

PLANNING REPORT FOR

MATERIAL CHANGE OF USE TO HIGH IMPACT INDUSTRY (ASPHALT MANUFACTURING, RECLAIMED ASPHALT PAVEMENT AND CONCRETE BATCHING PLANT)

INCLUDING OPERATIONAL WORKS

PROJECT NAME: 101 WARNER ROAD, WRIGHTS CREEK

SDA assessable development within Cairns South State Development Area (CSSDA)

MATERIAL CHANGE OF USE on LOT 1 SP323733

SDA Reference Number:

Consultant: RPS Australia East Pty Ltd

Proponent: Koppen Construction Pty Ltd



PR150263 R80812

4

13 July 2022

REPORT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
0	Preliminary Working	I. Doust	I. Doust	I. Doust	13 May 2022
1	For EDQ review	I. Doust	I. Doust	I. Doust	31 May 2022
2	For EDQ consent	I. Doust	I. Doust	I. Doust	7 June 2022
3	With ministers consent	I. Doust	I. Doust	I. Doust	20 June 2022
4	Application	I. Doust	I. Doust	I. Doust	13 July 2022

Approval for issue

Ian Doust



13 July 2022

This report was prepared by RPS within the terms of RPS' engagement with its client and in direct response to a scope of services. This report is supplied for the sole and specific purpose for use by RPS' client. The report does not account for any changes relating the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

Prepared by:

RPS

Ian Doust
Principal

135 Abbott Street
Cairns QLD 4870

T +61 7 4031 1336
E ian.doust@rpsgroup.com.au

Prepared for:

Koppen Construction Pty Ltd

Callum Koppen
General Manager

Suite 4/10 Grafton St
Cairns QLD 4870

T +61 7 4052 2600
E ckoppen@koppens.com.au

CONTENTS

SUMMARY	V
1 PROJECT SUMMARY	6
2 BACKGROUND	7
2.1 Landowner’s Consent	7
2.2 Overview of Project	7
2.3 Overview of Proposed Use	8
2.4 Use Being Applied For	8
2.5 Environmental Authority	8
3 SUBJECT LAND AND LOCALITY	9
3.1 Project Location	9
3.2 Historic and current uses	10
3.3 Surrounding development	11
3.4 Physical characteristics	11
3.5 Environmental Values	11
3.5.1 Water Quality	11
3.5.2 Groundwater	13
3.5.3 Air Quality	15
3.5.4 Flora and Fauna	19
3.6 Vegetation management report	20
3.7 Matters of State Environmental Significance	20
3.8 Wild Species	20
3.9 Cultural Heritage	20
3.10 Community Values	20
3.11 Bushfire mapping	20
3.12 Coastal mapping	20
3.13 Cairns Council Services	20
4 STATUTORY CONSIDERATIONS	21
4.1 Approvals Required	21
4.1.1 Planning - Material Change of Use Development Permits	21
4.1.1 Planning - Operational Works Permits	21
4.1.2 Building Works Permits	21
4.1.3 Environmentally Relevant Activity	21
4.1.4 State Interests	22
4.1.5 Concrete batching Plant	22
4.2 Land Access Requirements	23
5 DEVELOPMENT PROPOSAL	24
5.1 Uses and Site Layout	24
5.2 Built Form and Design	24
5.3 Operational Detail	25
5.3.1 General	25
5.3.2 Other	26
5.3.3 Parking	26
5.3.4 Site office and Amenities	27
5.3.5 Landscaping	27
5.4 Infrastructure Requirements	27
5.5 Engineering Overview	28
5.5.1 Stormwater and Flooding	28
5.5.2 Traffic	29
5.5.3 Water Supply	30

5.5.4	Sewerage Treatment and Disposal	31
5.5.5	Stormwater Quantity and Quality management.....	31
5.5.6	Stormwater detention and quality devices	32
5.5.7	Pollutant concentrations	32
5.5.8	Gross pollutant trap	32
5.5.9	Geotechnical Investigation.....	32
5.5.10	Electricity.....	33
5.5.1	Communications	33
5.6	Compatibility with Existing and Future Surrounding Land Uses	34
5.6.1	Cane Farms	34
5.6.1	Broadcast Australia Site	34
6	ASSESSMENT AGAINST DEVELOPMENT SCHEME	36
6.1	Cairns South State Development Area Development Scheme	36
6.2	Assessment against Strategic Vision of the Cairns South SDA	36
6.3	Assessment against Overall Objectives of the Cairns South SDA	37
6.4	Assessment against Preferred development Intent for High Impact Industry Precinct.....	38
6.5	Assessment against SDA wide assessment criteria	39
6.6	Assessment against Engineering and design standards	52
6.7	Assessment against relevant Cairns Regional Council Codes	54
7	IMPACTS OF PROPOSAL	55
7.1	Impacts on existing land uses	55
7.1.1	Flood.....	55
7.2	Impacts on Environmental Impacts	55
7.3	Impacts on Social/Cultural and Amenity, and Community Values.....	55
7.4	Transport	55
7.5	Cultural Heritage	56
7.6	Impacts on Economic Impacts	56
7.6.1	Employment.....	56
7.6.2	Project life	56
7.6.3	Benefits to Local Community	56
8	MANAGEMENT PLANS	57
8.1	Construction and Traffic Management Plans.....	57
8.2	Environmental and Noise Management Plans	57
9	APPENDICES	58

Tables

Table 1 – Project summary	6
Table 3.1 Groundwater Height Results	13
Table 3.2: Water Quality Objectives – Barron Mulgrave Johnstone	14
Table 4 Location of Sensitive Receptors	15
Table 3.4 Stack Parameters and Emission Rates – Dryer Stack	19

Figures

Figure 1 Regional Location	9
Figure 2 Site Location Plan within the High Impact Industry Precinct, adjoining Warner Road	9
Figure 3 Historic Uses Cane Framing (Qld Globe, cited 21 Sep 2021)	10
Figure 4 Historical Site Image 1949 (Qld Globe, cited 22 Sep. 21)	10
Figure 5 Surface water and Groundwater mapping (Qld Globe, October 2021)	12
Figure 6 Sensitive Receptor Locations	16
Figure 7 Non-Remnant Vegetation Mapping	19
Figure 8 State Interest Mapping	22
Figure 9 State Road Works Showing closure of Warner Road	29
Figure 10 Existing High Voltage and low Voltage Electricity Supply Warner Road,	33
Figure 11 Table of surrounding land uses	34
Figure 12 Table of surrounding land uses	34
Figure 13 Radio Shed at 94 Warner Road (source google)	35

Appendices

Appendix A Owners Consent form	
Appendix B Locality Plan	
Appendix C Engineering Site layout	
Appendix D Zoning Plan	
Appendix E Searches	
E.1.1 E1 Survey Plan SP323733	
E.1.2 E2 Title SP323733_1 Title	
E.1.3 E3 Vegetation Management Property Report	
E.1.4 E4 MSES Report	
E.1.5 E5 WildNetCS SpeciesList	
E.1.6 E6 Bushfire mapping	
E.1.7 E7 Coastal Hazard Map	
E.1.8 E8 CRC Services Lot 1 SP323733	
E.1.9 E9 Detail Survey PR150263-3 L1 Warner Road Detail Survey	
E.1.10 E10 CairnsPlan 2016 Property Report for 1L Warner Road, WRIGHTS CREEK	
Appendix F State Interest Mapping DAMS	
Appendix G Engineering Report Asphalt and Concrete Batching Plants	
Appendix H Environmental Assessment Report	
Appendix I Typical images	
Appendix J Visual Analysis Combined Plan and Sections	
Appendix K Assessment against relevant Cairns Regional Council Codes	
Appendix L State Code response Sdap1 state-controlled-road-environment-response	

SUMMARY

Site Details	
Site Address:	101 Warner Road Wrights Creek
Real Property Description:	New lot 1 SP323733 (previously part Lot 1 SP323733)
Site Area:	1.3 ha
Applicable Planning Instrument/s:	Cairns South State Development Area Development Scheme March 2020
Owner(s):	Koppen Construction Pty Ltd
Applicant:	Koppen Construction Pty Ltd
Application Details	
Permit Type Sought:	Development Permit
Application Type/Description:	<ol style="list-style-type: none"> 1. MATERIAL CHANGE OF USE TO HIGH IMPACT INDUSTRY (ASPHALT MANUFACTURING, RECLAIMED ASPHALT PAVEMENT AND CONCRETE BATCHING PLANT) 2. OPERATIONAL WORKS
Environmental Authority (separate application to DES)	<ol style="list-style-type: none"> 1. ENVIRONMENTALLY RELEVANT AUTHORITY ERA 6 Asphalt Manufacturing and 2. ENVIRONMENTALLY RELEVANT AUTHORITY ERA 54 MECHANICAL WASTE PROCESSING more than 5,000t of material in a year
Assessment Manager:	Coordinator General, State Development
Level of Assessment:	CODE
Referrals:	Transport and Main Roads Department of Environment & Science Cairns Regional Council
Applicant Contact Details	
Applicant Contact Person:	+61 7 121 1336 ian.doust@rpsgroup.com.au

1 PROJECT SUMMARY

Table 1 – Project summary

Item	Detail
Lot/plan	Lot 1 on SP323733
Existing Area	1.3ha
Address	101 Warner Road, Wrights Creek.
Owner	Koppen Construction Pty Ltd
Contact Details	Callum Koppen General Manager Suite 4/10 Grafton St Cairns QLD 4870 T+61 7 4052 2600 E ckoppen@koppens.com.au
LGA	Cairns Regional Council
Zone	High Impact Industry
State Development Area	Cairns South State Development Area
Development Scheme	Cairns South State Development Area Development Scheme
Precinct	High Impact Industry Precinct
Road Frontage	100m to Warner Road (State Controlled Road)
Application Details	
Permit Type Sought:	Development Permit
Application Type/Description:	<ol style="list-style-type: none"> 1. MATERIAL CHANGE OF USE TO HIGH IMPACT INDUSTRY (ASPHALT MANUFACTURING, RECLAIMED ASPHALT PAVEMENT AND CONCRETE BATCHING PLANT) 2. OPERATIONAL WORKS
Assessment Manager:	Coordinator General, State Development
Level of Assessment:	CODE
Referrals:	Department of Main Roads <ul style="list-style-type: none"> • State-controlled Road • Area within 25m of a State-controlled Road Cairns Regional Council Department of Environment & Science <ul style="list-style-type: none"> • ERA 6, • ERA 54-2-(a)
Associated development approval	Previous ROL to create subject lot SDA Reference Number: 5YFCV5ZG

There are no relevant associated development approval/s.

2 BACKGROUND

Koppen Construction Pty Ltd are a civil construction company that is locally owned and operated who strive to achieve sustainable, efficient and quality infrastructure for Far North communities.

c Refer to:

PROJECT NAME: 101 WARNER ROAD, WRIGHTS CREEK

SDA self-assessable development for Material Change of Use within Cairns South State Development Area (CSSDA)

RECONFIGURATION OF LOT 1 SP323733 INTO PROPOSED LOTS 1 & 2 SP323733 Plant

SDA Reference Number: 5YFCV5ZG

Proponent: Economic Development Queensland

Koppen propose to develop a new asphalt plant on lot 1 within the Cairns South State Development Area (SDA) which they have identified as the best suitable location having reviewed a number of sites across the Cairns region. SDA's are areas declared by regulation under the State Development and Public Works Organisation Act 1971.

The Cairns South SDA was declared in November 2018 by regulation and Koppen proposed development is likely to be the first proposed for the site. Koppen has recently secured tenure over the site and subsequently is proposing this application.

2.1 Landowner's Consent

The consent of the landowner to the subject property Lot 1 SP323733 is attached.

Refer to Appendix A Owners Consent

2.2 Overview of Project

The site is located within the High Impact Industry Precinct of the SDA, adjacent to Warner Road.

The Asphalt and Concrete Plant development will generally consist of the following elements:

- Asphalt storage tanks, 27m tower and associated mixing plant (Capacity 160 tonnes per hour, 80,000 tonnes per annum)
- Reclaimed Asphalt plant (storage and reuse of 5,000 tonnes per annum)
- Raw material stockpiles
- Laboratory, site office, amenities buildings and carpark
- Concrete batching plant (Capacity 80m³ per hour)
- General truck movement areas loading and unloading locations
- Associated miscellaneous infrastructure

The site is currently used for agricultural production being a cane farm.

Refer to Appendix B Locality Plan

The area of land required for the project is 1.3ha.

The project will be the establishment of a modern asphalt plant in Cairns incorporating reclaimed Asphalt Pavement. A Concrete batching plant will also be installed on the site.

The project will comprise of purchasing a state-of-the-art GLB2000 vertical Asphalt Mixing Plant with the capacity of producing 160 tonnes of product per hour, accompanied with NFLG PSL Asphalt RAP screening system based on improved mesh technology, ensuring better separation of materials (the Plant).

The Plant includes modern feeding system capable of incorporating and dosing granulated cellulose fibres; drying system ensuring high quality, consistent mix; dust control system for better environmental protection and Siemens twin computer synchronization control.

Additional civil works will be required to prepare suitable site for the plant and its associated and support operations, including site office with amenities, laboratory, storage, weighbridge, access roads, fencing, signage stockpile areas, bitumen unloading bund, car park, utilities connection.

The proposed asphalt plant will produce approximately 80,000 tonnes per annum of asphalt supplying the greater Cairns region with road construction material which is currently in high demand.

The project includes the storage and reuse of more than 5,000 tonnes per annum of reclaimed asphalt pavement (RAP) material in the production of new hot mix asphalt.

The location of the asphalt plant is compatible within the centre of the High Impact Industry Precinct due to it containing a proposed asphalt tower approximately 27m in height.

2.3 Overview of Proposed Use

The proposed uses to be undertaken at the site include:

- Asphalt Manufacturing
- reuse of Reclaimed Asphalt Pavement (RAP) material in the production of new hot mix asphalt.
- Concrete batching plant

The proposed uses align with preferred development for High Impact Industry Precinct as they:

- (i) require significant buffers from sensitive land uses
- (ii) relates to, supports, or requires significant inputs and services from key sectors of the Cairns economy being the construction industry
- (iii) aligns with Queensland Government priority sectors such as biofutures, advanced manufacturing, biomedical and life sciences, aerospace, defence and mining, equipment, technology and services constituting a service
- (iv) requires access to and maximises the use of key transport and supply chain infrastructure
- (v) is a smaller footprint which is appropriate adjoining Warner Road to provide support or service function to regionally significant industry in the Cairns South SDA.

As the proposed development requires a material change of use application, it will be SDA assessable development within the precinct.

Refer to Appendix C - Engineering Site layout

2.4 Use Being Applied For

The proposed development is located within the High Impact Industry Precinct of the Cairns South State Development Area Development Scheme and requires:

- Development Permit for a Material Change of Use to High impact Industry (Asphalt Manufacturing) and Reclaimed Asphalt Pavement processing

Refer to Appendix D - Zoning Plan

2.5 Environmental Authority

A separate application is to be submitted for

- Environmental Authority for ERA 6 Asphalt Manufacturing and
- Environmental Authority for ERA 54 MECHANICAL WASTE PROCESSING MORE THAN 5,000T OF MATERIAL IN A YEAR

3 SUBJECT LAND AND LOCALITY

3.1 Project Location

The site is located on lot 1 SP323733 between Edmonton and Gordonvale, approximately 15 kilometres south of Cairns.

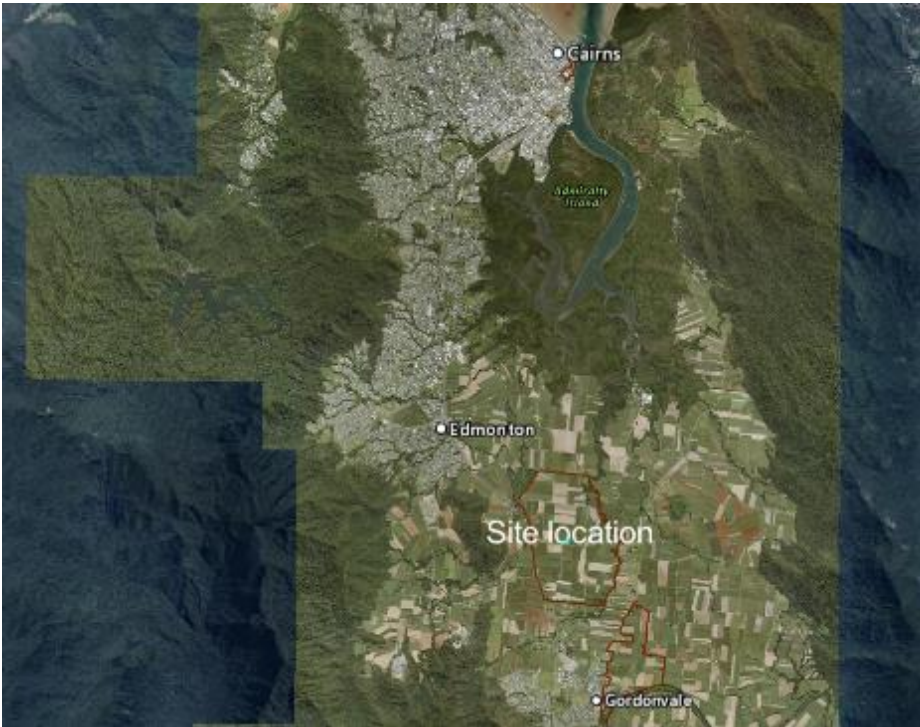


Figure 1 Regional Location

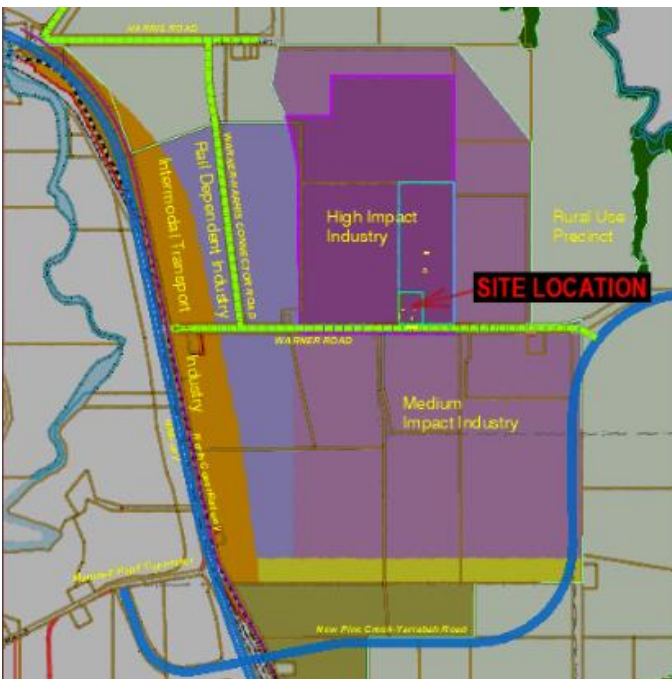


Figure 2 Site Location Plan within the High Impact Industry Precinct, adjoining Warner Road

Refer to Appendix E1 Survey Plan SP323733

Refer to Appendix E2 Title SP323733_1 Title

3.2 Historic and current uses

The site is currently used for agricultural production being cane farming, refer to Figure below.



Figure 3 Historic Uses Cane Framing (Qld Globe, cited 21 Sep 2021)

Historical images from 1949 indicate that the site was under cane production at that time, refer to Figure below.



Figure 4 Historical Site Image 1949 (Qld Globe, cited 22 Sep. 21)

3.3 Surrounding development

The site is currently surrounded by agricultural activities, however, the CSSDA mapping indicates High Impact Precinct surrounding the site bounded by Warner Road to the south, refer to Figure 1.

3.4 Physical characteristics

The site and surrounding areas are flat Cane Fields. A table drain separates the site from Warner Road.

3.5 Environmental Values

Refer also to Appendix H - Environmental Assessment Report R80853

The environmental values of the site are limited given it has been under cane production for over fifty years.

