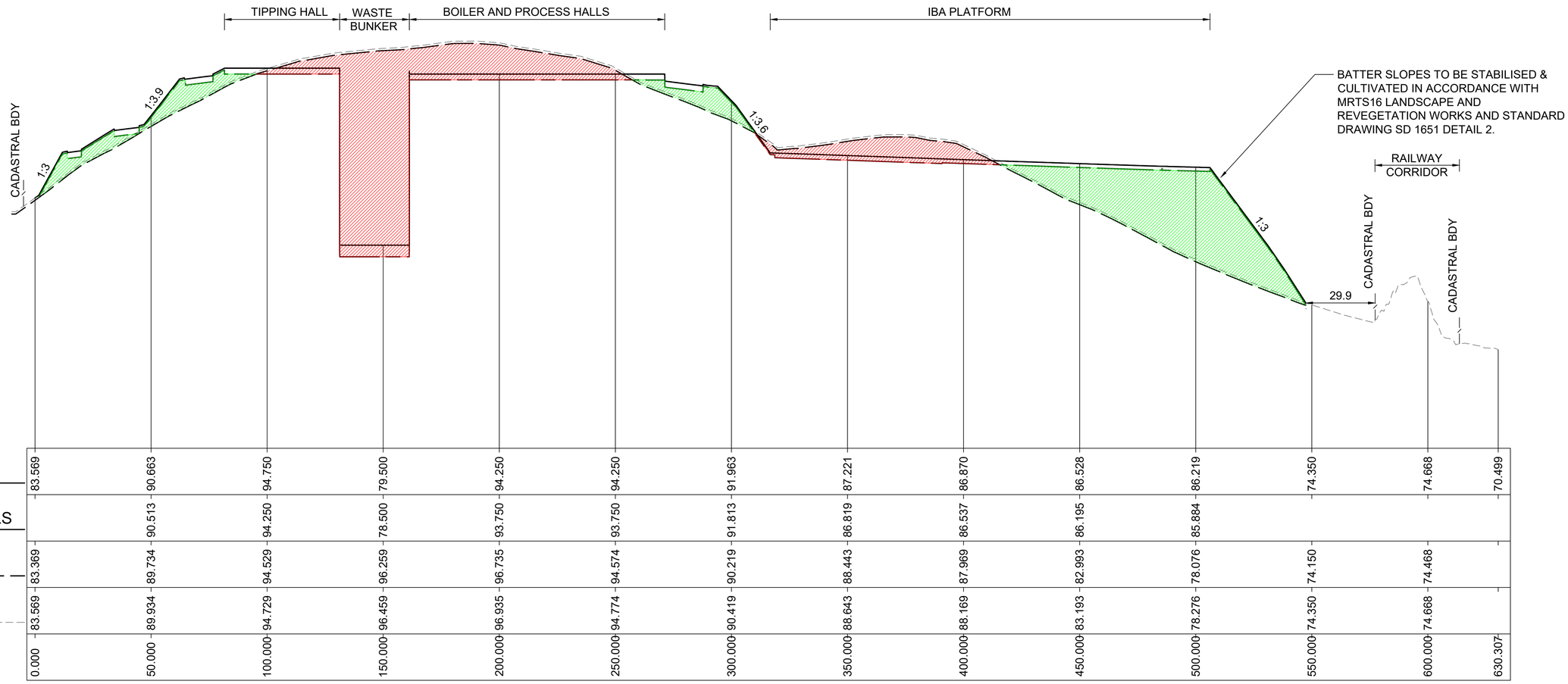
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND:

CUT

FILL



DATUM RL (m) 62.0													
DESIGN LEVELS	83.569	90.663	94.750	79.500	94.250	94.250	91.963	87.221	86.870	86.528	86.219	74.350	74.668	70.499
FORMATION LEVELS		90.513	94.250	78.500	93.750	93.750	91.813	86.819	86.537	86.195	85.884			
STRIPPED LEVELS	83.369	89.734	94.529	96.259	96.735	94.574	90.219	88.443	87.969	82.993	78.076	74.150	74.468	
EXISTING LEVELS	83.569	89.934	94.729	96.459	96.935	94.774	90.419	88.643	88.169	83.193	78.276	74.350	74.668	
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	630.307

SECTION 2
SCALE H 1:1000 C-1201
V 1:200

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m
1:1000(A1)/1:2000(A3)

2 0 2 4 6 8 10m
1:200(A1)/1:400(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN

Discipline: CIVIL

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Arup Pty Ltd
ABN 18 000 966 165

Drawing Title: BULK EARTHWORKS SITE SECTIONS SHEET 2

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1242**	**C**

Do not scale

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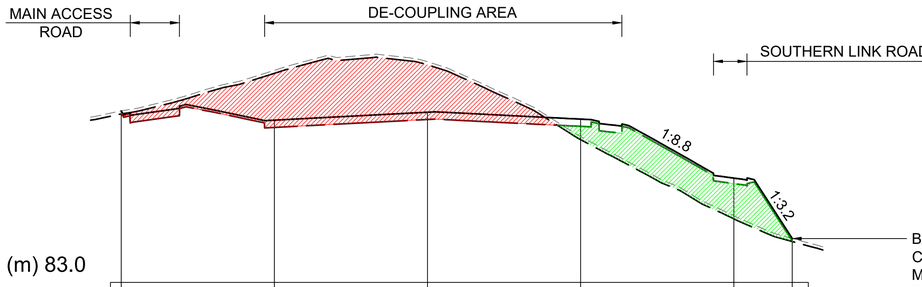
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND:

CUT

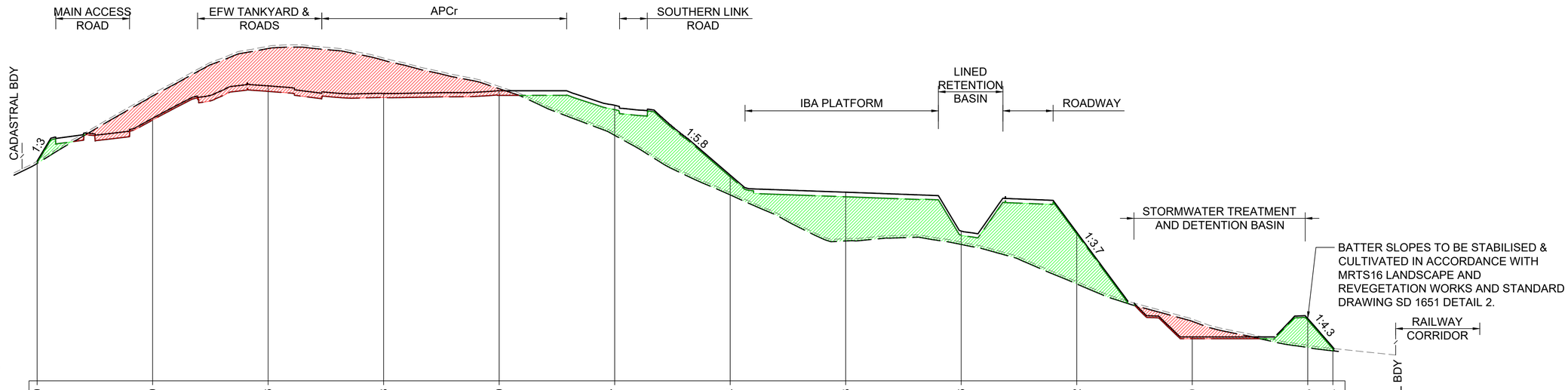
FILL



BATTER SLOPES TO BE STABILISED & CULTIVATED IN ACCORDANCE WITH MRTS16 LANDSCAPE AND REVEGETATION WORKS AND STANDARD DRAWING SD 1651 DETAIL 2.

DATUM RL (m) 83.0						
DESIGN LEVELS	94.195	93.593	94.113	93.659	89.811	85.865
FORMATION LEVELS	94.045	93.118	93.638	93.184	89.451	
STRIPPED LEVELS	93.997	96.643	97.205	92.325	87.152	85.670
EXISTING LEVELS	94.197	96.843	97.405	92.525	87.352	85.870
CHAINAGE	0.000	50.000	100.000	150.000	200.000	219.074

SECTION 4
SCALE H 1:1000 C-1201
V 1:200



BATTER SLOPES TO BE STABILISED & CULTIVATED IN ACCORDANCE WITH MRTS16 LANDSCAPE AND REVEGETATION WORKS AND STANDARD DRAWING SD 1651 DETAIL 2.