3.5.1 Water Quality

The site drains to the south to the stormwater drain running along Warner Road which travels to the east before discharging into a tributary of Mackey Creek. Mackey Creek travel to the north for 4.6km before discharging into Pine Creek which then discharges into Trinity Inlet in 2.5km, refer to **Figure 6** below.

The *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP (Water)) prescribes the environmental values that are to be protected or enhanced. The project area sits within basin 111 (Mulgrave River, including all waters of the Mulgrave River sub-basin, Trinity Inlet and adjacent coastal waters) and the EPP (Water) states that environmental values of these waters are provided in Mulgrave-Russell River Basin Environmental Values and Water Quality Objectives (DEHP 2014), published by the department in November 2014. The document identifies Mackey Creek as a moderately disturbed lowland freshwater creek with the following environmental values:

- Aquatic ecosystems
- Irrigation
- Farm supply
- Stock water
- Aquaculture
- Human consumption
- Primary recreation
- Secondary recreation
- Visual recreation
- Drinking water
- Industrial use
- Cultural and spiritual values.

DEHP (2014) presents water quality objectives/limits to protect these aquatic ecosystem and human use environmental values.



Figure 5 Surface water and Groundwater mapping (Qld Globe, October 2021)

3.5.2 Groundwater

The EPP (Water) prescribes the environmental values that are to be protected or enhanced. The project area sits within basin 111 (Mulgrave River, including all waters of the Mulgrave River sub-basin, Trinity Inlet and adjacent coastal waters) and the EPP (Water) states that environmental values of these waters are provided in Mulgrave-Russell River Basin Environmental Values and Water Quality Objectives (WQO) (DEHP 2014), published by the department in November 2014. The document identifies environmental values for Mulgrave River Basin groundwaters as:

- Aquatic ecosystems
- Irrigation
- Farm supply
- Stock water
- Drinking water
- Industrial use
- Cultural and spiritual values.

DEHP (2014) also maps the project area within the wet tropical alluvial (Na, Mg, HCO₃, low to very low salinity) groundwater chemistry zone 18 (Barron Mulgrave Johnstone metamorphics). Water quality objectives/limits to protect aquatic ecosystem environmental values for groundwater in this zone is presented in Table 2.3 below.

There are two registered groundwater bores to the south of the site, one to the south east, the other to the south west, refer to Figure 3 above.

Results from the past 5 years from these bores are shown in **Table 2.4** below. Water quality objectives for groundwater within the region are summarised in **Table 2.5** below

Table 3.1 Groundwater Height Results

Date Sampled	Bore 11100057	Bore 11100058
26 May 2021	-	15m
19 Dec 2020	-5.65m	
3 Mar 2020		15m
11 Dec 2019	-5.43m	
19 Sep 2018	-5.07m	
6 Mar 2018		15m
7 Dec 2017	-4.94m	
31 Mar 2017		20m
9 Mar 2016	-3.02m	
15 Feb 2016		15m
10 Dec 2015	-4.28m	

Table 3.2: Water Quality Objectives – Barron Mulgrave Johnstone

Mulgrave and Russell Rivers Basins including Trinity Inlet Environmental Values and Water Quality Objectives

Table 4.1 Water quality objectives to protect aquatic ecosystem EVs for Groundwater Chemistry Group (refer to Plan WQ1083) – Wet Tropical Alluvial – 18 Barron Mulgrave Johnstone metamorphics

Depth	Percentile	Na		Ca		Mg		HCO ₃		Cl		SO ₄		NO ₃		EC µS-cm ⁻¹	Hardness (mg-L ⁻¹)	pH	Alkalinity (mg-L ⁻¹)	SiO ₂ (mg-L ⁻¹)	F (mg-L ⁻¹)	Fe (mg-L ⁻¹)	Mn (mg-L ⁻¹)	Zn (mg-L ⁻¹)	Cu (mg-L ⁻¹)	SAR	RAH (meqL ⁻¹)	eH (mV)
		mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%													
shallow	20th	8	45	2	12	1	11	23	41	5	19	-	-	-	-	66	8	6.4	19	12.0	0.003	0.000	0.000	0.000	0.00	0.80	0.10	-
	50th	10	59	4	24	2	13	32	68	7	25	-	-	2	2	105	18	6.7	26	18.0	0.100	0.010	0.020	0.015	0.01	0.90	0.22	-
	80th	13	75	9	35	3	21	55	75	19	44	2	3	7	13	144	34	7.1	45	36.0	0.119	1.026	0.401	0.030	0.01	1.59	0.32	-
moderate	20th	8	40	3	12	1	9	18	34	6	13	-	-	-	-	90	12	6.5	16	14.9	0.043	0.000	0.000	0.000	0.00	0.80	0.00	-
	50th	13	56	6	19	3	21	52	62	9	25	2	2	2	2	143	28	7.3	47	24.0	0.200	0.000	0.000	0.000	0.00	1.10	0.33	-
	80th	97	76	25	35	13	29	173	78	61	51	6	6	7	12	570	115	7.9	151	40.1	0.500	0.020	0.030	0.010	0.01	2.98	1.36	-
deep	20th	8	47	1	8	1	11	16	38	5	12	-	-	-	-	71	6	6.5	13	17.0	0.010	0.000	0.000	0.000	0.00	0.81	0.12	-
	50th	13	57	3	16	3	26	42	66	7	26	1	1	1	0	110	20	7.0	35	23.0	0.110	0.000	0.000	0.008	0.00	1.35	0.30	-
	80th	38	82	8	24	8	31	106	85	25	45	3	3	4	9	305	51	7.7	88	33.9	0.362	0.049	0.181	0.024	0.02	2.39	0.70	-
very deep	20th	15	77	2	8	1	9	22	38	11	25	0	0	0	0	98	9	6.4	18	22.0	0.524	0.000	0.000	0.000	0.00	2.20	0.10	-
	50th	17	80	2	10	1	10	35	57	12	32	1	4	5	4	119	10	7.2	29	22.5	0.620	0.015	0.000	0.000	0.00	2.25	0.33	-
	80th	20	84	8	12	4	11	50	63	17	34	4	9	15	22	166	37	7.8	41	24.8	0.695	0.700	0.063	0.000	0.00	2.40	0.40	-

3.5.3 Air Quality

The land surrounding the site comprises agriculture/rural uses being predominately cane farming and rural residential/lifestyle uses, however, the site is within the CSSDA for High Impact Industry.

Sensitive receptors are presented in the Table and **Figure 2** below.

- The closest building (Sensitive Receptor 1 - a radio shed) is located on Warner Road approximately 140 metres south west of the proposed asphalt plant.
- Within the Industrial zones, there are also residential buildings located approximately 550m to the east and 440m to the west, (Sensitive Receptor 2 & 4 respectively)
- Within the Rural Use Precinct the closest sensitive receptors is located at 1075m to the north east (Sensitive receptor 3).

Wind speed and direction data collected at Cairns Aero weather station (BOM reference 031011) is the closest wind direction data available for the site. Average 9am and 3pm wind roses indicate that the prevailing wind direction is south to south easterly, 10-20 km/h, refer to **Plate 1** and **Plate 2** below.

Table 3 Location of Sensitive Receptors

Sensitive Location	Location	CSSDA Zone	Land Use	Distance to Tower (m)	Distance from Sensitive Location to Industrial Zone (m)	Ground Surface level (mAHD)
1	94 Warner Road 1 RP711584	Medium Industrial	Radio Shed	140	-	15
2	154 Warner Road 10 SP114749	Medium Industrial	Residential	550	-	14
3	153 Warner Road 2 NR7514	Rural Use Precinct	Residential	1075	381	9
4	57 Warner Road 2 RP731083	High Impact Industrial	Residential	440	-	17
5	237 Warner Road 1 RP706231	Rural Use Precinct	Residential	1320	800	12
6	234-236 Warner Road 2 NR7635	Rural Use Precinct	Residential	1300	779	12
7	143 Harris Road 1 RP714110	Rural Use Precinct	Residential	1130	149	12
8	3 Harris Road 3 RP861672	Rural Use Precinct	Residential	1240	70	15

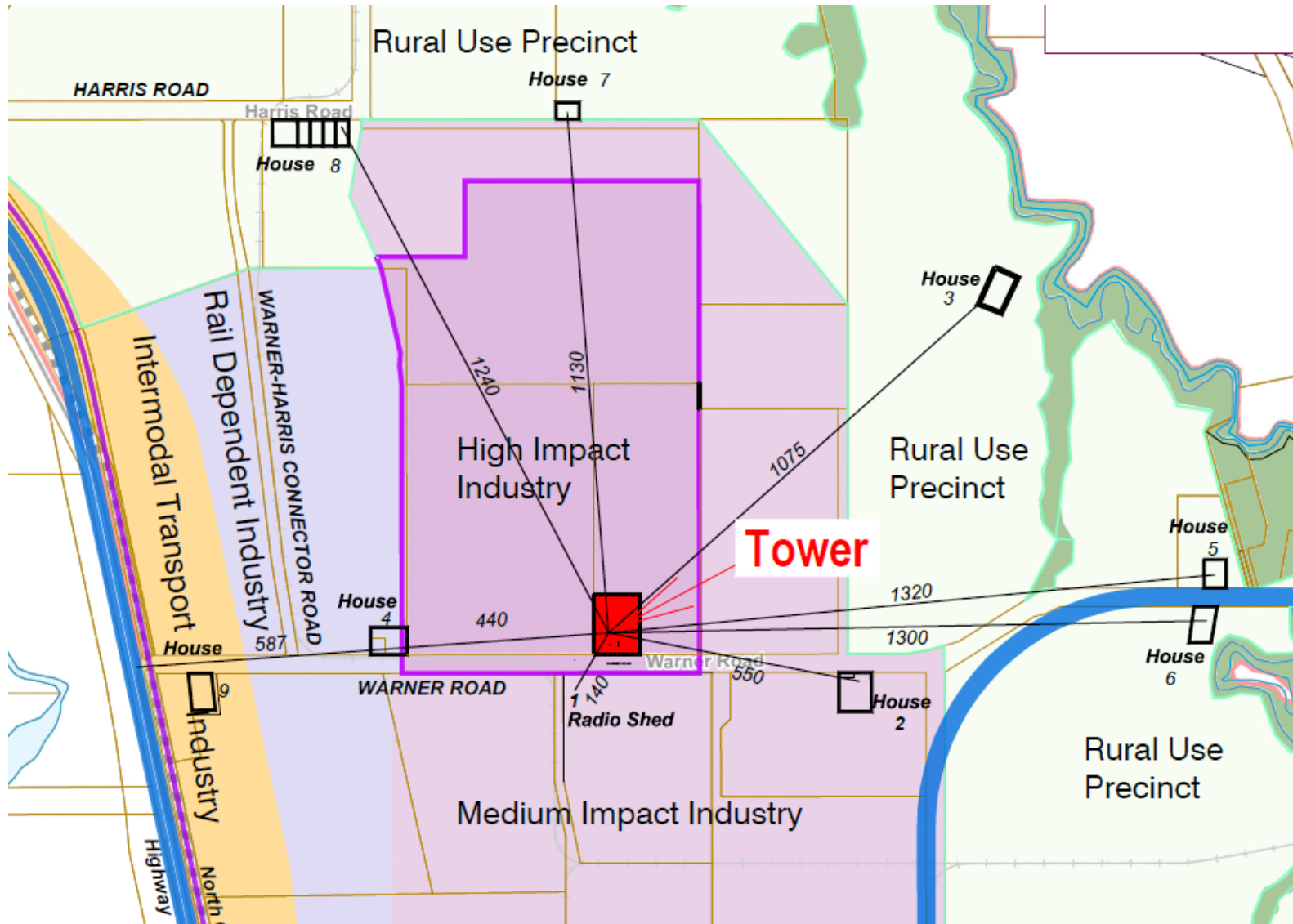


Figure 6 Sensitive Receptor Locations

Rose of Wind direction versus Wind speed in km/h (05 May 1941 to 31 Jul 2019)

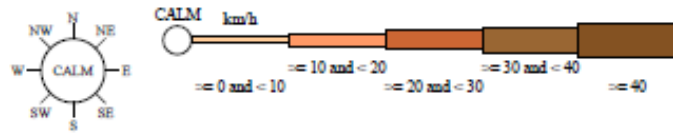
Custom times selected, refer to attached note for details

CAIRNS AERO

Site No: 031011 • Opened May 1941 • Still Open • Latitude: -16.8736° • Longitude: 145.7458° • Elevation 2.2m

An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am
28432 Total Observations

Calm 9%

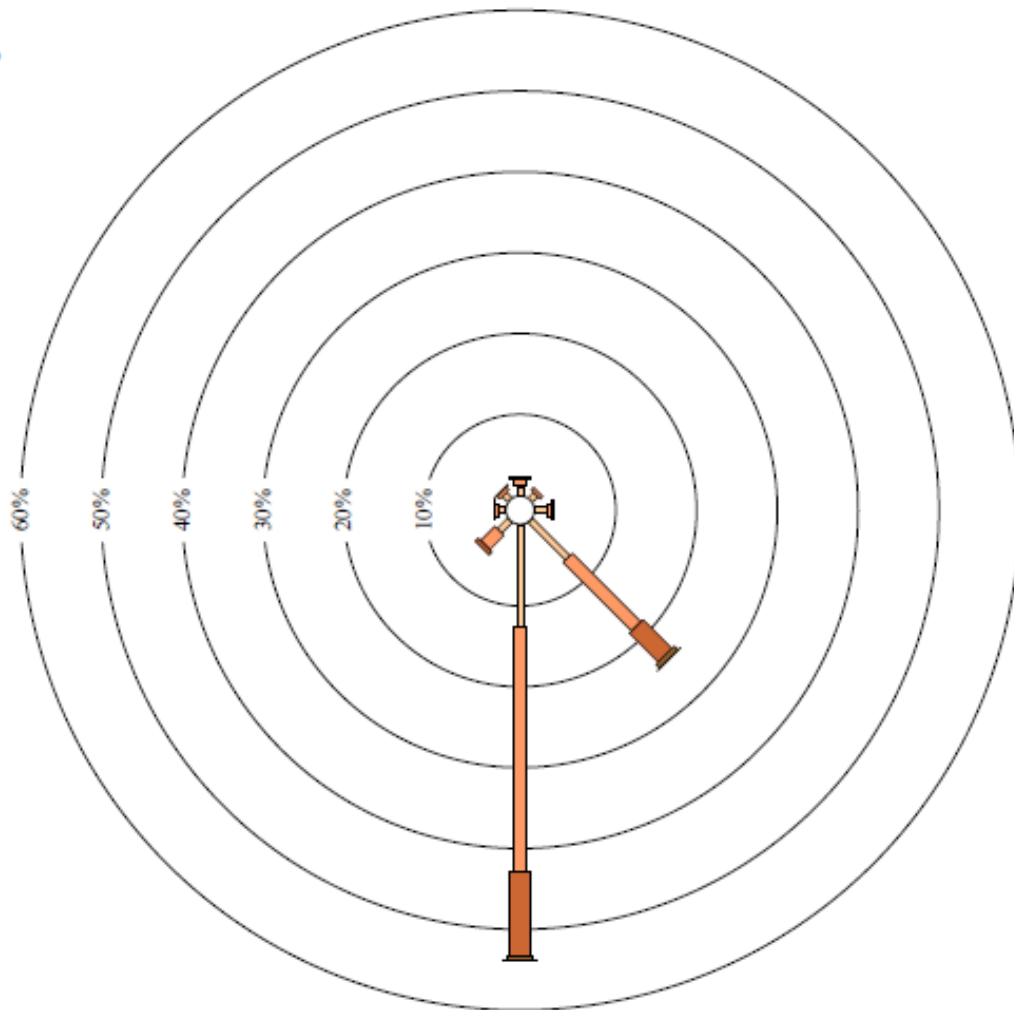


Plate 1 9am Wind Rose (BOM data reference 031011, Cairns)

Rose of Wind direction versus Wind speed in km/h (05 May 1941 to 31 Jul 2019)

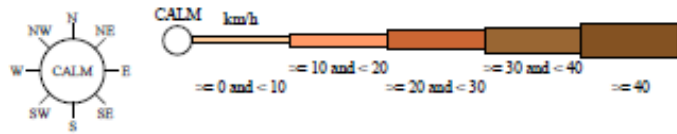
Custom times selected, refer to attached note for details

CAIRNS AERO

Site No: 031011 • Opened May 1941 • Still Open • Latitude: -16.8736° • Longitude: 145.7458° • Elevation 2.2m

An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm
28380 Total Observations

Calm 2%

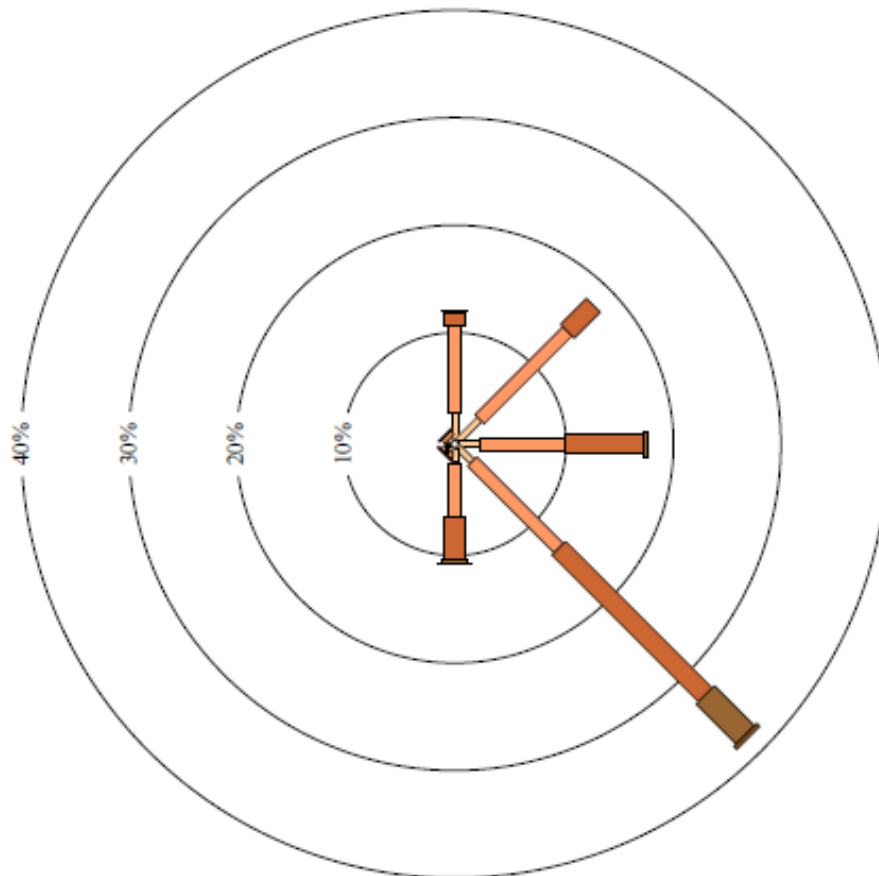


Plate 2 3pm Wind Rose (BOM data reference 031011, Cairns)

Predicted air quality emissions based on publicly available measured data from similar operations is summarised in **Table 2.2** below.

Table 3.4 Stack Parameters and Emission Rates – Dryer Stack

Parameter	Data	Unit	Reference/Base
Temperature	90	°C	Newpave
Stack height	27	M	Manufacturer data
Exit velocity	19	m/s	Calculated based on a 120,000 m ³ /s exit flow rate scaled from flow rate data used in the Tomago Asphalt Plant AQIA (RCA Australia, 2015) and stack exit diameter
Stack diameter	1.5	M	Newpave
Odour emission rate	10,322	Ou/s	Scaled from emission rates presented in the Bushells Ridge Asphalt Plant AQIA (SLR Consulting Australia, 2016)
TSP emission rate	1.04	g/s	AP-42 emission factors for Batch Mix Asphalt Plants burning fuel oil
PM ₁₀ emission rate	0.41	g/s	
PN _{2.5} emission rate	0.41	g/s	
CO emission rate	16.67	g/s	
NOx emission rate	5.00	g/s	
SO ₂ emission rate	3.67	g/s	
Benzene emission rate	0.012	g/s	
Toluene emission rate	0.042	g/s	
Xylene emission rate	0.113	g/s	
Ethylbenzene emission rate	0.092	g/s	

The stack has a dust collector which has a maximum emission rate of 20mg/Nm³.