DATUM RL (m) 69.0												
DESIGN LEVELS	88.010	91.720	94.526	93.868	94.100	92.847	86.804	85.323	81.956	81.862	72.800	74.393	71.904
FORMATION LEVELS	87.860	91.570	94.051	93.508	93.700	92.470	86.654	84.923	81.596	81.712	72.650	74.243	71.754
STRIPPED LEVELS	87.810	93.650	97.755	96.735	94.277	90.246	85.095	81.105	80.804	77.388	74.148	71.883	71.594
EXISTING LEVELS	88.010	93.850	97.955	96.935	94.477	90.446	85.295	81.305	81.004	77.588	74.348	72.083	71.794
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	560.861

SECTION 3
SCALE H 1:1000 C-1201
V 1:200

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m
1:1000(A1)/1:2000(A3)

2 0 2 4 6 8 10m
1:200(A1)/1:400(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN

Discipline: CIVIL

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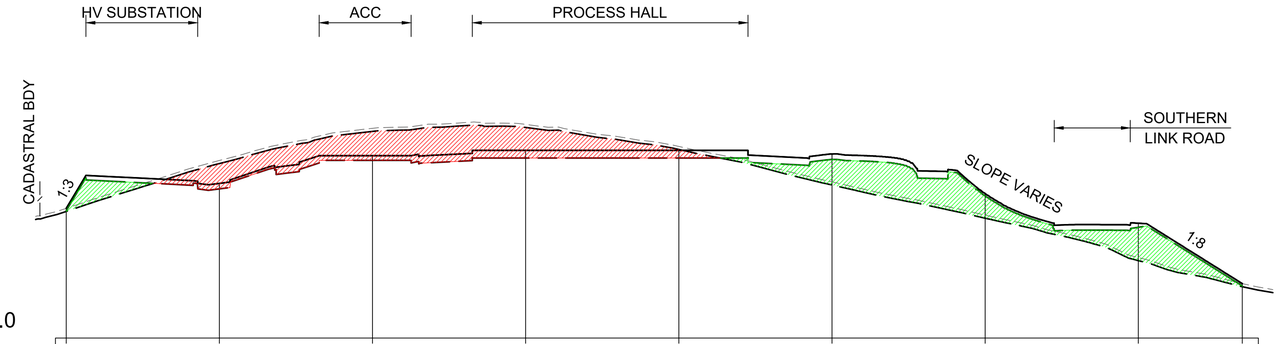
Drawing Title: BULK EARTHWORKS SITE SECTIONS SHEET 3

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	BERC- ARU-BNE-CICW-DRG-1243	C

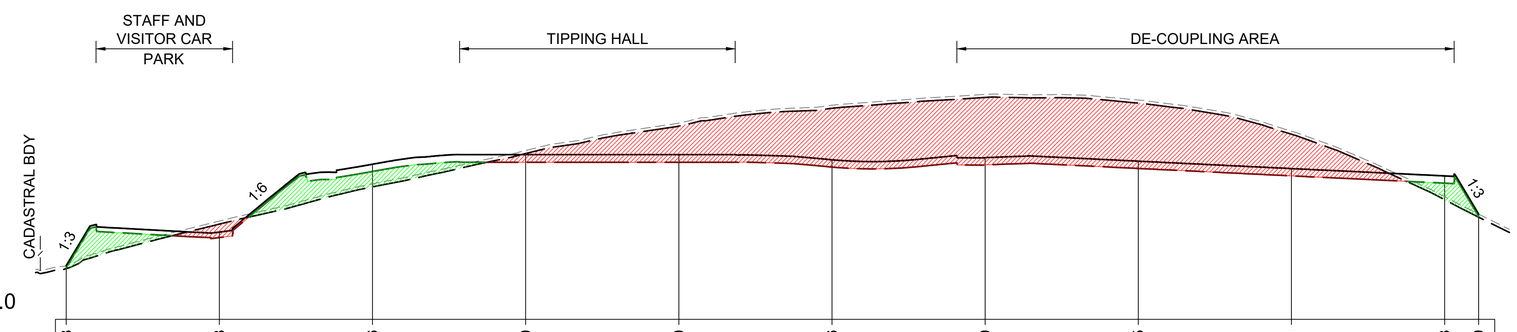
Do not scale

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DATUM RL (m) 82.0									
DESIGN LEVELS	90.467	92.094	93.900	94.250	94.250	94.014	91.433	89.495	85.555
FORMATION LEVELS	90.317	91.734	93.600	93.750	93.750	93.654	91.283	89.230	85.405
STRIPPED LEVELS	90.267	93.391	95.490	95.747	94.311	91.996	89.825	87.055	85.354
EXISTING LEVELS	90.467	93.591	95.690	95.947	94.511	92.196	90.025	87.255	85.554
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	383.950

SECTION 6 C-1201
SCALE H 1:1000
V 1:200



DATUM RL (m) 84.0										
DESIGN LEVELS	87.508	89.698	94.126	94.750	94.750	94.416	94.549	94.325	93.841	93.363	90.869
FORMATION LEVELS	87.358	89.338	93.651	94.250	94.250	93.941	94.074	93.850	93.366	92.888	90.719
STRIPPED LEVELS	87.308	90.216	92.646	94.823	96.615	97.775	98.485	98.117	96.084	91.811	90.669
EXISTING LEVELS	87.508	90.416	92.846	95.023	96.815	97.975	98.685	98.317	96.284	92.011	90.869
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	461.120

SECTION 5 C-1201
SCALE H 1:1000
V 1:200

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND:

CUT

FILL

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m
1:1000(A1)/1:2000(A3)

2 0 2 4 6 8 10m
1:200(A1)/1:400(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 AS SHOWN

Discipline CIVIL

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Drawing Title
BULK EARTHWORKS
SITE SECTIONS
SHEET 4

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1244**	**C**

Do not scale

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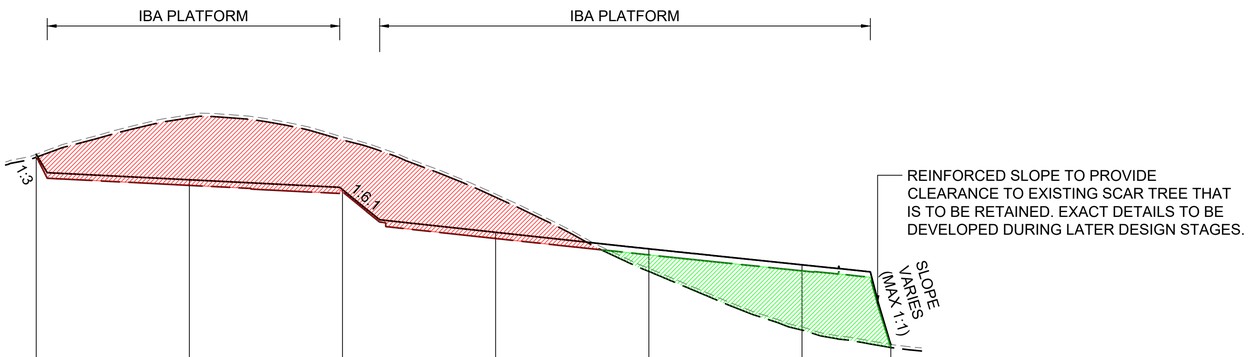
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND:

CUT

FILL



DATUM RL (m) 77.0							
DESIGN LEVELS	92.478	90.808	90.173	87.380	86.303	85.263	80.060
FORMATION LEVELS	92.328	90.448	90.023	86.976	85.905	84.863	79.910
STRIPPED LEVELS	92.278	94.855	93.411	89.673	84.831	80.999	79.860
EXISTING LEVELS	92.478	95.055	93.611	89.873	85.031	81.199	80.060
CHAINAGE	0.000	50.000	100.000	150.000	200.000	250.000	278.998

SECTION 7 C-1201
SCALE H 1:1000 V 1:200

NOT FOR CONSTRUCTION

Scales

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
B	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
A	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN

Discipline: CIVIL

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ABN 18 000 966 165

Drawing Title: BULK EARTHWORKS SITE SECTIONS SHEET 5

Drawing Status: **FOR APPROVAL**

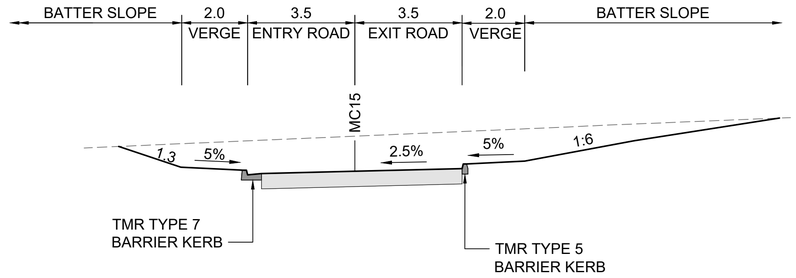
Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1245**	**B**

Do not scale

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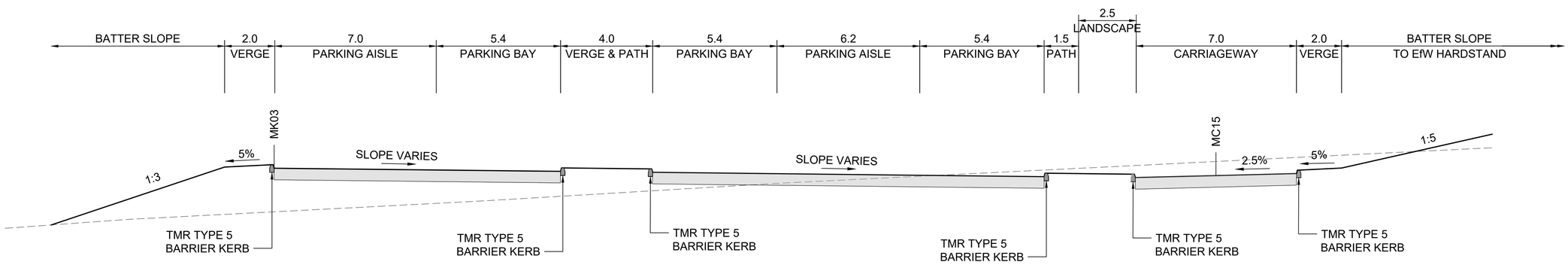
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



SECTION 2 (1021)
SCALE 1:100

CAR PARK AND IBA ACCESS ROAD



SECTION 1 (1021)
SCALE 1:100

STAFF AND VISITOR CAR PARK

NOT FOR CONSTRUCTION

Scales
1 0 1 2 3 4 5m
1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			
Issue	Date	By	Chkd	Appd

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:100m

Discipline CIVIL

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Drawing Title
CIVIL WORKS
TYPICAL CROSS SECTIONS
SHEET 1

Drawing Status
FOR APPROVAL

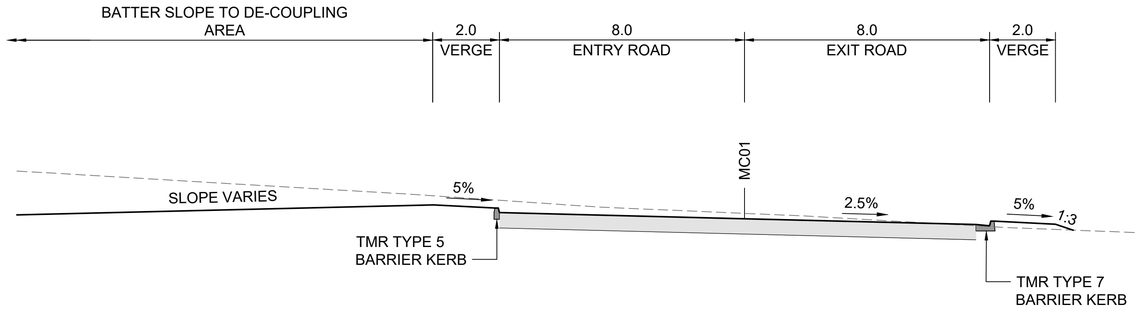
Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1341**	**C**

Do not scale

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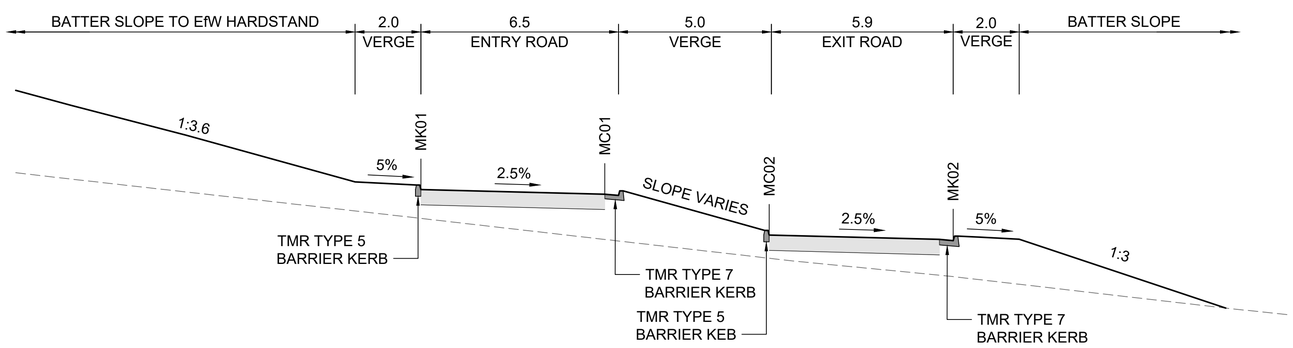
NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



SECTION 4 / 1021
SCALE 1:100

MAIN ENTRANCE ROAD



SECTION 3 / 1021
SCALE 1:100

MAIN ENTRANCE ROAD

NOT FOR CONSTRUCTION

Scales
1 0 1 2 3 4 5m
1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client
CLEANAWAY
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Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:100m

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ABN 18 000 966 165

Drawing Title
CIVIL WORKS
TYPICAL CROSS SECTIONS
SHEET 2

Drawing Status
FOR APPROVAL

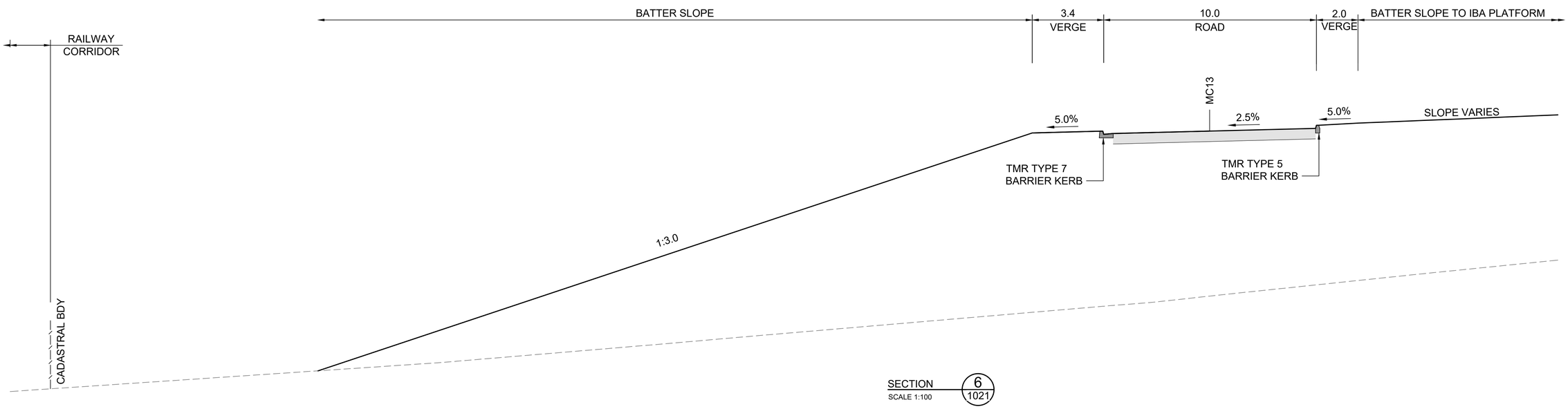
Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1342**	**C**

Do not scale

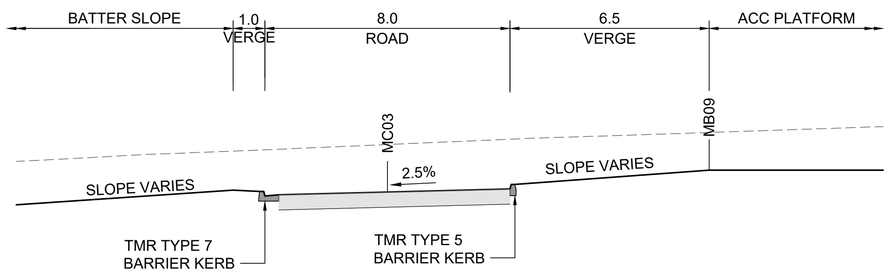
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NOTE

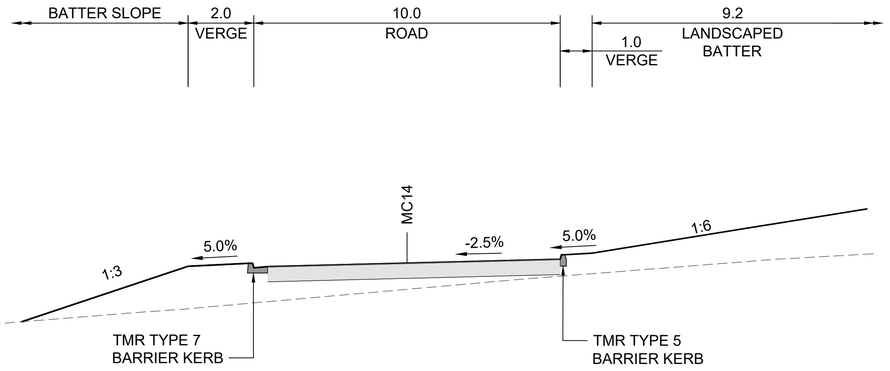
1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



SECTION 6 (1021)
SCALE 1:100



SECTION 5 (1021)
SCALE 1:100



SECTION 7 (1021)
SCALE 1:100

NOT FOR CONSTRUCTION

Scales
1 0 1 2 3 4 5m
1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:100m

Discipline CIVIL

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Drawing Title
CIVIL WORKS
TYPICAL CROSS SECTIONS
SHEET 3

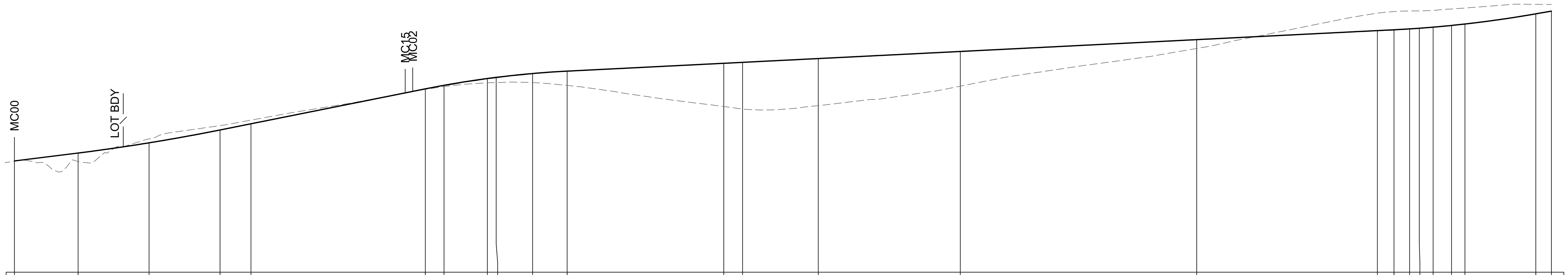
Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	BERC- ARU-BNE-CICW-DRG-1343	C

Do not scale

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NOTE
1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



DATUM RL (m) 80.0

VERTICAL ALIGN.: G=2.500% L=13.462 | K=20.0 L=30.000 | G=4.000% L=43.408 | K=10.0 L=30.000 | G=1.000% L=174.844 | K=12.0 L=30.000 | G=3.500% L=103.222

HORIZONTAL ALIGN.: T=90.848 | L=18.730 R=40.000 | T=44.394 | L=15.996 R=-35.000 | T=118.242 | L=6.806 R=30.000 | T=2.058 | L=6.806 R=-30.000 | T=85.535

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	84.702	84.702
13.462	85.038	84.677
28.462	85.469	85.635
43.462	86.013	86.197
50.000	86.275	86.429
86.869	87.750	87.729
90.848	87.901	87.845
100.000	88.189	88.008
101.869	88.237	88.024
109.578	88.400	88.017
116.869	88.500	87.896
150.000	88.831	87.003
153.972	88.871	86.898
169.968	89.031	87.039
200.000	89.331	87.864
250.000	89.831	89.458
288.209	90.213	90.951
291.713	90.248	91.022
295.015	90.286	91.043
297.073	90.314	91.044
300.000	90.359	91.064
303.879	90.431	91.127
306.713	90.492	91.168
321.713	90.923	91.324
325.000	91.038	91.318

LONGITUDINAL SECTION OF MC01 CONTROL LINE

H 1:500

V 1:100

NOT FOR CONSTRUCTION

Scales
1:500(A1)/1:1000(A3)
1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: ....
Signature: .... Date: ....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN

Discipline: CIVIL

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Drawing Title: CIVIL WORKS
MC01 LONGITUDINAL SECTIONS
SHEET 1

Drawing Status: FOR APPROVAL

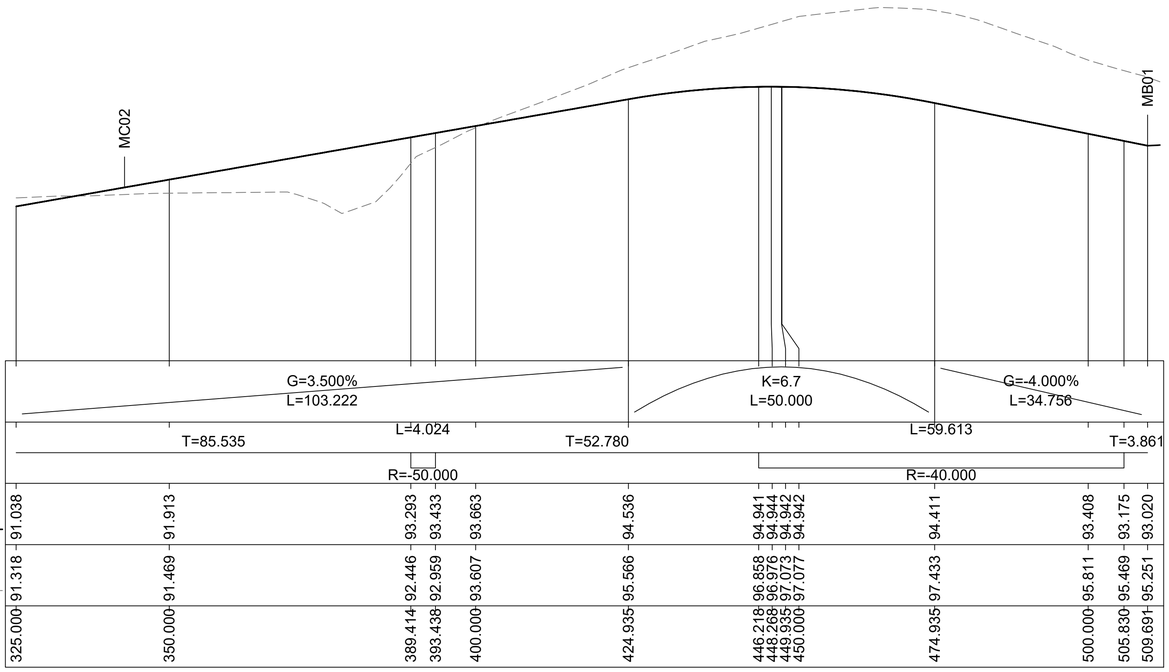
Job No: 293683-00 | Drawing No: BERC- ARU-BNE-CICW-DRG-1351 | Issue: C