3.5.4 Flora and Fauna

The site has been historically cleared and is mapped at Category X, refer to Figure 7 below.

There is no significant flora or fauna present on the site, other than that associated with cane farming.



Figure 7 Non-Remnant Vegetation Mapping

3.6 Vegetation management report

The site has no remnant nor regrowth vegetation.

Refer to Appendix E3 - Vegetation Management Property Report

3.7 Matters of State Environmental Significance

The site has no Matters of State Environmental Significance

Refer to Appendix E4 Matters of State Environmental Significance Report

3.8 Wild Species

The site has no listed species that are Critically endangered, Endangered, Near Threatened or Vulnerable.

Refer to Appendix E5 - Searches - Wild Species report

3.9 Cultural Heritage

A cultural heritage search advised that:

- There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.
- There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.
- There is no cultural heritage body recorded in your specific search area.
- There are no cultural heritage management plans recorded in your specific search area.
- There are no Designated Landscape Areas (DLA) recorded in your specific search area.
- There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

As the site has been ploughed for cane production for many years the risk of any harm to cultural heritage is low.

3.10 Community Values

The site has no community values as it has been used for Cane farming for many years.

3.11 Bushfire mapping

The site is not mapped for bushfire risk.

Refer to Appendix E6 - Bushfire mapping

3.12 Coastal mapping

The site is not mapped for Coastal management, Erosion prone Areas or storm surge areas.

Refer to Appendix E7 - Coastal mapping

3.13 Cairns Council Services

Cairns Regional Council watermains exist in Warner Road.

Refer to Appendix E8 CRC Services Lot 1 SP323733

Refer to Appendix E9 Detail Survey PR150263-3

4 STATUTORY CONSIDERATIONS

4.1 Approvals Required

4.1.1 Planning - Material Change of Use Development Permits

The Cairns South State Development Area (CSSDA) was established to facilitate economic growth and diversification of the Cairns economy as well as job creation to support the long-term needs of the Cairns region.

The proposed development is located within the High Impact Industry Precinct of the Cairns South State Development Area Development Scheme.

The Assessment Manager is the Office of the Coordinator-General's Planning and Services Division of the Department of State Development, Infrastructure, Local Government and Planning.

The project requires planning approval as follows:

- Development Permit for a Material Change of Use to High impact Industry (Asphalt Manufacturing) and Reclaimed Asphalt Pavement processing
- Development Permit for environmentally relevant activity ERA 6 Asphalt Manufacturing Environmental Authority for ERA 6 Asphalt Manufacturing and
- Development Permit for environmentally relevant activity ERA 54 MECHANICAL WASTE PROCESSING more than 5000T of material in a year (caused by the processing of reclaimed Asphalt pavement)

The MCU will be assessable and require public consultation unless waived by the Coordinator General.

Generally, the assessment process for an SDA application involves six stages:

1. Formal pre-lodgement consideration
2. application
3. referral (State Controlled roads is applicable)
4. public consultation
5. review
6. decision.

As a result, the application will be assessed against the SDA wide assessment criteria.

4.1.1 Planning - Operational Works Permits

The Civil Works for filling, servicing, internal roadworks and external roadworks require approval.

The external roadworks on Warner Road will need referral to Department of Transport and Main Roads as Warner Road is a State-controlled Road.

4.1.2 Building Works Permits

Following approval of this application there will be a need to obtain further downstream approvals for building works to cover the site office, amenities block, the plant and laboratory and other building items.

These works will be code-assessable and can be obtained from Cairns Regional Council or a private building certifier.

4.1.3 Environmentally Relevant Activity

In Queensland an environmental authority (EA) is required to undertake an environmentally relevant activity (ERA).

The proposed development will require

- Environmental Authority for environmentally relevant activity ERA 6 Asphalt Manufacturing and
- Environmental Authority for environmentally relevant activity ERA 54 MECHANICAL WASTE PROCESSING more than 5000T of material in a year (caused by the processing of Reclaimed Asphalt Pavement)

If the ERA 6 Asphalt Manufacturing was carried out solely on its own, then the Environmental Authority would be devolved to the Local Governments to act as administering authority for the ERA. However, as this application includes devolved ERA 6 in conjunction with ERA 54 at the same place, then the relevant Queensland Government department will be the administering authority and will assess the ERA component of the application as if it was an environmental authority application (see s. 142 of the regulation).

A separate application has been made concurrently to Department of Environment and Science for the Environmental Authority.

4.1.4 State Interests

State Interests affecting the land are:

- State Controlled Road (Warner Road)
- Area within 25m of a State Controlled Road

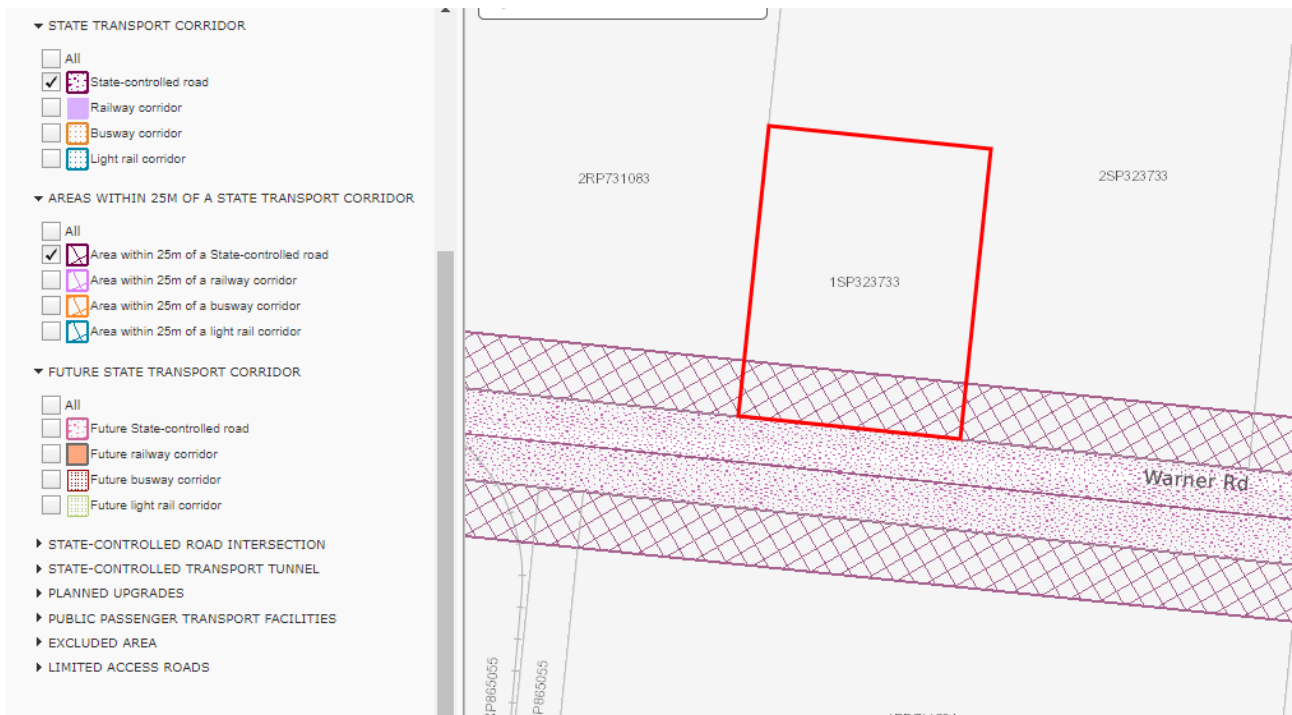


Figure 8 State Interest Mapping

Refer to Appendix F - State Interest Mapping DAMS Lot 1 SP323733

4.1.5 Concrete batching Plant

We understand that a Concrete batching Plant no longer requires an Environmental Authority.

4.2 Land Access Requirements

The applicant has recently contracted to purchase the land from the State specifically for this development (LOT 1 SP323733) which is held by the Minister for Economic Development Queensland.

The site itself has direct access to Warner Road.

5 DEVELOPMENT PROPOSAL

5.1 Uses and Site Layout

The uses on the site will be

- Asphalt manufacturing
 - Asphalt storage tanks, 27m tower and associated mixing plant (Capacity 160 tonnes per hour, 80,000 tonnes per annum)
 - Raw material stockpiles
 - Laboratory, site office, amenities buildings and carpark
 - General truck movement areas loading and unloading locations
 - Associated miscellaneous infrastructure
- Storage of reclaimed asphalt pavement for inclusion into the Asphalt Process
 - Reclaimed Asphalt plant (storage and reuse of 5,000 tonnes per annum)
- Concrete batching plant (Capacity 80m³ per hour)

Refer to Appendix C - Engineering Site layout

Refer to Appendix G - Asphalt and Concrete Batching Plants Engineering Report - Warner Road including Engineering Civil Drawings Full Set

5.2 Built Form and Design

The project will comprise of purchasing a state-of-the-art GLB2000 vertical Asphalt Mixing Plant with the capacity of producing 160 tonnes of product per hours, accompanied with NFLG PSL Asphalt RAP screening system based on improved mesh technology, ensuring better separation of materials (the Plant).

The Plant includes modern feeding system capable of incorporating and dosing granulated cellulose fibres; drying system ensuring high quality, consistent mix; dust control system for better environmental protection and Siemens twin computer synchronization control.

General earthworks, leveling the surface, compacting, construction of site roads, construction of stormwater drainage, installation and connection of utility services, construction of suitable pad for the Plant, construction of material storage area.

Additional civil works will be required to prepare suitable site for the plant and its associated and support operations. These would include site office with amenities, laboratory, storage, weighbridge, access roads, fencing, signage stockpile areas, bitumen unloading bund, car park, utilities connection etc.

The project will allow the applicant to recycle reclaimed asphalt pavement back into a quality asphalt product for incorporation into local road projects.

The Asphalt Tower is located in the centre of the lot and will rise to approximately 27metres above the ground.

Refer to Appendix I - Typical images of Similar Asphalt Plant

5.3 Operational Detail

5.3.1 General

The asphalt plant is a modular plant. The key components of the plant include:

- Aggregate cold feed bins;
- A conveyor to transport feed into a dryer;
- A fabric filter bag house;
- Dust conditioner;
- Hot elevator;
- Batch tower;
- Control cabin and electric cabin;
- Heater;
- Asphalt tanks with associated feed pumps;

The following equipment is required for the operation of the asphalt plant:

- Front end loader/excavator;
- Bobcat;
- Generator; and
- Compressor.

Hours of Operation

- Hours of operation of the proposed asphalt plant are 24 hours a day, seven (7) days a week. This is essential because the operator requires flexibility to service infrastructure projects both day and night. The plant, however, will typically operate Monday to Saturday during daylight hours with night operation only undertaken as necessary (i.e. for a specific project with demand for product).

Workforce

- It is anticipated that the facility will require up to approximately 10-12 personnel on site during working hours.

Delivery and storage and handling of Raw Materials

- The plant will take raw materials such as aggregates, sand, cement and bitumen and heat and mix them in predetermined amounts to create asphalt which meets relevant product standards.
- Reclaimed Asphalt Pavement that has already been processed off-site will be transported and stored on-site for addition to the Asphalt mix.
- Methods of delivery to the site include the following:
 - Aggregates and sand will be delivered to the site by truck. These materials are unloaded into stockpiles at the rear of the site. All trucks delivering aggregates will be covered;
 - Bitumen is delivered to the site via tanker trucks and pneumatically pumped into bitumen storage tanks;
 - Fillers, predominately cement are also delivered to the site via tanker and fed into a storage bin by pneumatic pumps; and
 - Fuels used for heating processes will also be delivered to the site in tankers and pumped into a bunded storage tanks.

Asphalt Production Process

- Aggregates and sand will be transported from stockpiles via a loader/excavator into cold feed bins adjacent to a rotary dryer. Materials from the cold feed bins are then fed via a conveyor into a diesel fired rotary dryer for heating to a temperature of approximately 1500C to remove moisture.
- A dust extraction and collection system, known as a baghouse, which is attached to the rotary dryer is used to clean exhaust gases and dust from the rotary dryer. The collected fines are fed by an enclosed conveyor to a dust hopper in the batch tower for recycling and use as baghouse fines.
- The batch tower consists of a screen deck, a set of storage bins for holding screened aggregates and sand, a weigh hopper for weighing the aggregate storage bins, a mixer and hot asphalt storage bins. A driveway is located beneath the tower, to allow the loading asphalt into trucks.
- After hot aggregates are discharged from the dryer they are carried via an enclosed conveyor to a screening area at the top of the batch tower. In the screening area, vibrating screens separate the aggregate into sizes and discharge the sorted material into a hot bin below which contains various compartments and sits above the final mixing area.
- Bitumen, cement and baghouse fines are transported from their respective storage area to a weighing hopper above the final mixing area.
- Bitumen, cement and baghouse fines and aggregates are simultaneously discharged into the final mixing area, according to pre-defined weight specification requirements, where they are blended to form the final asphalt product. Once blended, the asphalt is discharged to asphalt storage bins below.
- The final hot asphalt product is then loaded from the storage bins into trucks in a truck loading area directly below the final mixing area.
- The batching process is controlled from a control cabin, located adjacent to the plant.
- The project includes the storage and reuse of more than 5,000 tonnes per annum of reclaimed asphalt pavement (RAP) material in the production of new hot mix asphalt.

Concrete Batching Plant

- The plant will take raw materials such as cement, aggregates, sand, and cement be delivered to the site by truck.
- These are combined to make concrete which is transported by cement truck off-site.

5.3.2 Other

- The product produced by the plant is asphalt, principally for use in road construction. The product will be supplied to customers primarily within the Cairns Region. Customers include State and Local Government bodies, private developers and independent contractors.
- A number of measures are proposed to be implemented within the plant to protect against potential fire outbreaks and in the unlikely event that outbreaks occur, respond accordingly. The proposed asphalt plant incorporates a temperature control system and warning facilities to prevent overheating. Adequate firefighting equipment will be installed within the plant to provide protection in the unlikely event of a fire.

5.3.3 Parking

- Provision is made for 5 car parking spaces at the site office.
- Provision is made for one (1) disabled car parking space.

-
- The proponent does not require any truck parking during asphalt plant operation. If truck parking is required at any time when the asphalt plant is not operating, there are ample hardstand areas on the site that can accommodate this.
 - The proposal does not require any on street parking, all parking requirements are catered for on the site.

5.3.4 Site office and Amenities

- A mobile amenities block and staff room is proposed adjacent to the western boundary.

5.3.5 Landscaping

- The developments visual impact is minimised by the proposed landscaping strips along Warner Road, side and rear boundaries which will partially screen the site buildings and plant.

5.4 Infrastructure Requirements

The following external infrastructure is required to be provided for the development:

- Road entry/exit lanes on Warner Road

Warner Road is currently a State-controlled Road so construction will need to be in accordance with their requirements. Construction and Traffic management plans will be handled directly between the civil contractor and Department of Transport and Main roads at time of construction.

5.5 Engineering Overview

Refer to Appendix C - Engineering Site layout

Refer to Appendix G - Asphalt and Concrete Batching Plants Engineering Report - Warner Road and Civil Engineering Plans

5.5.1 Stormwater and Flooding

Cairns Regional Council (Council) has mapped the site as flood affected, and hence the development is guided by the flood and inundation hazards overlay code. The site is potentially subject to inundation from Wright and Mackey Creeks, with a catchment extending south-west to Mount Peter and Lamb Range. This floodplain is traversed by the Bruce Highway upstream of the site, currently undergoing upgrade as part of Edmonton to Gordonvale (E2G) project. E2G detailed design was completed in 2020, with construction due for completion by mid-2023. This upgrade includes significant road crest increases and cross drainage structures that will influence site flooding.

Approximately 40% of the site is not inundated.

However, the lot will need to be filled 300mm above 1%AEP to provide for adequate freeboard.

It should be noted however that at the frontage of the site the table drain located in Warner Road grades from west to east and all stormwater from the rear of the property will need to be directed to the road frontage. On this basis the fill levels to the rear of the property will be higher than the minimum levels indicated above so as to achieve fall.

A specific flood model of the site has not been undertaken to determine impacts on neighbouring properties as the property is part of the State's designated High Impact Industry Precinct which is all generally located within the same flood plain and as modelled as part of the E2G road project. On this basis all future developments within the precinct will be required to fill above the 1%AEP flood levels. It is assumed the State anticipates that associated impacts of filling within the precinct on neighbouring properties will be dealt with as a whole of government approach outside of individual development approvals. In any event the anticipated impact from filling within the subject property will create insignificant afflux to adjoining properties due to the following reasons:

- The existing ground contours of the site grade from the western boundary to the eastern boundary and presumably this would be the direction of any natural stormwater flow.
- Flood modelling from E2G suggests that most of the eastern portion of the site is not inundated with flood waters tending to be present on the downslope eastern boundary and separated from the southern flood plain traversed by Warner Road.

The above suggests during a 1%AEP flood event water does not flow across the site from east to west but tends to back up into the eastern side of the property. Filling the subject site would not tend to create an afflux to the upstream properties as it does not generally flow across the property. On this basis it is suggested that any afflux attributable to filling above the 1%AEP would create negligible impact on neighbouring properties.

Notwithstanding 1%AEP events, it is proposed to fill the site such that stormwater within the site is directed to the road frontage and does not cross the property boundaries and cause nuisance or impact on adjoining properties which may be developed in the future.

5.5.2 Traffic

Warner Road is currently a State-controlled Road that provides access between the Bruce Highway and the eastern localities of East Trinity and Yarrabah. State government roadworks are currently under construction that closes Warner Road at the Bruce Highway end and redirects traffic via new road that crosses at the Maitland Road Overpass.

Refer to www.tmr.qld.gov.au/projects/bruce-highway-cairns-southern-access-corridor-stage-3-edmonton-to-gordonvale

Warner Road itself will have a significant traffic reduction as it will only serve the project site and a few cane farms on the western end of Warner Road.

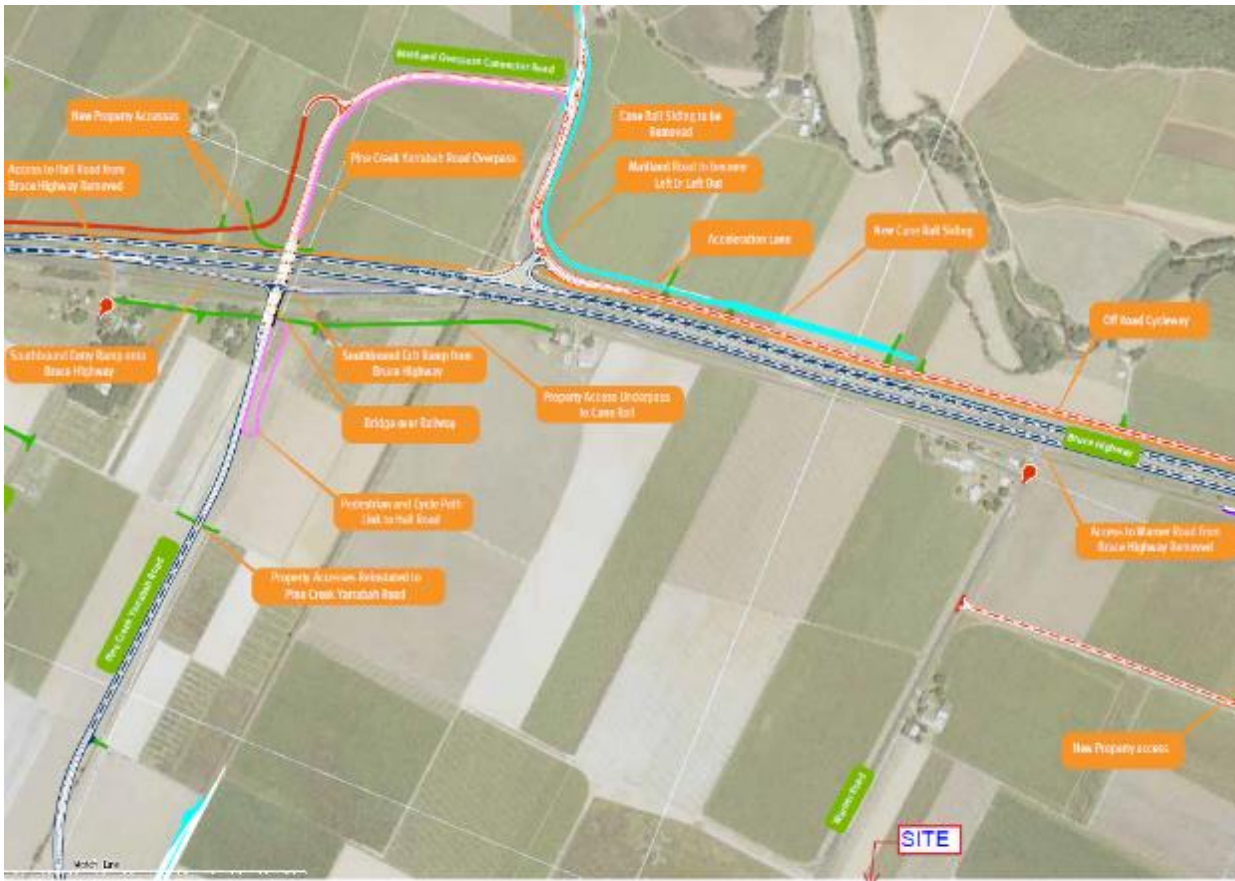


Figure 9 State Road Works Showing closure of Warner Road

Source: www.tmr.qld.gov.au/projects/bruce-highway-cairns-southern-access-corridor-stage-3-edmonton-to-gordonvale

Traffic generation has been assessed based on maximum production rates for the plant as follows:

- Up to 90 truck movements for asphalt delivery per day
- Up to 36 truck movements for materials delivery per day associated with the asphalt plant
- Up to 90 truck movements for concrete delivery per day
- Up to 30 truck movements for materials delivery per day associated with the concrete plant
- Truck movements associated with the Reclaimed Asphalt are considered negligible

This totals up to 246 movements per day i.e., 123 truckloads per day when both Asphalt and Concrete plants are at full capacity.

Warner Road carriageway consists of a two-lane, bitumen seal total 7.0m width. A 100km/hr speed limit currently applies to Warner Road. An assessment of carriageway width from Ausroads suggests a recommended minimum road width carriageway of 3.5m each lane, noting that traffic generation will be less than 500vehicles/day once the Warner Road Bruce Highway connection is closed. Therefore the existing carriageway of 3.5m each lane is acceptable; however it is recommended that the speed be reduced to 60km/hour in the vicinity of the intersection access into the subject site to align with industrial heavy vehicle traffic safety requirements.

The proposed asphalt and concrete plant require two vehicular access points from Warner Road. Two access points allow for one way traffic flow across the site by trucks generally entering from the eastern access and departing from the western access. The site layout allows all vehicles to enter, circulate and exit the site in a forward direction.

The access intersections will require road widening, line marking and signage reposting to 60klm/hour.

Site distance requirements have been assessed for the proposed intersections as more than adequate as there are no horizontal or vertical alignment changes for 500m in either direction.

5.5.3 Water Supply

5.5.3.1 Water demand

Water demand for the facility is generated from the following activities:

- Concrete batching
- Washing plant
- Site amenities

Total demands (concrete and amenities) have been assessed as follows:

Peak Demand = 4.6L/hour

Average day demand = 61kL/day

Average annual demand = 13.4ML per annum

5.5.3.2 Existing water supplies

The site can be serviced from two possible water supply sources:

- Existing 150 diameter water supply main located in the road reserve to the frontage of the site
- Existing ground water bore

It is proposed the facility would be connected to the 150-diameter main to supply mainly the amenities. Bulk water for concrete production would be sourced from the ground water bore. The site currently has an existing water allocation of 50ML, and it is proposed to apply to the Department of Natural Resources for part allocation of the 50ML available for industrial purposes.

Based on the above, the amenities will be the only facility onsite which would be serviced and connected to the 150 diameter main. Given the amenity demand and capacity of the main there would be no issues for the site to be adequately serviced from the main for this domestic flow.

With regard to firefighting, depending on detailed design the facility could either be supplied from the 150mm diameter main or the ground water bore and supplemented with booster pumping and adequate storage.

5.5.4 Sewerage Treatment and Disposal

The development will require that 10-12 staff will be located at the site during work hours.

A geotechnical site investigation was undertaken in April 2022. Observed soil conditions on site indicate moderately structured medium to heavy clays. Permeability testing indicate low permeability of the soil and that a traditional trench/bed effluent treatment system is likely not feasible.

Two common types of treatment system used in low permeability soils are sand mound systems and evapotranspiration (ETA) beds/trenches. As the site will be filled to approximately 1m above existing ground level, it is envisioned that a region of sand fill can be used as a pseudo-mound, with an overlying garden to assist with evapotranspiration.

The typical dimensions of a mound on flat ground are 1.275m high (450mm topsoil/cover, 225mm distribution bed, 600mm sand fill) which results in an 8.85-9.65m base width mound (1V:3H sides), dependent upon selected bed width.

Typical ETA beds, however, only have 100mm topsoil and 200mm cover, which would reduce the total height to 1125mm and width to 7.95-8.75m. This would be higher than the surrounding fill, however, could be managed through the creation of a raised garden or similar.

Based on a treatment area of 168m² and base width of 7.95-8.75m, the system base length would be 19.2-21.2m. It is anticipated that Cairns Regional Council would also require a reserve area of 168m² to replace or extend the system, for a total area of 338m². Specific system selection, sizing and location can be undertaken during the detailed design phase.

5.5.5 Stormwater Quantity and Quality management

The site has an area of 1.3 Ha. Due to requirements of filling of the majority of the site to achieve flood immunity, all external stormwater will be prevented from entering the site in any direction. All rainwater falling on the site will grade to a longitudinal bio-retention swale on the eastern boundary which then outlets to Warner Road. The site in its entirety will be sealed with a hardstand surface (concrete or asphalt) and therefore will be 100% impervious.

The site is currently a cane farm paddock grading away from Warner Road at an approximate grade of 0.3%. The area was part of a larger block of agricultural land and is generally inundated in a 1%AEP flood event. On this basis there is no formalized stormwater drainage management established.

The only legal point of discharge available for drainage is Warner Road as there are no drainage easements/reserves or roads on either side and rear boundary. On this basis a civil design for earthworks filling and drainage has been developed in combination with filling to achieve flood immunity of 1%AEP and grading to the rear boundary of the lot via a bioretention swale drain.

As there is no legal point of discharge at this location, it is proposed to capture the 1 year storm event and pump back to the Warner Road table drain until such time as road and drainage corridors are allocated. The swale is capable of containing and detaining up to a 50 year storm event. For events over a 50 year storm, the swale will over top on the easterly bund and overflow in a non-concentrated manner to the neighbouring cane paddock which is likely to be inundated. At 1%AEP (100 year) flood event the entire surrounding cane area neighbouring properties will be completely inundated under flood. Stormwater from the subject lot will be released into adjacent flood waters constituting a no worsening situation.

Stormwater grading and capture for 1 year storm events will be such that it does not cross neighbouring boundaries to cause nuisance. The capacity of the table drain in Warner Road will require an upgrade by increasing the size of the drain. Preliminary site gradings have been undertaken utilizing minimum gradients at 0.5% to achieve the most efficient filling design.

5.5.6 Stormwater detention and quality devices

A stormwater device has been modelled for the site to both attenuate flows and remove potential contaminants prior to release to waters. A bioretention swale has been modelled using EPA SWMM with the following parameters: 120m in length and 4m wide graded at 0.5% with 600mm depth of sandy loam filter media (288m³ Volume).

The swale will be located along the low side of the site (eastern boundary) to both attenuate the peak stormwater discharged and stormwater pollutants.

With regard attention of flows The State Planning Policy for water quality stipulates the design objectives for the wet tropics to reduce nutrients and sediment from the development.

With regard to achieving stormwater peak discharge attenuation, it is required to limit the peak 1-year ARI event discharge within the receiving waterway to the predeveloped peak of 1 year ARI discharge.

5.5.7 Pollutant concentrations

As there are no groundwater effects on the site (due to mass filling and site being well above the water table) there is no 'Baseflow' pollutant concentrations. Due to FNQROC, WET TROPICS or GBRMPA not having any reported 'Stormflow pollutant Concentration Parameters'; two base mean Storm flow pollutant concentration parameters have been selected as check cases as follows:

- Mackay 'MUSIC' Guidelines
- 'Using MUSIC in the Sydney Drinking Water Catchment'

Land use/zoning of this site is determined as industrial. EPA SWMM has been used to model water quality reduction scenarios.

5.5.8 Gross pollutant trap

As a secondary measure to achieve the most efficiency of water quality it is recommended a Gross Pollutant Trap (GPT) be implemented at the outlet of the Bioretention Basin as an end of line measure.

5.5.9 Geotechnical Investigation

A site investigation was undertaken to identify soil properties at the site on 19 April 2022. Observed soil conditions on site indicate moderately structured medium to heavy clays, or Soil Category 6 in AS 1547. Permeability testing identified K_{sat} values of 0.25m/d in AH1 and 0.06m/d in AH3, based on auger hole depths of 0.5 and 0.6m respectively.

These results indicate low permeability of the soil and that a simple trench/bed effluent treatment system is likely not feasible. On-site effluent disposal is discussed above.

5.5.10 Electricity

Electricity will be provided to the site from the existing overhead power lines in Warner Road.



Figure 10 Existing High Voltage and low Voltage Electricity Supply Warner Road,
Source: Ergon look up and Live

5.5.1 Communications

Telecommunications will be provided to the site from the existing services in Warner Road.

5.6 Compatibility with Existing and Future Surrounding Land Uses

The development is located centrally in the High Industry Precinct of the Cairns South State Development Area and is extremely compatible with that land use.

5.6.1 Cane Farms

Surrounding Cane farm land uses are listed below:

Location	Lot/Plan	Existing Land Use	Future land Use	Distance from Site
West of Site	2 RP731083	Cane Farm	High Impact industry	Adjoins site
North of Site	2 SP323733	Cane Farm	High Impact industry	Adjoins site
East of Site	2 SP323733	Cane Farm	High Impact industry	Adjoins site
East of Site	2 RP717908	Cane Farm	Medium Impact industry	130m east of site
East of Site	2 NR7514	Cane Farm	Rural Land Use	130m east of site
Southeast of Site	2 SP327655	Cane Farm	Medium Impact industry	220m to southeast across Warner Road
Southwest of Site	14 SP865055	Cane Farm	Medium Impact industry	140m to southwest across Warner Road
Southeast of Site	11 SP14749	Cane Farm	Medium Impact industry	320m to southeast across Warner Road

Figure 11 Table of surrounding land uses

Several farm residences and outbuildings are located on the adjoining cane farms. Their details are listed above in the section on Air Quality.

In the long term it is expected that future industrial development in the Medium and High Impact industry Zones will replace the existing cane farms.

5.6.1 Broadcast Australia Site

A Broadcast Australia Site is opposite the site:

Location	Lot/Plan	Existing Land Use	Future land Use	Distance from Site
South of Site	1 RP711584	Two ABC radio Towers*	Medium Impact industry ABC radio Tower	140m from lot boundary to southwest across Warner Road. Approx. 380m from radio mast to asphalt stack.

Figure 12 Table of surrounding land uses

*A radio infrastructure building and 2 radio towers are located opposite and 140m to the southwest of the site on Lot 1 RP711584.

The towers are used by ABC 4QY for radio broadcasting.

Refer to :

- Broadcast Australia Site 4055,
- ACMA Site 37310 Main Mast and 141381 Standby Mast

Relevant heights are

- Top of the Main Mast approx. RL57m AHD
- Top of the Standby Mast approx. RL46m AHD
- Top of the asphalt plant stack approx. RL40m AHD

Note that as the top of the asphalt Stack is 17meters lower than the top of the main radio mast, and approximately 380m away from the radio mast, the development is not expected to affect the radio broadcasts.



Figure 13 Radio Shed at 94 Warner Road (source google)

6 ASSESSMENT AGAINST DEVELOPMENT SCHEME

6.1 Cairns South State Development Area Development Scheme

The development will be assessed against the Cairns South State Development Area Development Scheme March 2020.

6.2 Assessment against Strategic Vision of the Cairns South SDA

Requirement	Assessment against Strategic vision
<p>(1) The vision for the Cairns South SDA is to:</p> <ul style="list-style-type: none"> (a) be the preferred location in Far North Queensland for State and regionally significant industry which benefits from its strategic location near major road and rail networks and supports regional supply chain linkages (b) facilitate the establishment of a regional-scale intermodal facility and rail dependent industry that responds to anticipated growth in the rail freight sector (c) provide for large footprint and difficult-to-locate industry which cannot be reasonably accommodated elsewhere in the Far North Queensland region (d) strengthen the Far North Queensland region's competitive advantage and diversify its economy (e) support new opportunities which align with the Queensland Government's priority sectors in the region and facilitate a circular economy through industrial symbiosis (f) support the long-term viability of the sugar industry and diversification of the Mulgrave Mill (g) facilitate a coordinated and integrated approach to the delivery of infrastructure (h) ensure high quality development occurs in a logical sequence (i) recognise and maintain environmental, cultural heritage and community values. (j) The strategic vision is supported by the overall objectives for development and preferred development intents of development precincts in the Cairns South SDA. 	<p>The proposed Development will enable the development of an asphalt plant.</p> <ul style="list-style-type: none"> a) preferred location - Complies b) intermodal facility and rail dependent industry - Not applicable to this zone c) large footprint and difficult-to-locate industry - Complies d) Complies e) Complies. The asphalt plant will support the provision of roads within the Cairns region. f) sugar industry - Does not comply g) Complies h) Complies - The asphalt plant will be the first development on the area and can be seen as a catalyst for other development in the SDA i) Complies j) Complies

6.3 Assessment against Overall Objectives of the Cairns South SDA

Requirement	Assessment against Objectives
<p>Development in the Cairns South SDA will:</p> <ul style="list-style-type: none"> (a) be or contribute to regionally significant industry that requires substantial separation distances, large lots, and setbacks from existing and future sensitive land uses (b) capitalise on direct access to the Bruce Highway and North Coast Line (NCL) for freight and logistics related development (c) promote industries which are located to optimise the shared use of by-products, energy, water and waste (d) ensure lots are appropriately sized to accommodate preferred development (e) ensure the integrity and functionality of the Cairns South SDA is maintained and protected from incompatible development (f) avoid, minimise or manage adverse impacts on sensitive land uses (g) ensure design, construction and operation is consistent with best practice (h) provide employment opportunities in the Cairns region and Southern Growth Corridor (i) minimise adverse impacts on the viability of rural activities in the Cairns South SDA (j) maintain the functionality of the cane railway network to support the sugar industry (k) use land and infrastructure efficiently and be adequately serviced by infrastructure (l) achieve appropriate levels of flood immunity to protect the safety and security of people and property, while avoiding adverse impacts outside the Cairns South SDA (m) avoid adverse impacts on environmental, cultural heritage and community values, or minimise, mitigate or offset impacts where they cannot be avoided, with particular focus on the values of Wright & Mackey Creek, the Mulgrave River and the Trinity Inlet (n) not adversely impact on the outstanding universal value of the Great Barrier Reef and Wet Tropics World Heritage Areas. 	<p>The proposed Development will:</p> <ul style="list-style-type: none"> a) Complies - the asphalt plant requires substantial separation distances, large lots, and setbacks from existing and future sensitive land uses b) Complies - the location is central to future road and residential growth areas. c) Complies d) NA e) Complies - the use complies with the desired High Industry Precinct uses f) Complies g) Complies h) Complies i) Complies j) Complies - there will be no impact on the rail k) Complies l) Complies - The appropriate levels of flood protection are provided and detailed in the engineering report. m) Complies n) Complies. The site is not visible from the Great Barrier Reef. The Wet Tropics World Heritage Areas are located on the ranges over 5klm to the west and 7klm to the east.

6.4 Assessment against Preferred development Intent for High Impact Industry Precinct

Requirement	Assessment against Objectives
<p>1) <i>The preferred development intent for the High Impact Industry Precinct is described below.</i></p> <ul style="list-style-type: none"> • <i>This precinct is to accommodate regionally significant industrial development that:</i> <ul style="list-style-type: none"> i) <i>requires a large development footprint</i> ii) <i>requires significant buffers from sensitive land uses</i> iii) <i>relates to, supports or requires significant inputs and services from key sectors of the Cairns economy, such as agriculture, tourism and transport</i> iv) <i>aligns with Queensland Government priority sectors including biofutures, advanced manufacturing biomedical and life sciences, aerospace, defence and mining equipment, technology and services</i> v) <i>requires access to and maximises the use of key transport and supply chain infrastructure.</i> • <i>A smaller footprint may be appropriate for development adjoining Warner Road to provide a support or service function to regionally significant industry in the Cairns South SDA.</i> • <i>Defined uses which may meet the preferred development intent include:</i> <ul style="list-style-type: none"> i) <i>high impact industry</i> ii) <i>special industry</i> iii) <i>utility installation.</i> • <i>Food and drink outlet (where required to service industry in the Cairns South SDA), infrastructure facility, low impact industry (in accordance with 2.4.3(1)(b)), medium impact industry, renewable energy facility, service industry (in accordance with 2.4.3(1)(b)), substation or warehouse may be considered where the use does not compromise the preferred development intent.</i> 	<ul style="list-style-type: none"> i) Complies ii) Complies iii) Complies iv) Complies. The Asphalt plant is state-of the -art technology. v) Complies • Complies • Complies <ul style="list-style-type: none"> i) high impact industry • Not Applicable
<p>2) Table 3 Regulated development in the High Impact Industry Precinct</p> <p>Column 2 - SDA assessable development in the precinct</p> <p>Material change of use</p> <ul style="list-style-type: none"> • all uses <p>Reconfiguring a lot</p> <ul style="list-style-type: none"> • all other reconfiguring a lot not identified in column 1 as SDA self-assessable development <p>Operational work</p> <ul style="list-style-type: none"> • as part of an SDA application for a material change of use or reconfiguring a lot 	<ul style="list-style-type: none"> • Complies - This application is for a MCU • ROL Not Applicable • Complies - this application includes operational Work