Do not scale

© Arup

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



LONGITUDINAL SECTION OF MC01 CONTROL LINE

H 1:500

V 1:100

NOT FOR CONSTRUCTION

Scales

5 0 10 20m

1:500(A1)/1:1000(A3)

1 0 1 2 3 4 5m

1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN

Discipline: CIVIL

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Drawing Title: CIVIL WORKS
MC01 LONGITUDINAL SECTIONS
SHEET 2

Drawing Status: **FOR APPROVAL**

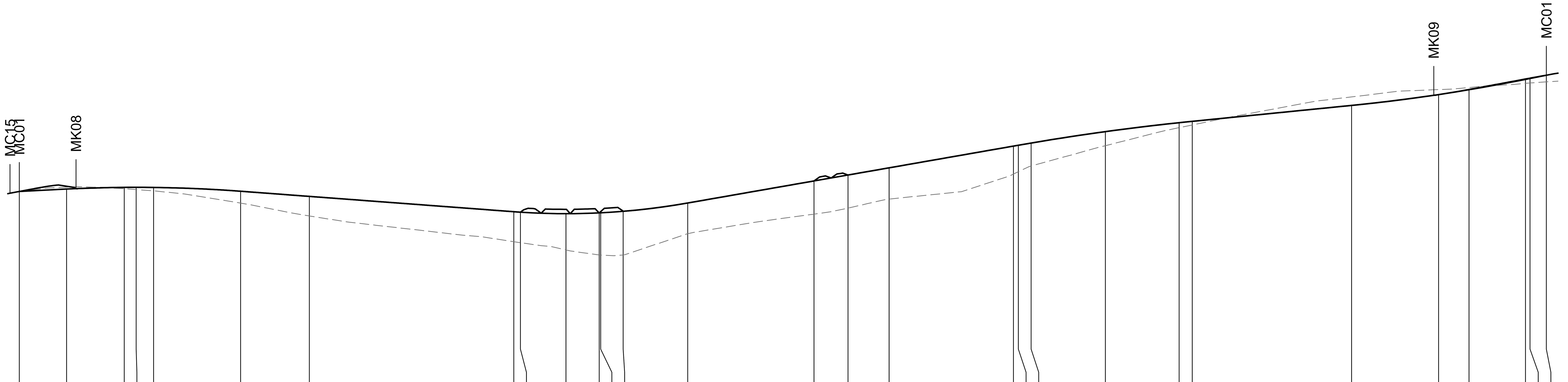
Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1352**	**C**

Do not scale

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NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



DATUM RL (m) 81.0

VERTICAL ALIGN.

- G=1.000% L=8.157
- K=12.0 L=30.000
- G=-1.500% L=47.110
- K=6.0 L=30.000
- G=3.500% L=57.015
- K=20.0 L=30.000
- G=2.000% L=27.460
- K=15.0 L=30.000
- G=4.000% L=3.598

HORIZONTAL ALIGN.

- L=18.096 R=35.000
- T=68.321
- L=17.703 R=-35.000
- T=32.928
- L=5.863 R=-35.000
- T=28.516
- L=3.046 R=35.000
- T=86.049
- L=2.817 R=35.000

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	87.644	87.632
8.157	87.725	87.799
18.096	87.783	87.739
20.157	87.785	87.708
23.157	87.781	87.663
38.157	87.650	87.241
50.000	87.473	86.796
85.267	86.944	85.909
86.417	86.927	85.873
94.267	86.876	85.618
100.000	86.903	85.450
100.267	86.906	85.446
104.119	86.957	85.450
115.267	87.244	86.186
137.048	88.006	86.858
142.911	88.211	87.066
150.000	88.459	87.381
171.427	89.209	88.245
172.282	89.239	88.329
174.474	89.315	88.523
187.282	89.708	89.223
200.000	90.017	89.845
202.282	90.064	89.939
229.742	90.613	90.907
244.742	90.988	91.159
250.000	91.155	91.231
259.742	91.513	91.376
260.522	91.545	91.390
263.339	91.657	91.426

LONGITUDINAL SECTION OF MC02 CONTROL LINE

H 1:500
V 1:100

NOT FOR CONSTRUCTION

Scales
1:500(A1)/1:1000(A3)
1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)
Name: ....
Signature: .... Date: ....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: AS SHOWN
Discipline: CIVIL

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Drawing Title: CIVIL WORKS MC02 LONGITUDINAL SECTIONS

Drawing Status: FOR APPROVAL

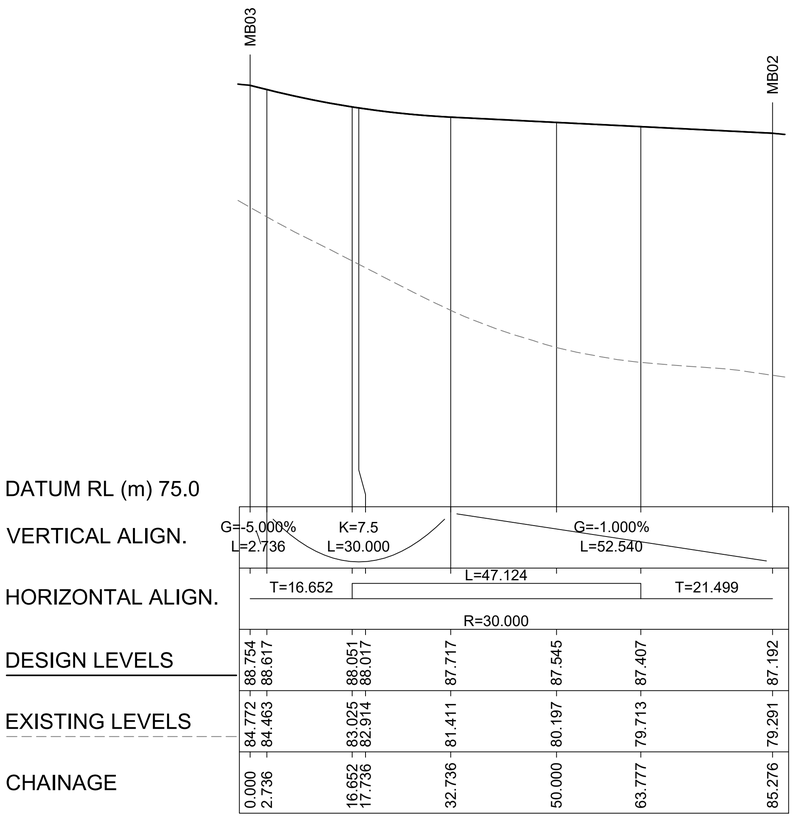
Job No: 293683-00 | Drawing No: BERC- ARU-BNE-CICW-DRG-1353 | Issue: C

Do not scale

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NOTE

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2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



LONGITUDINAL SECTION OF MC13 CONTROL LINE

H 1:500

V 1:100

NOT FOR CONSTRUCTION

Scales

5 0 10 20m

1:500(A1)/1:1000(A3)

1 0 1 2 3 4 5m

1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client

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Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 AS SHOWN