6.5 Assessment against SDA wide assessment criteria

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>2.5.1 Infrastructure and services</p> <p>(1) Development is adequately serviced by telecommunications, transport, water, wastewater, stormwater, recycled water and energy networks as required, to meet the demand generated by the development.</p> <p>(2) Development is designed to maximise efficiency and minimise the cost of infrastructure associated with telecommunications, transport, water, wastewater, stormwater, recycled water and energy networks.</p> <p>(3) Development plans for and manages its impacts on existing and planned telecommunications, transport (including the cane railway network), water, wastewater, stormwater, recycled water and energy networks.</p> <p>(4) Development avoids or minimises adverse impacts on, and integrates with, existing and planned state and local government infrastructure provision or services internal and external to the Cairns South SDA.</p>	<p>1) Complies. The site is currently serviced by telecommunications, transport, water, and energy networks.</p> <p>There is are no wastewater, or recycled water services in the area.</p> <p>The project will install an on-site sewerage effluent system.</p> <p>2) Complies. The project will use part of the existing water licence on the site to access water for use for the concrete batching plant, significantly lessening the demand on the reticulated water service in Warner Road.</p> <p>3) Complies.</p> <ul style="list-style-type: none"> • Telecommunications - There is no impact on the Telecommunications network. • Transport - The road network will be upgraded to cater for turning movements entering and exiting the site. • Water - The project will use part of the existing water licence on the site to access water for use for the concrete batching plant, significantly lessening the demand on the reticulated water service in Warner Road. • Wastewater - The project will install on-site effluent treatment. • Energy - the Project will use the existing electricity grid. <p>4) Complies. There will be no change to existing or planned infrastructure required by the development.</p> <p>The development will take advantage of the existing State E2G project to realign the road network, thereby lessening the traffic load on Warner Road.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>(5) Development incorporates waste minimisation practices and considers refuse collection or disposal.</p> <p>(6) Development considers use of harvested water over reticulated town water.</p> <p>(7) Infrastructure associated with development is designed to mitigate impacts on existing land uses.</p>	<p>5) Complies. There will be no change to existing or planned infrastructure required by the development.</p> <p>6) The project will use part of the existing water licence on the site to access water for use for the concrete batching plant, significantly lessening the demand on the reticulated water service in Warner Road.</p> <p>7) Complies</p>
<p>2.5.2 Emissions</p> <p>(1) Development is located, designed and operated to avoid, minimise or manage:</p> <ul style="list-style-type: none"> (a) adverse impacts from air, noise and other emissions that will affect the health and safety, wellbeing and amenity of communities and individuals (b) conflicts arising from (but not limited to), spray drift, odour, noise, dust, light spill, smoke or ash emissions with sensitive and/or incompatible land uses⁴. <p>(2) The design and operation of development meets the achievement of the relevant acoustic and air quality objectives of the Environmental Protection (Noise) Policy 2008 and the Environmental Protection (Air) Policy 2008.</p>	<p>1) Complies. The development is located, designed and operated to avoid, minimise and manage adverse impacts from air – it is sited away from sensitive receptors and has the latest technology to reduce air emissions.</p> <p>2) Complies. The design and operation of the asphalt plant will meet the acoustic and air quality objectives of the EPP (Noise) Policy and the EPP (Air) Policy by implementing the latest technology in emissions reduction.</p>
<p>2.5.3 Contaminated land</p> <p>(1) Development on land likely to be contaminated or recorded on the Environmental Management Register or Contaminated Land Register does not adversely impact on human health or the</p>	<p>Not Applicable - the land is not known to be contaminated or recorded on the Environmental Management Register or Contaminated Land Register</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>environment by exposure, management, or movement of contaminants.</p> <p>(2) Where required, development includes a strategy to manage existing contamination and the potential for additional contamination such that human health and the environment are not adversely affected.</p>	
<p>2.5.4 Acid sulfate soils</p> <p>(1) Development, in accordance with current best practice, is to:</p> <p>(a) avoid the disturbance of acid sulfate soils (ASS) or</p> <p>(b) ensure that the disturbance of ASS avoids or minimises the mobilisation and release of acid and metal contaminants.</p>	<p>The geotechnical tests revealed observed soil conditions on site indicated moderately structured medium to heavy clays.</p> <p>Excavation on the site will be limited to site stripping in preparation for filling.</p> <p>As disturbance of potential acid sulfate soils is limited to filling operations, the likelihood of encountering PASS is low and if encountered will be managed by disposal to a registered site in accordance with best practice.</p>
<p>2.5.5 Climate change</p> <p>(1) Development:</p> <p>(a) avoids or, if avoidance cannot be achieved, minimises net increases in the emission of greenhouse gases</p> <p>(b) is able to adapt to current and future impacts of a changing climate.</p>	<p>The plant itself is best practice and will minimise emissions to meet the environmental guidelines.</p> <p>Development of this site will allow the proponent to cease operations at its current asphalt plant at Tingira Street Portsmouth, which although meeting ERA requirements is an older plant.</p>
<p>2.5.6 Transport</p> <p>(1) Increased traffic arising from development is either able to be accommodated in existing road networks, or works are undertaken to accommodate the</p>	<p>(1) Complies.</p> <p>Refer to engineering report for details of traffic loads on Warner Road once State roadworks are completed.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>increased traffic, including upgrading existing road infrastructure and/or the provision of new road infrastructure having regard to integration with the existing and future road network external to the Cairns South SDA.</p> <p>(2) Existing and future road networks in the Cairns South SDA are to be designed to accommodate the proposed vehicle type and predicted traffic volumes associated with development, and to avoid or mitigate adverse impacts on existing sensitive land uses.</p> <p>(3) Development is designed to facilitate safe and efficient vehicular ingress and egress and does not unduly impact on the safe and efficient operation of the use of external road, rail or transport infrastructure.</p> <p>(4) Adequate onsite parking for the number and nature of vehicles expected is provided.</p> <p>(5) Development, where appropriate, provides end of trip facilities for pedestrians and cyclists.</p>	<p>(2) Complies. Warner road will handle any increase in traffic caused by this development, as the current traffic load will be significantly reduced by the State Road realignments.</p> <p>(3) Complies - refer to Engineering report The proposed asphalt and concrete plant require two vehicular access points from Warner Road. Two access points allow for one way traffic flow across the site by trucks generally entering from the eastern access and departing from the western access. The site layout allows all vehicles to enter, circulate and exit the site in a forward direction.</p> <p>(4) Complies - On-site parking is provided on-site</p> <p>(5) Due to the site location it is not considered appropriate for End of trip facilities for pedestrians and cyclists.</p>
<p>Environment, cultural heritage and community</p> <p>(1) Environmental values, cultural heritage values, and community values of the premises on which the development is undertaken, and immediate surrounds, are managed, consistent with current best practice. <i>Note: Duty of Care under Section 23 of the Aboriginal Cultural Heritage Act 2003 should be considered a minimum requirement for all development.</i></p>	<p>(1) Complies. The site is currently fully used as a cane farm and holds no Environmental values, cultural heritage values, and community values. There will no change caused by the development.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>(2) Development is located, designed and operated to:</p> <ul style="list-style-type: none"> (a) avoid adverse impacts on environmental values including matters of local, State and national environmental significance, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset (b) maintain ecological connectivity and processes (c) maintain the outstanding universal value of the Great Barrier Reef World Heritage Area (d) avoid adverse impacts on cultural heritage and community values, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset. <p>(3) Environmental offsets are provided in accordance with the relevant commonwealth or State environmental offset framework.</p> <p>(4) Environmental offsets should be accommodated within the Environmental Management Precinct before seeking solutions external to the Cairns South SDA.</p> <p>(5) Where the development requires a buffer to mitigate the adverse amenity impacts of the development, including, but not limited to, visual and acoustic impacts, that buffer is accommodated within the development site.⁵</p>	<p>(2) Complies - there are no matters of local, State and national environmental significance on the site.</p> <p>(3) Environmental offsets will not be required.</p> <p>(4) Environmental offsets will not be required.</p> <p>(5) The development does not require any buffers. Environmental offsets will not be required.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>(6) Development in the Intermodal Transport, Rail Dependent, and Medium Impact Industry Precincts adjacent to the Sugar Research Precinct, is to provide a densely vegetated buffer to mitigate potential impacts arising from light, smell, noise or dust.</p>	<p>(6) Not Applicable as the land is not in the Intermodal Transport, Rail Dependent, or Medium Impact Industry Precincts adjacent to the Sugar Research Precinct</p>
<p>Engineering and design standards</p> <p>(1) Development is to be designed and constructed in accordance with the relevant engineering and design standards (and any subsequent revisions to the relevant standards) stated in Table 11 below. Alternative, innovative solutions that demonstrate compliance the relevant standards are encouraged.</p>	<p>Complies. Refer to Engineering report.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>Other government matters</p> <p>(1) Development is to demonstrate consistency with any other relevant legislative requirements that may be required for the development to proceed and operate and to the extent practicable, be consistent with regional plans, the State Planning Policy, and the State Development Assessment Provisions where the State interests articulated by these instruments are likely to be affected by the development.</p>	<p>The development is not consistent with the FNQ Regional Plan, as the Cairns South State Development Area was gazetted after the regional plan.</p> <p>For the development, the Applicable parts of the State Development Assessment Provisions are</p> <ul style="list-style-type: none"> • State Code 1 Development in a state-controlled road environment (Warner Road) • State code 22 environmentally relevant activities <ul style="list-style-type: none"> ○ ERA 6 Asphalt Manufacturing ○ ERA 54 Mechanical Waste Processing more than 5000t of material in year <p>The development complies with other State Planning Policies.</p>
<p>Energy and water efficiency</p> <p>(1) Building, site design and layout maximises energy efficiency having regard to:</p> <ul style="list-style-type: none"> (a) building orientation and passive solar design (b) maximising opportunities for cross ventilation (c) appropriate shade treatments (d) landscaping treatments to the western side of the building. <p>(2) Water efficiency is optimised through the use of alternative water supply sources, including:</p> <ul style="list-style-type: none"> (a) rainwater harvesting systems (b) recycled water sources. 	<p>The site office has been oriented to provide shade from the western sun.</p> <p>Bulk water for concrete production would be sourced from the existing ground water bore. The site currently has an existing water allocation of 50ML, and it is proposed to apply to the Department of Natural Resources for part allocation of the 50ML available for industrial purposes.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>Visual impacts</p> <p>(1) Visual impacts of buildings and structures are minimised through building design and landscaping when viewed from sensitive land uses in the Rural Use Precinct and publicly accessible viewpoints, such as major roads.</p>	<p>The proposed development is the first development in the Cairns South SDA, and as the development will replace cane fields it will be visible in the short term.</p> <p>The developments visual impact is minimised by the proposed landscaping strips along Warner Road which will partially screen the site buildings and plant.</p> <p>However the project also contains a 27m tall Asphalt tower.</p> <p>The future development of the High Impact Industrial area and the Medium industry zone (which immediately surrounds the site) will introduce Industrial size buildings.</p> <p>The Built Form provisions of the CSSDA Scheme do not specify height limits for either the High Impact Industry Zone or the Medium Impact industry Zone.</p> <p>As a guide, the adjoining Cairnsplan adopts an acceptable solution in High Impact Zones as “Buildings and structures are not more than 15 metres in height”.</p> <p>The visual analysis has adopted typical future road and building layouts and demonstrates that the Visual impacts of buildings and structures are minimised when viewed from sensitive land uses in the Rural Use Precinct and publicly accessible viewpoints such as major roads.</p> <p>Refer to Appendix J - Visual Analysis Combined Plan and Sections PR150263</p> <p>These demonstrates that after the ultimate development of the industrial area, the future industrial buildings partially screen the plant and asphalt tower.</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>(2) Development incorporates high quality urban design and landscape treatments, particularly for areas highly visible from public roads.</p>	<p>Refer to the Landscape plan within the Engineering Design drawings - Asphalt and Concrete Batching Plants Engineering Report.</p> <p>The Landscaping allows for Vegetative Screening /Hedging of the site frontage, side and rear boundaries to provide a dense screen hedge to most of the site, apart from driveway entry and exits.</p> <p>Additionally the bioretention basin will be landscaped with quick establishing Australian native tussock grass, Native sedge has long grass-like leaves, perennial rhizomatous grass and clumping grass-like perennial with broad shiny green foliage and masses of fragrant yellow flowers in spring.</p> <p>The biobasin will be bordered by Grass and Ground Cover Species, Medium growing hedges and delicate and attractive native groundcover.</p>
<p>Built form</p> <p>(1) The scale, character and built form of development contributes to a high standard of amenity.</p> <p>(2) Development incorporates crime prevention through environmental design principles.</p>	<p>Complies.</p> <p>CPTED principles (Activation, Surveillance, Ownership, Stakeholder management, Legibility, Territoriality, Vulnerability) are more appropriate for higher density urban spaces. Warner Road will be highly visible as an Industrial road which will contribute to CPTED principles.</p>
<p>Reconfiguring a lot</p> <p>(1) Development provides lawful, safe and practical access.</p> <p>(2) Infrastructure is provided to lots generally in accordance with established infrastructure planning for the Cairns South SDA.</p> <p>(3) Lot sizes are adequate to accommodate a development footprint consistent with the preferred development intent of each precinct. A range of lot sizes is preferred to</p>	<p>Not Applicable</p> <p>Not Applicable</p>

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>accommodate development in each precinct. Minimum lot sizes for development precincts are generally consistent with the following:</p> <ul style="list-style-type: none"> (a) Rail Dependent Industry Precinct – 2 hectares (b) High Impact Industry Precinct – 2 hectares (c) Medium Impact Industry Precinct – 1 hectare (d) Mulgrave Mill Industry Precinct – 2 hectares. <p>(4) Lot sizes between 0.5 hectare to 1 hectare may be supported in the Medium and High Impact Industry Precincts adjoining Warner Road where development provides a support or service function to regionally significant industry in the Cairns South SDA.</p> <p>(5) Subdivision achieves a geometric layout that maximises efficiency and connectivity for industrial traffic.</p> <p>(6) Further fragmentation of the Environmental Management, Infrastructure Corridors, and Rural Use Precincts is not supported, unless being undertaken for operational, management or regulatory purposes, or if there is an overriding need.</p>	
<p>Landscaping</p> <ul style="list-style-type: none"> (1) Development provides landscaping that: <ul style="list-style-type: none"> (a) minimises the visual impacts of the development by achieving suitable coverage and height for the location (b) incorporates at least 50% local species (c) is low maintenance. (2) Development maintains and enhances significant vegetation. 	<p>Complies.</p> <ul style="list-style-type: none"> (1) Refer to Concept plan and proposed landscaping along the frontage, sides and rear of the lot. (2) Not Applicable as there is no vegetation on-site.

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>Natural hazards – flooding</p> <ul style="list-style-type: none"> • Development, in accordance with current best practice: <ul style="list-style-type: none"> • achieves a flood immunity to a 1% annual exceedance probability (AEP) level plus a freeboard of 300mm • does not adversely affect existing flow rates, flood heights or cause or contribute to other flooding impacts on upstream, downstream or adjacent properties or the State transport network. This includes potential impacts from changes to stormwater flows and local flooding • avoids, minimises or mitigates adverse impacts from flooding to protect people and property, and enhances the community's resilience to flooding • supports, and does not hinder disaster management capacity and capabilities • avoids risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard. • Stormwater and drainage infrastructure provides capacity for stormwater discharge • minimises flooding from major rainfall events • does not result in loss of floodplain storage. • If development proposes storage of hazardous materials, development should demonstrate immunity to a 	<ul style="list-style-type: none"> • Complies - refer to engineering report • The lot will be filled 300mm above 1%AEP to provide for adequate freeboard • refer to engineering report for discussion on flooding and impacts.

Requirement	Assessment of SDA wide development
Best practice/relevant standard	
0.5% AEP event.	

Requirement Best practice/relevant standard	Assessment of SDA wide development
<p>Natural hazards – other</p> <ul style="list-style-type: none"> • Development, in accordance with current best practice: <ul style="list-style-type: none"> • identifies relevant natural hazards that may impact upon the development • appropriately manages risk associated with identified hazards • avoids increasing the severity of the natural hazard • for coastal hazards, avoid erosion prone areas wherever possible. 	<p>Complies - There are no hazards on the site apart from flooding</p>
<p>Water quality</p> <p>(1) Development is located, designed, constructed and operated to avoid or minimise adverse impactson environmental values of receiving waters and groundwater arising from:</p> <p>(a) altered stormwater quality and hydrology</p> <p>(b) wastewater (other than contaminated stormwater and sewage)</p> <p>(c) the creation or expansion of non-tidal artificial waterways</p> <p>(d) the release and mobilisation of nutrients and sediments.</p> <p>(2) Development encourages a precinct-wide stormwater management approach that achieves animproved water quality outcome.</p> <p>(3) Development protects or enhances the ecological and hydraulic function of water assets in and adjacent to the Cairns South SDA, especially Wright Creek, Mackey Creek, the Mulgrave River,Trinity Inlet and the Great Barrier Reef lagoon.</p>	<ul style="list-style-type: none"> • Complies - refer to engineering report and Section 5 above.

6.6 Assessment against Engineering and design standards

Requirement	Best practice/relevant standard	Assessment of SDA development
Sewer and water	<ul style="list-style-type: none"> Standards of the relevant water and sewerage service provider (e.g. Cairns Regional Council) Far North Queensland Regional Organisation of Council's (FNQROC) Regional Development 	Refer to Engineering report
Soil erosion	FNQROC Regional Development Manual	Complies. Refer to Operational Works Plans
Earthworks	<ul style="list-style-type: none"> State Planning Policy 2017 – Emissions and hazardous activities – Acid sulfate soils Queensland Acid Sulphate Soils Technical Manual – Soil Management Guidelines v4.0 FNQROC Regional Development Manual CairnsPlan 2016 	Refer to Engineering report and Operational Works Plans
Stormwater quality	<ul style="list-style-type: none"> Water by Design - Construction and Establishment Guidelines, Swales, Bioretention Systems and Wetlands Environmental Protection (Water) Policy 2009 (Cairns region) Water Quality Guidelines for the Great Barrier Reef Marine Park (2010) FNQROC Regional Development Manual 	Refer to Engineering report and Operational Works Plans
Stormwater quantity	<ul style="list-style-type: none"> FNQROC Regional Development Manual 	Refer to Engineering report and Operational Works Plans
Roads (major)	Department of Transport and Main Roads' (DTMR) Road Planning and Design Manual (2nd edition) Guide to Road Design (Austroads) Guide to Traffic Management (Austroads) Guide to Road Safety (Austroads) DTMR's Guide to Traffic Impact Assessment DTMR Pavement Design	Refer to Engineering report and Operational Works Plans

Requirement	Best practice/relevant standard	Assessment of SDA development
	Supplement DTMR Design Criteria for Bridges and Other Structures Manual DTMR Road Drainage Manual DTMR Manual of Uniform Traffic Control Devices DTMR Traffic and Road Use Management Manual Australian Standard AS1158 (Lighting for road and public spaces, Lighting of pedestrian crossings) FNQROC Regional Development Manual	
Roads (minor)	FNQROC Regional Development Manual	na
Site access	FNQROC Regional Development Manual	Refer to Engineering report and Operational Works Plans Amended entry and exit driveway crossovers will be required.
Car Parking	FNQROC Regional Development Manual CairnsPlan 2016	Included - Refer to Engineering report and Operational Works Plans
Footpaths and cycle paths	FNQROC Regional Development Manual Austroads – Guide to Road Design Part 6A: Pedestrian and Cyclist Paths	Not Applicable
Public transport	Translink’s Public Transport Infrastructure Manual	The site is located within a rural area, within an industrial precinct of the CSSDA, which is not serviced by public transport.
Utilities (i.e. telecommunications, electricity supply, road lighting, gas)	FNQROC Regional Development Manual Relevant service provider standards Ergon Energy Major Customer Connection and Services Guidelines NBN Co. Design and Build Guidelines Australian Standard AS1158 (Lighting for roads and public spaces Lighting of pedestrian crossings)	Refer to Engineering report and Operational Works Plans The site has existing water reticulation and power.
Rail	DTMR’s Guide to Development in a Transport Environment - Rail	NA

Requirement	Best practice/relevant standard	Assessment of SDA development
Landscaping	Cairns Plan 2016 Planning Scheme Policy Cairns Plan 2016 FNQROC Regional Development Manual	Refer to landscape plan included in the Appendix - detailed Civil Engineering drawings
Submit the survey plan by registered Cadastral Surveyor	<i>Survey and Mapping infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards</i>	NA

6.7 Assessment against relevant Cairns Regional Council Codes

The project was assessed against the following relevant Cairns Regional Council Codes:

- High impact industry zone code
- Acid sulfate soils overlay code
- Airport environs overlay code
- Flood and inundation hazards overlay code
- Landscape values overlay code
- Environmental performance code
- Excavation and filling code
- Industry design code
- Landscaping code
- Parking and access code

The following codes were not applicable:

- Building height overlay code
- Bushfire hazard overlay
- Coastal processes overlay
- Extractive resources overlay
- Hazardous-Explosive facilities overlay
- Hillslopes overlay
- Natural areas overlay
- Neighbourhood character overlay
- Places of Significance overlay
- Potential Landslip overlay
- Transport Network overlay

Refer to Appendix I - Assessment against relevant Cairns Regional Council Codes

7 IMPACTS OF PROPOSAL

7.1 Impacts on existing land uses

7.1.1 Flood

Refer to Appendix H - Engineering Report

Civil design for earthworks filling and drainage has been developed in combination with filling to achieve flood immunity of 1%AEP and grading to the rear boundary of the lot via a bioretention swale drain.