Discipline CIVIL

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Drawing Title

CIVIL WORKS
MC13 LONGITUDINAL SECTIONS

Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1354**	**C**

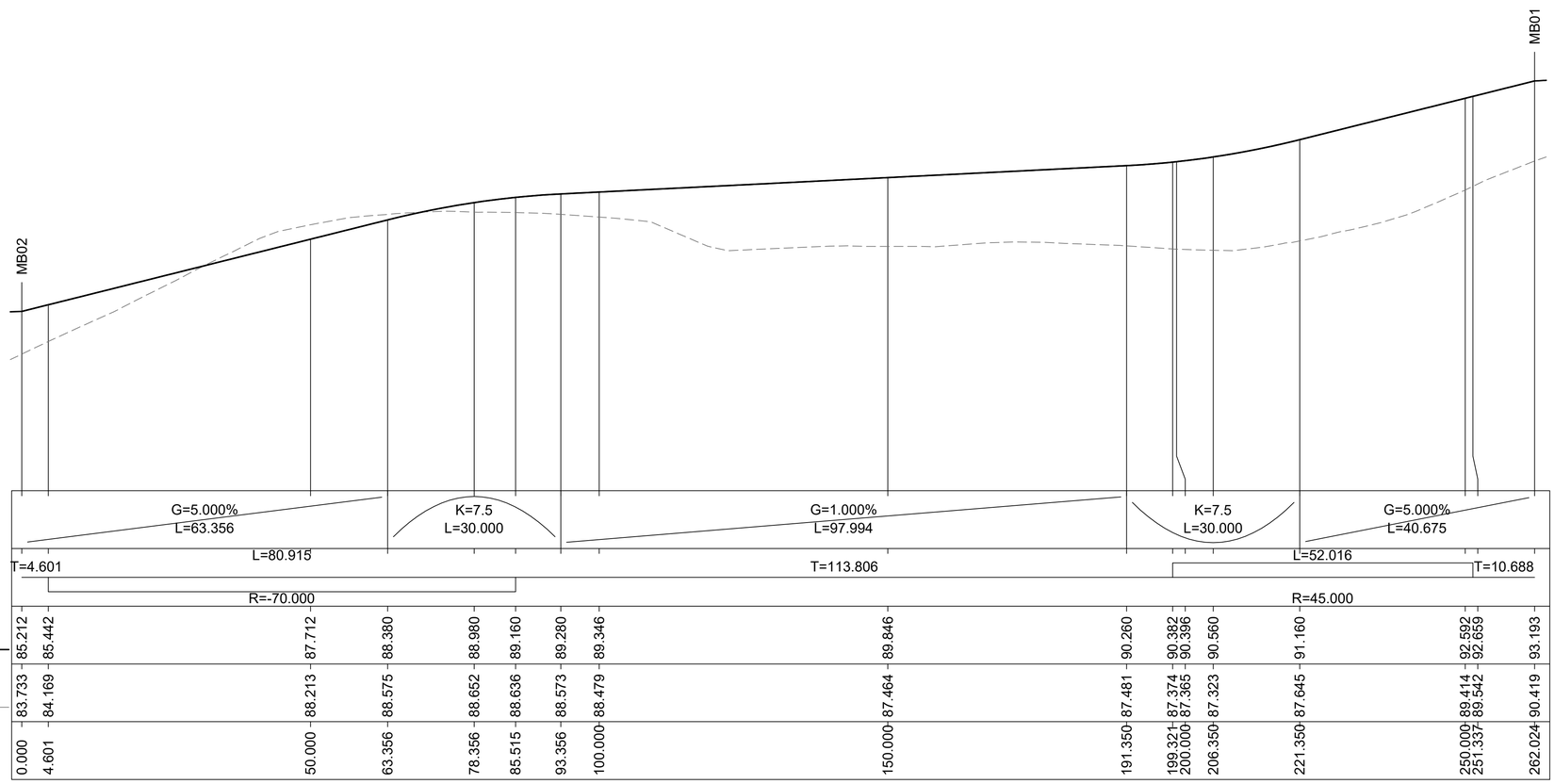
Do not scale

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A1

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



LONGITUDINAL SECTION OF MC14 CONTROL LINE

H 1:500

V 1:100

NOT FOR CONSTRUCTION

Scales

5 0 10 20m

1:500(A1)/1:1000(A3)

1 0 1 2 3 4 5m

1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client

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Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

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Scale at A1 AS SHOWN

Discipline CIVIL

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Drawing Title

CIVIL WORKS
MC14 LONGITUDINAL SECTIONS

Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1355**	**C**

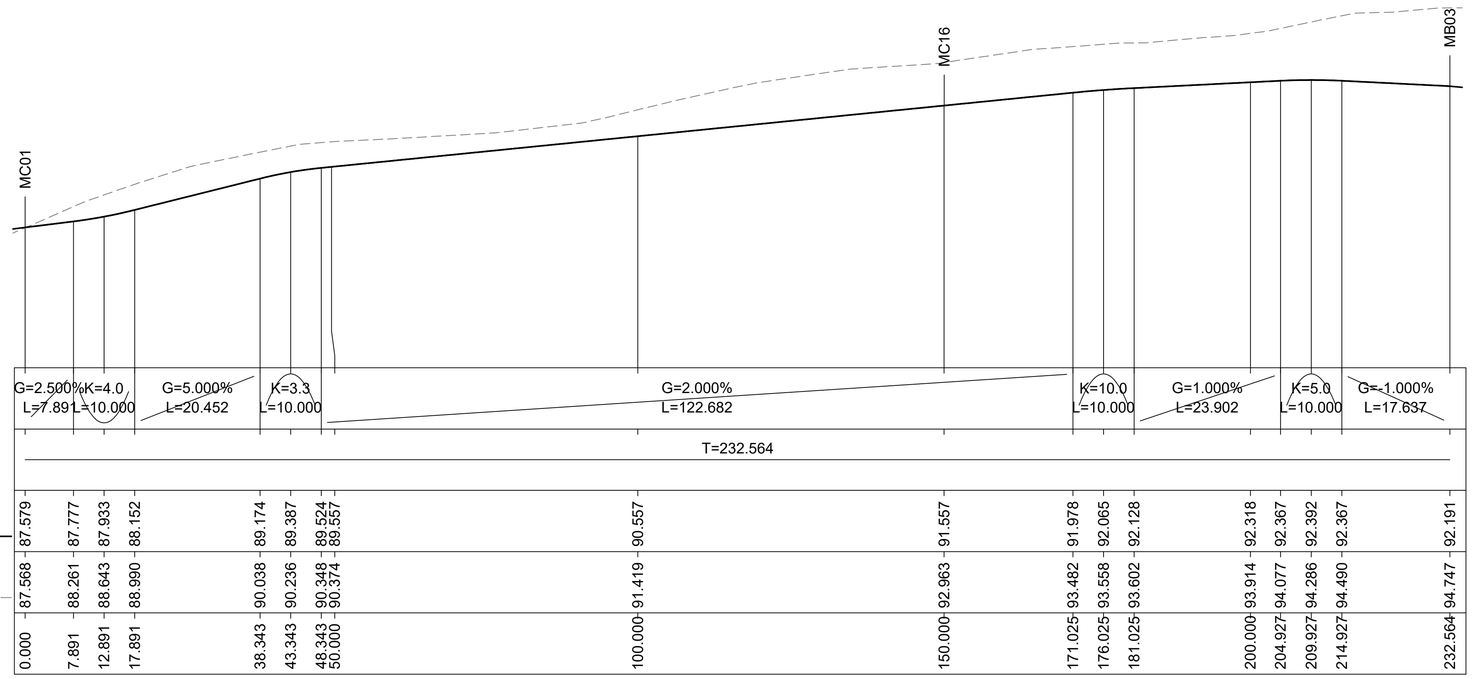
Do not scale

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A1

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.



LONGITUDINAL SECTION OF MC15 CONTROL LINE

H 1:500

V 1:100

NOT FOR CONSTRUCTION

Scales

5 0 10 20m

1:500(A1)/1:1000(A3)

1 0 1 2 3 4 5m

1:100(A1)/1:200(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
Issue	Date	By	Chkd	Appd

Client

CLEANAWAY
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Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 AS SHOWN