The swale is capable of containing and detaining up to a 50 year storm event. For events over a 50 year storm, the swale will over top on the easterly bund and overflow in a non-concentrated manner to the neighbouring cane paddock which is likely to be inundated.

As there is no legal point of discharge at this location, it is proposed to capture the 1 year storm event and pump back to the Warner Road table drain until such time as road and drainage corridors are allocated.

At 1%AEP (100 year) flood event the entire surrounding cane area neighbouring properties will be completely inundated under flood. Stormwater from the subject lot will be released into adjacent flood waters constituting a no worsening situation.

Stormwater grading and capture for 1 year storm events will be such that it does not cross neighbouring boundaries to cause nuisance. The capacity of the table drain in Warner Road will require an upgrade by increasing the size of the drain. Preliminary site gradings have been undertaken utilizing minimum gradients at 0.5% to achieve the most efficient filling design.

7.2 Impacts on Environmental Impacts

There are no matters of local, State and national environmental significance on the site. There is no remnant vegetation or habitat on the site.

The environmental Impact of the proposal will be limited to the air, noise and water quality impacts generated from the plant itself. These impacts will be assessed and managed by a separate application for an Environmental Authority for the relevant Environmentally Relevant Activities.

Refer also to Appendix H - Environmental Assessment Report R80853

7.3 Impacts on Social/Cultural and Amenity, and Community Values

The site is currently fully used as a cane farm and holds no Environmental values, cultural heritage values, or community values.

7.4 Transport

There will be an impact on traffic caused by the increase in traffic movements to the site for the asphalt plant and concrete batching plant. This road network is expected to be able to absorb these increases given the changing road conditions currently underway by the State. Warner Road is proposed to be closed at the highway and will become an industrial service road.

Refer to Appendix G - Engineering Report

A response to SDAP Code sdap-v3.0-state-code-1-development-in-a-state-controlled-road-environment is included in the Appendices.

Refer to Appendix L - State Code response Sdap-v3.0-state-code-1-development-in-a-state-controlled-road-environment-response

7.5 Cultural Heritage

The site is currently used for agricultural production being a cane farm.

As the site has been ploughed for cane production for many years the risk of any harm to cultural heritage is low.

7.6 Impacts on Economic Impacts

7.6.1 Employment

During construction the project will employ approximately 20 people for approximately 8 months.

Post Construction the project will directly employ typically 5-6 persons up to 10 to 12 employees on-site.

Indirect impacts are the increased economic benefits that flow from being able to provide asphalt and concrete in the local area, with shorter travelling distances than from products delivered from other sources.

7.6.2 Project life

The project life is expected to be between 30-50 years.

7.6.3 Benefits to Local Community

The project will increase availability of quality, competitive products in the local market, thus directly increasing trade and participation within the relevant value chain.

The project will significantly increase collaboration within the value chains as it will allow for the purchasers of the final products to also become suppliers of the recycled materials used in the innovative production process implemented as part of the project. This would increase sector participation and create healthy synergies benefiting all stakeholders and the environment.

The project will create a range of high-value and skilled jobs, which are in high demand in regional north Queensland as it recovers from a major economical decline of its tourism dependent economy caused by the pandemic. These jobs will range from product engineering and development, quality assurance, laboratory technicians to project and product managers, accountants, IT technicians operating the state-of-the-art facility and more.

The project will expand the availability of quality asphalt and bitumen products in Regional Queensland strengthening the manufacturing sector by providing increase competition and innovation.

8 MANAGEMENT PLANS

8.1 Construction and Traffic Management Plans

Warner Road is currently a State-controlled Road so construction will need to be in accordance with their requirements.

Construction and Traffic management plans will be handled directly between the civil contractor and Department of Transport and Main Roads at time of construction.

8.2 Environmental and Noise Management Plans

Refer to Appendix H - Environmental Assessment Report R80853

Note that the site is currently used for cane production and has no vegetation other than for sugar cane, no environmental values and no Matters of State Significance.

Once Environmental approvals have been gained Koppen will prepare a Site Based Management Plan for the site.

9 APPENDICES

Appendix A Owners Consent form



Our ref: OUT22/2071

8 June 2022

Mr Callum Koppen
General Manager
Koppens Construction Pty Ltd
4 / 10 Grafton Street
CAIRNS QLD 4870

Email: ckoppen@koppens.com.au

Department of
**State Development, Infrastructure,
Local Government and Planning**

Dear Mr Koppen,

RE: Request for Owners Consent to Lodge Application over Lot 1 on SP323733, 101 Warner Road, Wrights Creek, within the Cairns South State Development Area, land owned by the Minister for Economic Development Queensland.

I, John White, A/Executive Director, Industrial Development, Economic Development Queensland (EDQ) as delegate of the Minister for Economic Development Queensland, hereby consent to the lodgment of any applications or permits to the relevant administering authority by Koppens Construction Pty Ltd (the Applicant) or its agents and/or nominees required for the application which relates to the development of an Asphalt and Concrete Plant on Lot 1 on SP323733, within the Cairns South State Development Area.

It should be noted that this letter does not provide consent to any legal point of discharge for stormwater onto the adjoining property Lot 2 on SP323733, which is also owned by the Minister for Economic Development Queensland.

The Asphalt and Concrete Plant is defined as drawing 21145-C002, Rev B. (**Attachment A**)

This owners consent is provided on the basis that:

- This consent is not an agreement by, or confirmation from, the Minister for Economic Development Queensland that the Applicant will be given rights to occupy or use any part of the land for the development.
- It does not remove the statutory obligation of the Applicant to obtain all necessary cultural, environmental and development approvals from the administering authority prior to the commencement of any construction.
- It will not prejudice Economic Development Queensland from undertaking day to day operations or further detailed reviews of the proposed development and its impacts on land controlled by the Minister for Economic Development Queensland.
- It is only related to the Applicant lodging an application with the relevant approving authority.

- It does not allow the Applicant to act on behalf of the Minister for Economic Development Queensland. The Applicant is not the Minister for Economic Development Queensland's agent.
- It has an expiry date of twelve (12) months from the date of this letter.

If you require any further information, please contact Mr Matt Morris, Development Manager, Economic Development Queensland in the Department of State Development, Infrastructure, Local Government and Planning, by telephone on 0472 866 464 or by email at matthew.morris@dsdilgp.qld.gov.au, who will be pleased to assist.

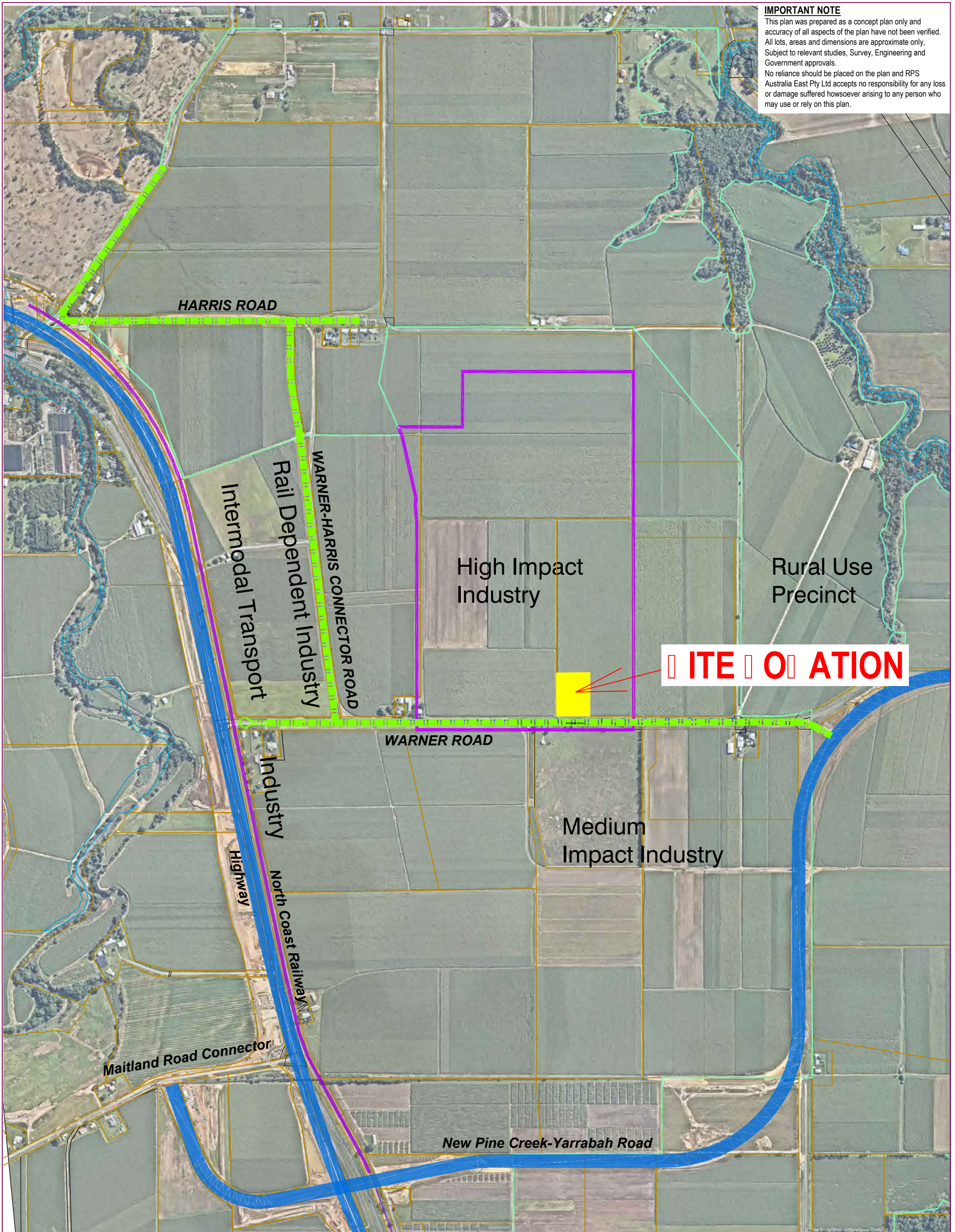
Yours sincerely



John White
**A/Executive Director – Industrial Development
Economic Development Queensland**

Appendix B Locality Plan

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only. Subject to relevant studies, Survey, Engineering and Government approvals.
 No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

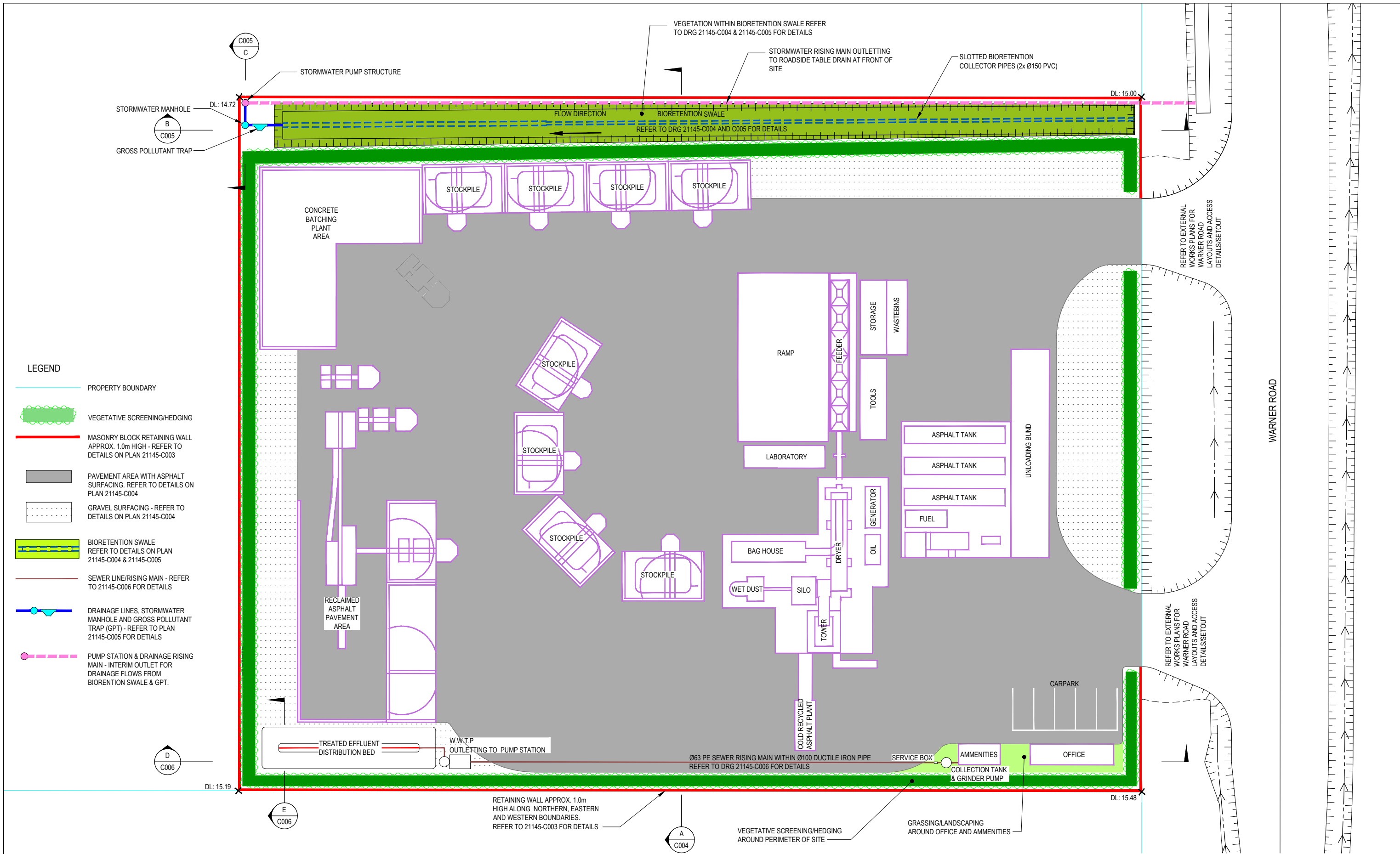


**Proposed Asphalt Plant
 Locality Plan**

RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



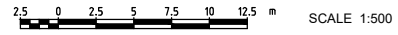
Appendix C Engineering Site layout



LEGEND

- PROPERTY BOUNDARY
- VEGETATIVE SCREENING/HEDGING
- MASONRY BLOCK RETAINING WALL APPROX. 1.0m HIGH - REFER TO DETAILS ON PLAN 21145-C003
- PAVEMENT AREA WITH ASPHALT SURFACING. REFER TO DETAILS ON PLAN 21145-C004
- GRAVEL SURFACING - REFER TO DETAILS ON PLAN 21145-C004
- BIORETENTION SWALE REFER TO DETAILS ON PLAN 21145-C004 & 21145-C005
- SEWER LINE/RISING MAIN - REFER TO 21145-C006 FOR DETAILS
- DRAINAGE LINES, STORMWATER MANHOLE AND GROSS POLLUTANT TRAP (GPT) - REFER TO PLAN 21145-C005 FOR DETAILS
- PUMP STATION & DRAINAGE RISING MAIN - INTERIM OUTLET FOR DRAINAGE FLOWS FROM BIORETENTION SWALE & GPT.

B	6.06.22	STORMWATER SCHEME AMMENDED
A	30.05.22	INITIAL ISSUE
REV	DATE	REVISION NOTES



DESIGNER

OSE GROUP

Address: 35 ABBOTT ST, CAIRNS 4870
Email: admin@osegroup.com.au

CLIENT

KOPPEN CONSTRUCTION

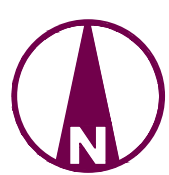
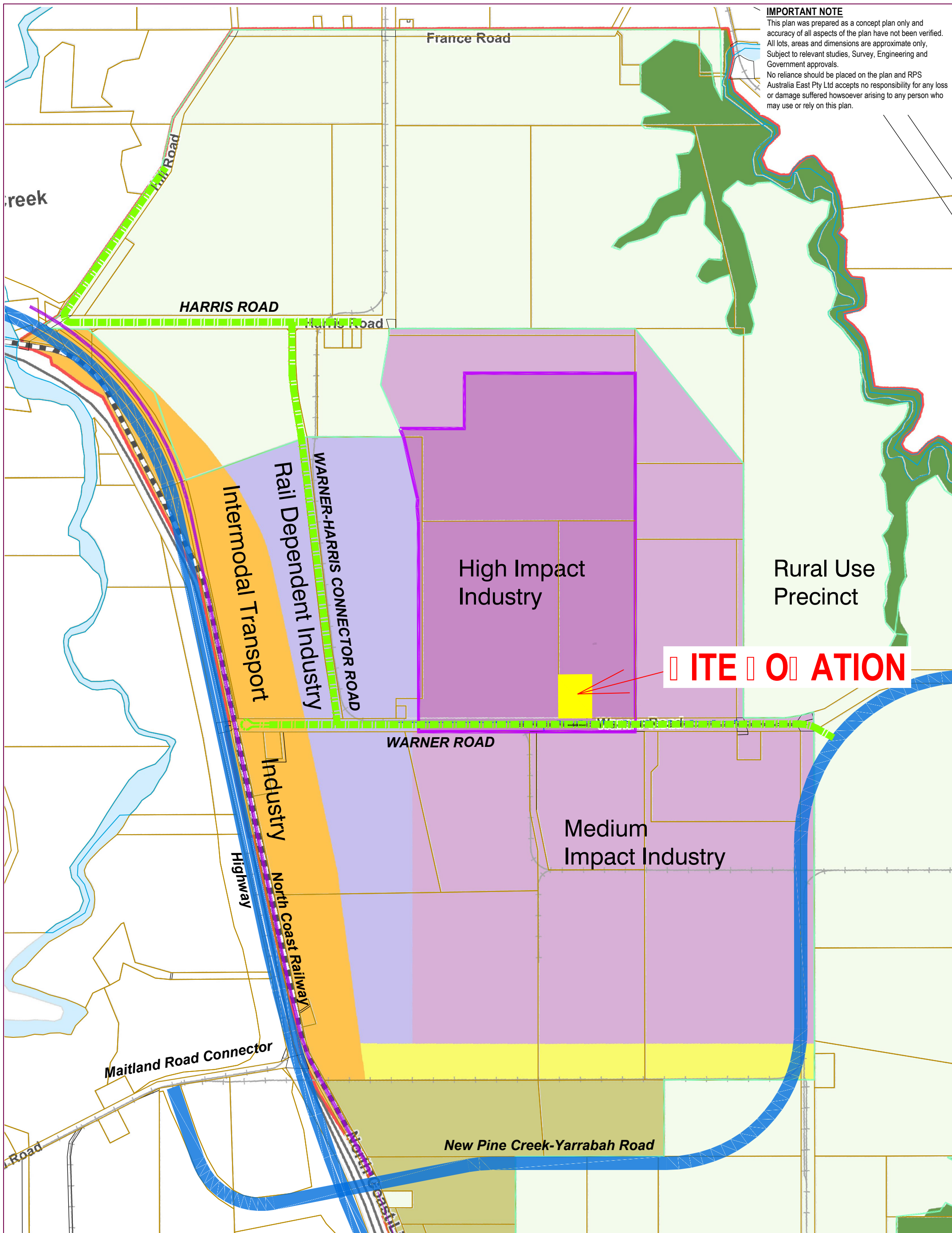
PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE		
DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

TITLE INTERNAL SITE LAYOUT - GENERAL ARRANGEMENT PLAN		
SCALE 1:500	DRAWING No (A3)	DRAWING No 21145-C002
		REV B

6/06/2022 12:37:32 PM File: C:\Users\darnal\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg

Appendix D Zoning Plan

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only. Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.