Discipline CIVIL

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Drawing Title

CIVIL WORKS
MC15 LONGITUDINAL SECTIONS

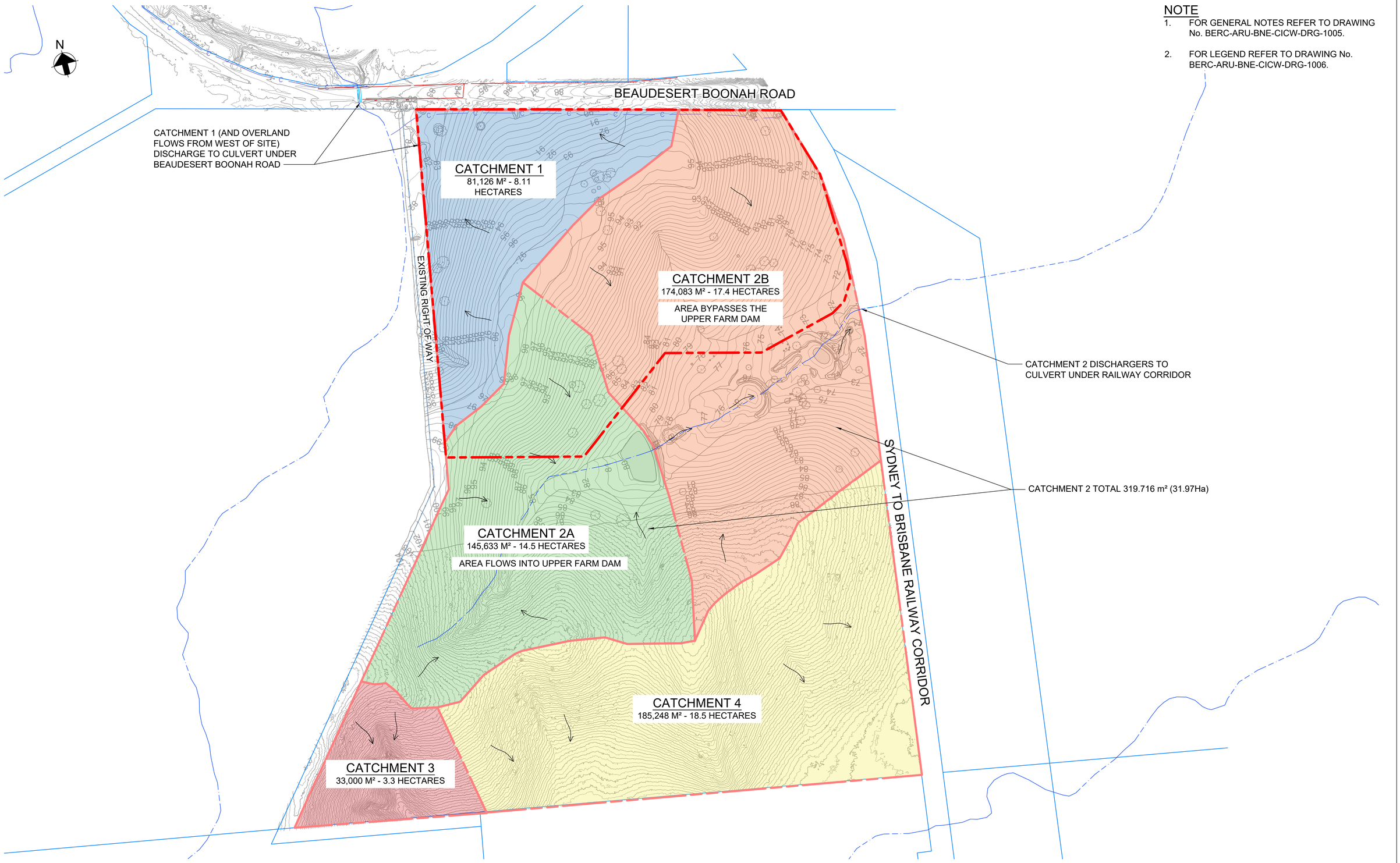
Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1356**	**C**

Do not scale

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NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

NOT FOR CONSTRUCTION

Scales

25 0 50 100m

1:2500(A1)/1:5000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client

CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title

BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:2500m

Discipline CIVIL

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ABN 18 000 966 165

Drawing Title

STORMWATER
PRE - DEVELOPMENT CATCHMENT - PLAN

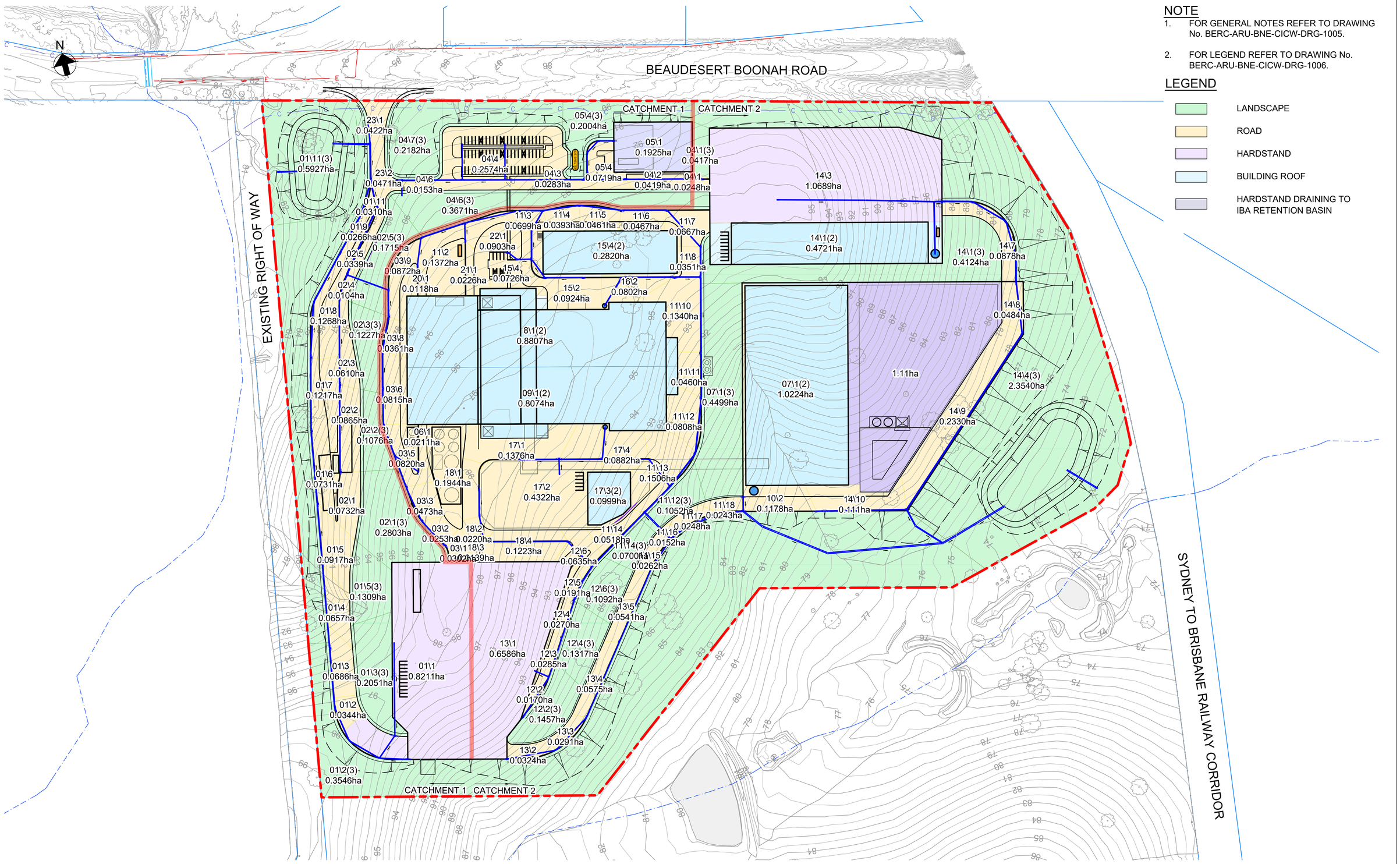
Drawing Status

FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1601**	**C**

Do not scale

© Arup



NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.

LEGEND

- LANDSCAPE
- ROAD
- HARDSTAND
- BUILDING ROOF
- HARDSTAND DRAINING TO IBA RETENTION BASIN

NOT FOR CONSTRUCTION

Scales

10 0 10 20 30 40 50m

1:1250(A1)/1:2500(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client: CLEANAWAY — Making a sustainable future possible

Engineering Certification (CEng)

Name: .....

Signature: ..... Date: .....

Job Title: BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1: 1:1250mm

Discipline: CIVIL

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Drawing Title: STORMWATER PROPOSED CATCHMENT - PLAN

Drawing Status: **FOR APPROVAL**

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1605**	**C**

Do not scale

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NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. THE STORMWATER DESIGNS PRESENTED ARE AT CONCEPT LEVEL AND WILL BE DEVELOPED AS PART OF FUTURE DESIGN STAGES.

N

EXISTING RIGHT OF WAY

EXISTING RIGHT OF WAY

DRIVEWAY FOR CONNECTION TO SOUTHERN PORTION OF SITE

TRUCK SHED

DE-COUPLING AREA

BERC-ARU-BRI-CICW- DRG-1612

BERC-ARU-BRI-CICW- DRG-1613

KEY PLAN
N.T.S

NOT FOR CONSTRUCTION

Scales
5 0 10 20m
1:500(A1)/1:1000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				

Client
CLEANAWAY
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Engineering Certification (CEng)
Name:
Signature: Date:

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:500m

Discipline
CIVIL

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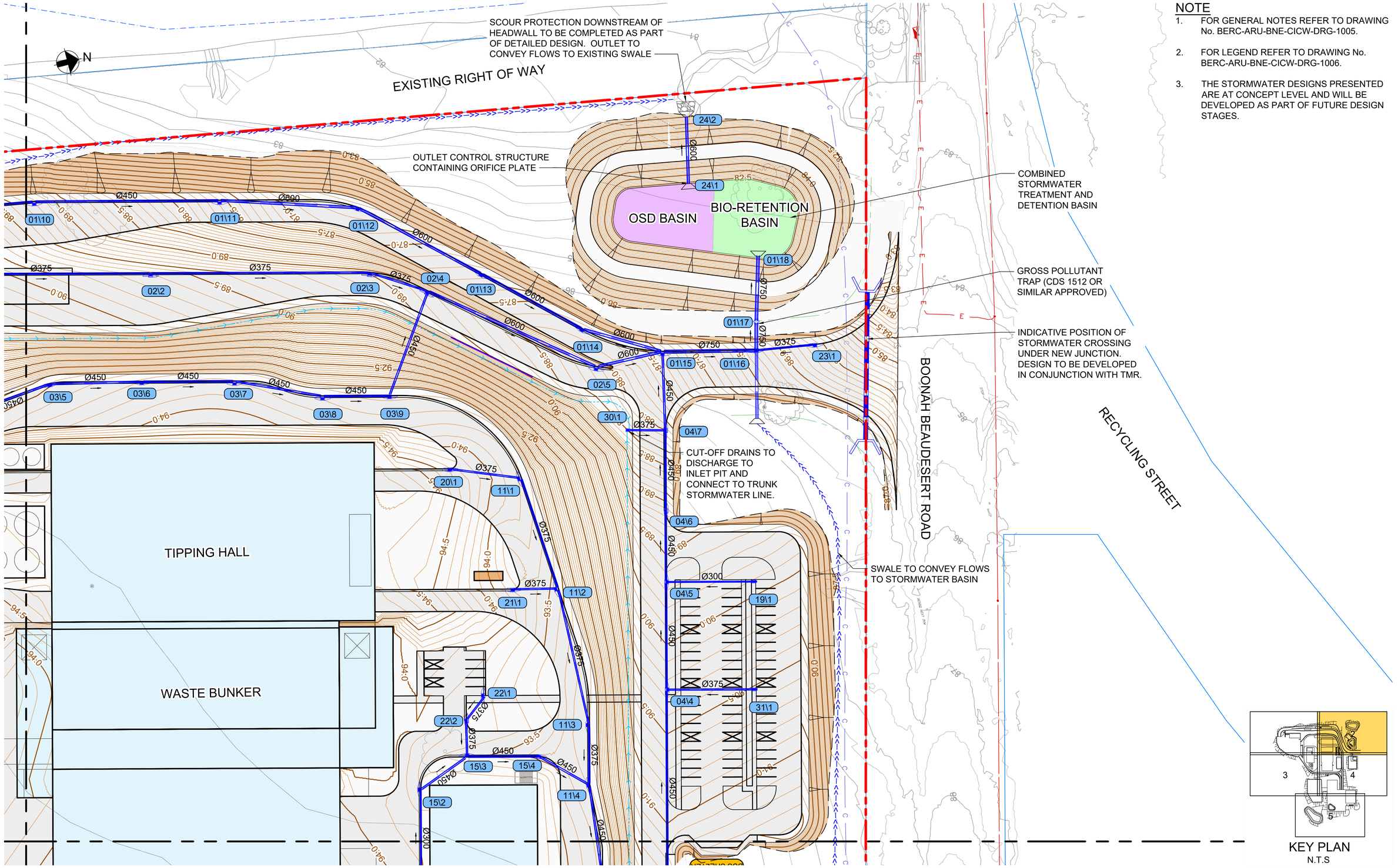
Drawing Title
STORMWATER PLAN SHEET 1

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1611**	**C**

Do not scale

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NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. THE STORMWATER DESIGNS PRESENTED ARE AT CONCEPT LEVEL AND WILL BE DEVELOPED AS PART OF FUTURE DESIGN STAGES.

KEY PLAN
N.T.S

BERC-ARU-BRI-CICW- DRG-1614

BERC-ARU-BRI-CICW- DRG-1611

NOT FOR CONSTRUCTION

Scales
5 0 10 20m
1:500(A1)/1:1000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

C	16.01.26	PDA	ERA	EGM
ISSUE FOR APPROVAL				
B	26.09.25	PDA	ERA	EGM
ISSUED FOR ADEQUACY REVIEW				
A	18.08.25	PDA	ERA	EGM
DRAFT FEED ISSUE				
Issue	Date	By	Chkd	Appd

Client
CLEANAWAY
Making a sustainable future possible

Engineering Certification (CEng)
Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:500m

Discipline
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Drawing Title
STORMWATER PLAN SHEET 2

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1612**	**C**

Do not scale

© Arup

A1

ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1611

N

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. THE STORMWATER DESIGNS PRESENTED ARE AT CONCEPT LEVEL AND WILL BE DEVELOPED AS PART OF FUTURE DESIGN STAGES.

EXISTING FARM DAM

APCR ROOF DRAINAGE TO CONNECT TO PIT 17/3.
APCR

CUT-OFF DRAINS TO DISCHARGE INTO PIT 07/1

MIN 100kL RAINWATER HARVESTING TANK WITH OVERFLOW DISCHARGING TO PIT 07/1

LINED IBA RETENTION BASIN

ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1614

ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1615

KEY PLAN
N.T.S

NOT FOR CONSTRUCTION

Scales
5 0 10 20m
1:500(A1)/1:1000(A3)

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

Client
CLEANAWAY
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Name: .....
Signature: ..... Date: .....

Job Title
BROMELTON ENERGY AND RESOURCES CENTRE

Scale at A1 1:500m

Discipline CIVIL

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Drawing Title
STORMWATER PLAN SHEET 3

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1613**	**C**

Do not scale

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ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1612

ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1613

ADJOIN DRG No. BERC-ARU-BRI-CICW-DRG-1615

BOILER HALL

PROCESS HALL

ACC

HV SUBSTATION

STACK

IBA SORTING BUILDING

IBA SORTING BUILDING

BUS SHELTER

MIN 100 kL RAINWATER HARVESTING TANK WITH OVERFLOW DISCHARGING TO STORMWATER NETWORK

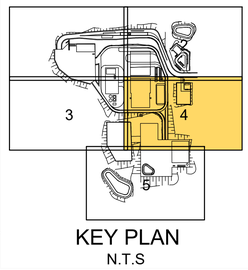
CUT-OFF DRAIN

OIL & WATER SEPARATOR TO BE PROVIDED UPSTREAM OF PIT 05/1.

DETAILED DESIGN OF HV SUBSTATION FORMS PART OF LATER DESIGN STAGES.

NOTE

1. FOR GENERAL NOTES REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1005.
2. FOR LEGEND REFER TO DRAWING No. BERC-ARU-BNE-CICW-DRG-1006.
3. THE STORMWATER DESIGNS PRESENTED ARE AT CONCEPT LEVEL AND WILL BE DEVELOPED AS PART OF FUTURE DESIGN STAGES.



KEY PLAN
N.T.S

NOT FOR CONSTRUCTION

Scales
5 0 10 20m
1:500(A1)/1:1000(A3)

Issue	Date	By	Chkd	Appd
C	16.01.26	PDA	ERA	EGM
	ISSUE FOR APPROVAL			
B	26.09.25	PDA	ERA	EGM
	ISSUED FOR ADEQUACY REVIEW			
A	18.08.25	PDA	ERA	EGM
	DRAFT FEED ISSUE			

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Signature: ..... Date: .....

Job Title
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Scale at A1 1:500m

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Drawing Title
STORMWATER PLAN SHEET 4

Drawing Status
FOR APPROVAL

Job No	Drawing No	Issue
293683-00	**BERC- ARU-BNE-CICW-DRG-1614**	**C**

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