Proposed Asphalt Plant
 Zoning Plan - Cairns South State Development Area

RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



Appendix E Searches

- E.1.1 E1 Survey Plan SP323733**
- E.1.2 E2 Title SP323733_1 Title**
- E.1.3 E3 Vegetation Management Property Report**
- E.1.4 E4 MSES Report**
- E.1.5 E5 WildNetCS SpeciesList**
- E.1.6 E6 Bushfire mapping**
- E.1.7 E7 Coastal Hazard Map**
- E.1.8 E8 CRC Services Lot 1 SP323733**
- E.1.9 E9 Detail Survey PR150263-3 L1 Warner Road Detail Survey**
- E.1.10 E10 CairnsPlan 2016 Property Report for 1L Warner Road, WRIGHTS CREEK**

Land Title Act 1994 ; Land Act 1994
Form 21 Version 4

SURVEY PLAN

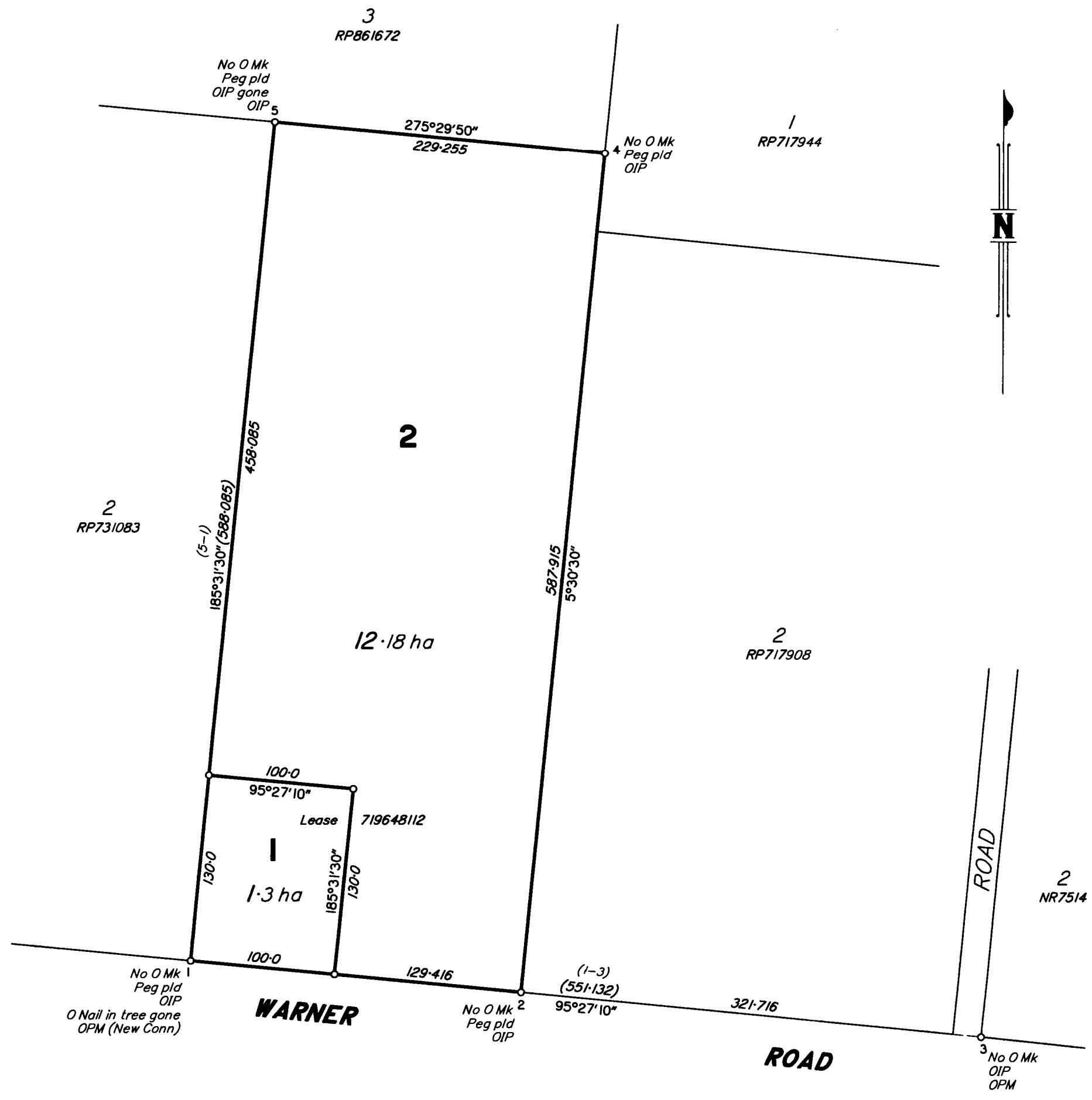
Sheet **1** of **2**

PERMANENT MARKS

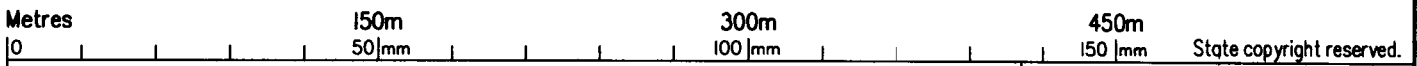
PM	ORIGIN	BEARING	DIST	NO	TYPE
1-OPM (New Conn)	IS164759	295°09'55"	1163.64	127705	S Pkt in conc
3-OPM	IS131793	261°46'20"	16.03	94673	Standard

REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	OIP	RP731083	185°27'10"	1.0
1	O Nail in tree gone	IS131793	160°18'20"	11.63
2	OIP	RP717908	185°30'20"	1.71
3	OIP (0.6 deep)	NR7402	185°31'50"	1.747
4	OIP	RP717908	185°30'30"	1.4
5	OIP gone	RP717908	95°29'50"	0.626
5	OIP	IS131793	174°20'50"	6.275



Peg placed at all new corners unless otherwise shown.



AUSNORTH CONSULTANTS PTY LTD (ACN 116 510 028) hereby certify that the land comprised in this plan was surveyed by the corporation, by Brian James LANE, Cadastral Surveyor, for whose work the corporation accepts responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 14/09/2021.

24/09/2021 *[Signature]*
Date Director

PLAN OF **Lots 1 and 2**
Cancelling Lot 1 on RP717908

LOCAL GOVERNMENT: CAIRNS R.C. LOCALITY: WRIGHTS CREEK

Meridian: MGA 2020 (Zone 55) vide SP315893 Survey Records: NO

Scale: **1 : 3000**
Format: **STANDARD**

SP323733

**WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.**

8/2/2021

721306496

BE 400 NT

NO FEE
02/12/2021 13:34

4. Lodged by **2068.**

(Include address, phone number, reference, and Lodger Code)

i. Existing		Created		
Title Reference	Description	New Lots	Road	Secondary Interests
20805005	Lot 1 on RP717908	1 and 2	-	-

EXISTING LEASE ALLOCATIONS

Lease	Lots to be Encumbered
719648112	1 and 2

SURVEY REPORT

The objective of Survey Plan SP323733 is to establish an appropriate land boundary framework within part of the subject allotment in support of a rural subdivision of lands project.

BOUNDARY REINSTATEMENT REPORT

- The survey document search has included the following plans in chronological order : RP717908, RP717944, RP731083, IS74333, NR7402, RP861672, IS131793 & SP315893.
- Warner Road alignment and Datum (1-2-3) has been adopted via the recovery of existing monuments and survey infrastructure with excellent agreement achieved with respect to the Public Record, e.g. IS131793 & SP315893.
- It is however noted that NR7402 introduces a bend at Stn 2 of 0°00'10", which has not been carried forward on successive plans. Accordingly SP323733 preserves the contemporary methodology as evidenced by SP315893, et al.
- The balance subject property boundaries have been reinstated wholly in accord with IS131793 and the intent of RP717908.

1 and 2	Por 140
Lots	Orig

2. Orig Grant Allocation :

3. References :
Dept File :
Local Govt :
Surveyor : 21051

5. Passed & Endorsed :
By: AUSNORTH CONSULTANTS PTY LTD
(ACN 116 510 028)
Date: 24/09/2021
Signed: *[Signature]*
Designation : Cadastral Surveyor/Director

Date of Development Approval:
6. Building Format Plans only.
I certify that :
* As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or road;
* Part of the building shown on this plan encroaches onto adjoining * lots and road
Cadastral Surveyor/Director * Date
*delete words not required

7. Lodgement Fees :
Survey Deposit \$
Lodgement \$
..... New Titles \$
Photocopy \$
Postage \$
TOTAL \$

8. Insert Plan Number **SP323733**

Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Title Reference: 51271017	Search Date: 13/05/2022 12:53
Date Title Created: 07/12/2021	Request No: 41046228
Previous Title: 20805005	

ESTATE AND LAND

Estate in Fee Simple

LOT 1 SURVEY PLAN 323733

Local Government: CAIRNS

REGISTERED OWNER

Dealing No: 721306496 02/12/2021

MINISTER FOR ECONOMIC DEVELOPMENT QUEENSLAND

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 20090031 (POR 140)

ADMINISTRATIVE ADVICES

NIL

UNREGISTERED DEALINGS

NIL

** End of Current Title Search **



Vegetation management report

For Lot: 1 Plan: SP323733

24/05/2022

This publication has been compiled by Operations Support, Department of Resources.

© State of Queensland, (2022)

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons - Attribution 4.0 International (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.



You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Note: Some content in this publication may have different licence terms as indicated.

For more information on this licence, visit <https://creativecommons.org/licenses/by/4.0/>

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Recent changes

Updated mapping

Updated vegetation mapping was released on 8 September 2021 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

The Department of Environment and Science have also updated their protected plant and koala protection mapping to align with the Queensland Herbarium scientific updates.

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

Property details - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s) and catchment(s);

Vegetation management framework - an explanation of the application of the framework and contact details for the Department of Resources who administer the framework;

Vegetation management framework details for the specified Lot on Plan including:

- the vegetation management categories on the property;
- the vegetation management regional ecosystems on the property;
- vegetation management watercourses or drainage features on the property;
- vegetation management wetlands on the property;
- vegetation management essential habitat on the property;
- whether any area management plans are associated with the property;
- whether the property is coastal or non-coastal; and
- whether the property is mapped as Agricultural Land Class A or B;

Protected plant framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework, including:

- high risk areas on the protected plant flora survey trigger map for the property;

Koala protection framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework; and

Koala protection framework details for the specified Lot on Plan including:

- the koala district the property is located in;
- koala priority areas on the property;
- core and locally refined koala habitat areas on the property;
- whether the lot is located in an identified koala broad-hectare area; and
- koala habitat regional ecosystems on the property for core koala habitat areas.

This information will assist you to determine your options for managing vegetation under:

- the vegetation management framework, which may include:

- exempt clearing work;
- accepted development vegetation clearing code;
- an area management plan;
- a development approval;

- the protected plant framework, which may include:

- the need to undertake a flora survey;
- exempt clearing;
- a protected plant clearing permit;

- the koala protection framework, which may include:

- exempted development;
- a development approval;
- the need to undertake clearing sequentially and in the presence of a koala spotter.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 8 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

Table of Contents

1. Property details	6
1.1 Tenure and title area	6
1.2 Property location	6
2. Vegetation management framework (administered by the Department of Resources)	7
2.1 Exempt clearing work	7
2.2 Accepted development vegetation clearing codes	7
2.3 Area management plans	8
2.4 Development approvals	8
2.5. Contact information for the Department of Resources	8
3. Vegetation management framework for Lot: 1 Plan: SP323733	9
3.1 Vegetation categories	9
3.2 Regional ecosystems	10
3.3 Watercourses	10
3.4 Wetlands	10
3.5 Essential habitat	10
3.6 Area Management Plan(s)	11
3.7 Coastal or non-coastal	11
3.8 Agricultural Land Class A or B	11
4. Vegetation management framework maps	12
4.1 Regulated vegetation management map	13
4.2 Vegetation management supporting map	14
4.3 Coastal/non-coastal map	15
4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture	16
5. Protected plants framework (administered by the Department of Environment and Science (DES))	17
5.1 Clearing in high risk areas on the flora survey trigger map	17
5.2 Clearing outside high risk areas on the flora survey trigger map	17
5.3 Exemptions	17
5.4 Contact information for DES	17
5.5 Protected plants flora survey trigger map	18
6. Koala protection framework (administered by the Department of Environment and Science (DES))	20
6.1 Koala mapping	20
6.2 Koala habitat planning controls	21
6.3 Koala Conservation Plan clearing requirements	22
6.4 Contact information for DES	22
7. Koala protection framework details for Lot: 1 Plan: SP323733	22
7.1 Koala districts	22
7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map	23
7.3 Koala habitat regional ecosystems for core koala habitat areas	24
8. Other relevant legislation contacts list	25

1. Property details

1.1 Tenure and title area

All of the lot, plan, tenure and title area information associated with property Lot: 1 Plan: SP323733, are listed in Table 1.

Table 1: Lot, plan, tenure and title area information for the property

Lot	Plan	Tenure	Property title area (sq metres)
1	SP323733	Freehold	13,000

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

1.2 Property location

Table 2 provides a summary of the locations for property Lot: 1 Plan: SP323733, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
Cairns Regional

Bioregion(s)	Subregion(s)
Wet Tropics	Innisfail

Catchment(s)
Mulgrave-Russell

2. Vegetation management framework (administered by the Department of Resources)

The *Vegetation Management Act 1999* (VMA), the *Vegetation Management Regulation 2012*, the *Planning Act 2016* and the *Planning Regulation 2017*, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the *Vegetation Management Regulation 2012*; and
- a mangrove.

2.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify the Department of Resources or obtain an approval under the vegetation management framework. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 4.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval under the vegetation management framework. For all other land tenures, contact the Department of Resources before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at

<https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/exemptions>.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact the Department of Resources prior to clearing in any of these areas.

2.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at

<https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/codes>

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify the Department of Resources before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at

<https://apps.dnrm.qld.gov.au/vegetation/>

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing under the vegetation management framework. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an Area Management Plan applies to your property for which you can make a new notification, it will be listed in Section 3.6 of this report. Before clearing under one of these AMPs, you must first notify the Department of Resources and then follow the conditions and requirements listed in the AMP.

<https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/area-management-plans>

2.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at

<https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development>

2.5. Contact information for the Department of Resources

For further information on the vegetation management framework:

Phone 135VEG (135 834)

Email vegetation@resources.qld.gov.au

Visit <https://www.resources.qld.gov.au/?contact=vegetation> to submit an online enquiry.

3. Vegetation management framework for Lot: 1 Plan: SP323733

3.1 Vegetation categories

The vegetation categories on your property are shown on the regulated vegetation management map in section 4.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 1.3ha

Vegetation category	Area (ha)
Category X	1.3

Table 4: Description of vegetation categories

Category	Colour on Map	Description	Requirements / options under the vegetation management framework
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact the Department of Resources to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing on freehold land, indigenous land and leasehold land for agriculture and grazing purposes is considered exempt clearing work under the vegetation management framework. Contact the Department of Resources to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

There is no Property Map of Assessable Vegetation (PMAV) present on this property.

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 4.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at <https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/>

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
non-rem	None	X	1.30	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.
2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work;
- accepted development vegetation clearing codes;
- performance outcomes in State Code 16 of the State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 4.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Under the VMA, essential habitat for protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA) as critically endangered, endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 4.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map -

- 1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or
- 2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

No records

3.6 Area Management Plan(s)

Nil

3.7 Coastal or non-coastal

For the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP), this property is regarded as*

Coastal

*See also Map 4.3

3.8 Agricultural Land Class A or B

The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

Class A (with urban areas masked as per SPP): 1.3ha

No Class B

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See Map 4.4 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 1 Plan: SP323733.

4. Vegetation management framework maps

Vegetation management maps included in this report may also be requested individually at:

<https://www.resources.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form>

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new [property maps of assessable vegetation \(PMAV\)](#).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

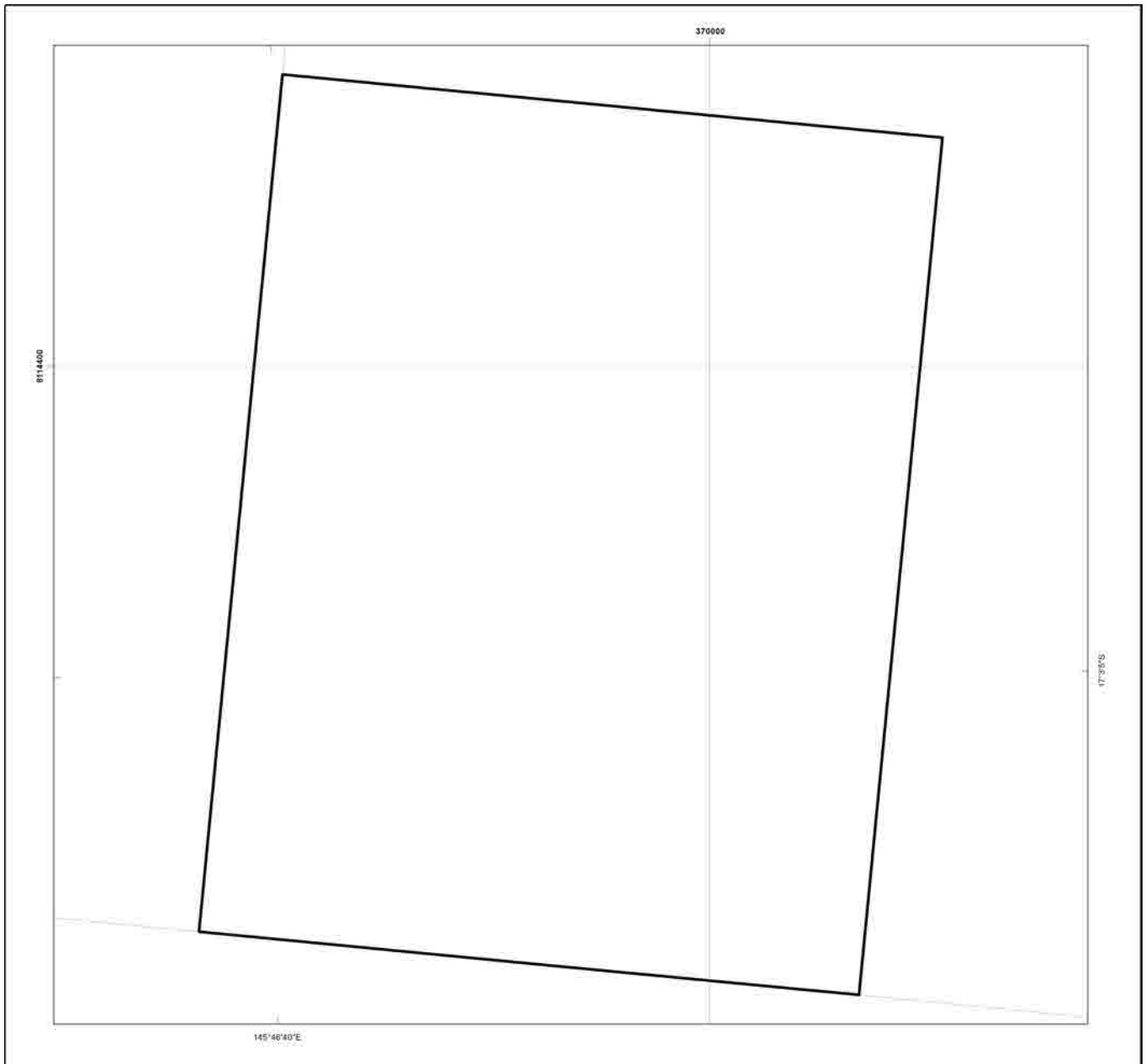
Coastal/non-coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP).

Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

4.1 Regulated vegetation management map



Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries



This product is projected into:
GDA 1994 MGA Zone 55

Disclaimer:

While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

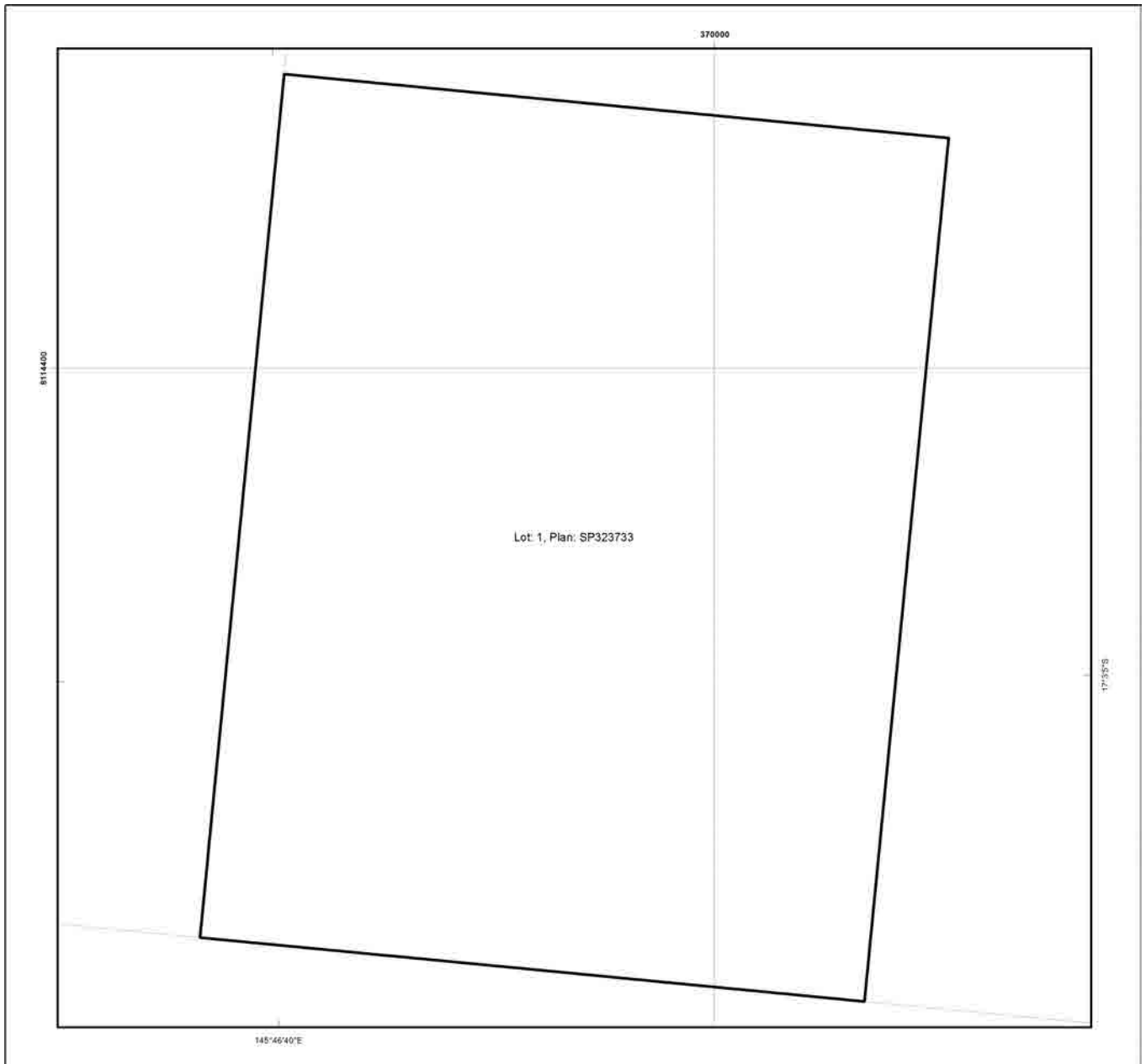
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.





















4.2 Vegetation management supporting map



Vegetation Management Supporting Map

Legend

-  Selected Lot and Plan
-  Category A or B area containing endangered regional ecosystems
-  Category A or B area containing of concern regional ecosystems
-  Category A or B area that is a least concern regional ecosystem
-  Category C or R area containing endangered regional ecosystems
-  Category C or R area containing of concern regional ecosystems
-  Category C or R area that is a least concern regional ecosystem
-  Category X area
-  Water
-  Wetland on the vegetation management wetlands map
-  Essential habitat on the essential habitat map
-  Essential habitat species record
-  Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
-  Highway
-  Connector
-  Street/Local Road
-  National Parks, State Forest and other reserves
-  Other land parcel boundaries



This product is projected into:
GDA 1994 MGA Zone 55

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:

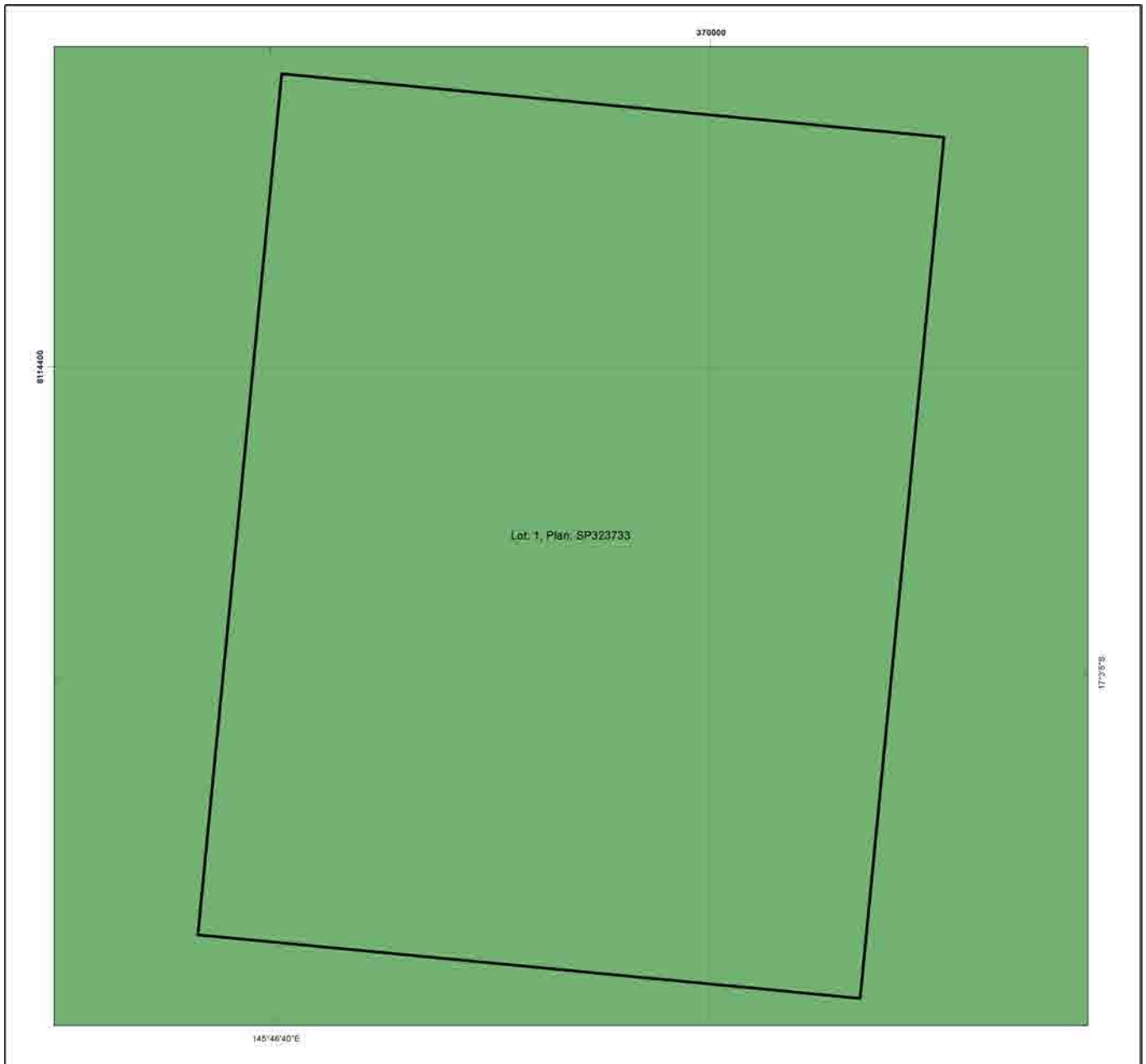
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>





Land parcel boundaries are provided as locational aid only.

4.3 Coastal/non-coastal map



Coastal/Non Coastal Map

Legend

-  Selected Lot and Plan
-  Coastal
-  Non Coastal
-  Other land parcel boundaries



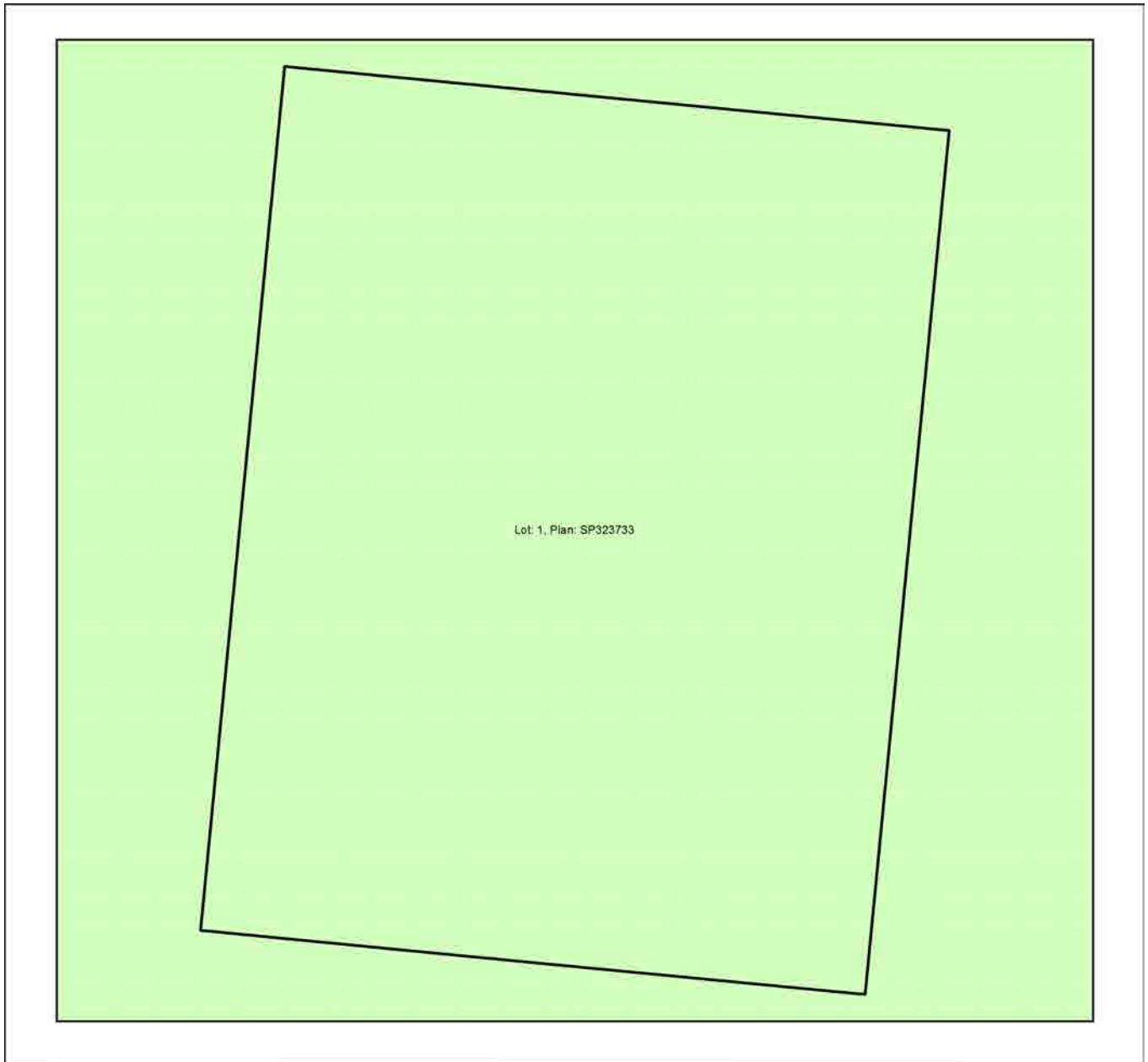
This product is projected into:
GDA 1994 MGA Zone 55

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Land parcel boundaries shown are provided as a locational aid only.











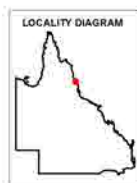
4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

Legend

-  Selected Lot and Plan
-  Towns
-  Rivers and creeks
-  Freeways / motorways; Highways
-  Secondary roads; Streets
- Agricultural land class A or B
-  A
-  B
-  Not class A or B



Disclaimer
 Whilst every care is taken to ensure the accuracy of these details all data custodians and/or the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses damages (including indirect or consequential damage) and costs to which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

This product is projected into GDA 1994 MGA Zone 55

© The State of Queensland, 2022

5. Protected plants framework (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the [Nature Conservation Act 1992](#) (NCA). The NCA regulates the clearing of protected plants 'in the wild' (see [Operational policy: When a protected plant in Queensland is considered to be 'in the wild'](#)) that are listed as critically endangered, endangered, vulnerable or near threatened under the Act.

Please note that the protected plant clearing framework applies irrespective of the classification of the vegetation under the *Vegetation Management Act 1999* and any approval or exemptions given under another Act, for example, the *Vegetation Management Act 1999* or *Planning Regulation 2017*.

5.1 Clearing in high risk areas on the flora survey trigger map

The flora survey trigger map identifies high-risk areas for endangered, vulnerable or near threatened (EVNT) plants. These are areas where EVNT plants are known to exist or are likely to exist based on the habitat present. The flora survey trigger map for this property is provided in section 5.5.

If you are proposing to clear an area shown as high risk on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken by a suitably qualified person in accordance with the [Flora survey guidelines](#). The main objective of a flora survey is to locate any EVNT plants that may be present in the clearing impact area.

If the flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An [exempt clearing notification form](#) must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing.

If the flora survey identifies that EVNT plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the [clearing permit application form](#).

5.2 Clearing outside high risk areas on the flora survey trigger map

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

5.3 Exemptions

Many activities are 'exempt' under the protected plant clearing framework, which means that clearing of native plants that are in the wild can be undertaken for these activities with no need for a flora survey or a protected plant clearing permit. The Information sheet - General exemptions for the take of protected plants provides some of these exemptions.

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) under the *Vegetation Management Act 1999* (i.e. listed in Schedule 21 of the Planning Regulations 2017) while some are different.

5.4 Contact information for DES

For further information on the protected plants framework:

Phone 1300 130 372 (and select option four)

Email palm@des.qld.gov.au

Visit <https://www.qld.gov.au/environment/plants-animals/plants/protected-plants>

5.5 Protected plants flora survey trigger map

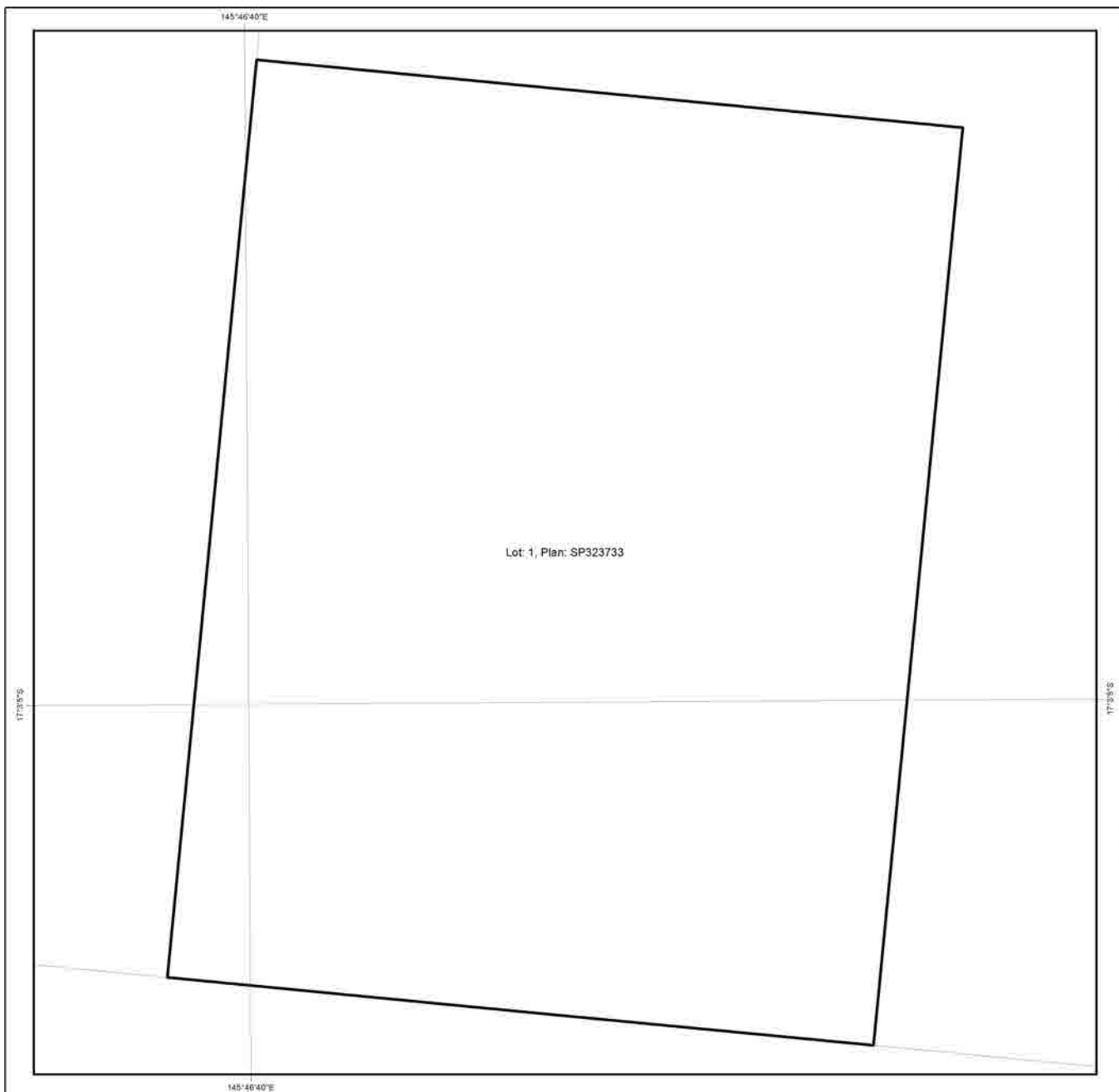
This map included may also be requested individually at: <https://apps.des.qld.gov.au/map-request/flora-survey-trigger/>.

Updates to the data informing the flora survey trigger map

The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the [Queensland Spatial Catalogue](#), the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the [clearing of protected plants](#) for more information.



Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets



This product is projected into:
GDA 1994 MGA Zone 55

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

6. Koala protection framework (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as vulnerable by the Queensland Government under *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Queensland Government's koala protection framework is comprised of the *Nature Conservation Act 1992*, the Nature Conservation (Animals) Regulation 2020, the Nature Conservation (Koala) Conservation Plan 2017, the *Planning Act 2016* and the Planning Regulation 2017.

6.1 Koala mapping

6.1.1 Koala districts

The parts of Queensland where koalas are known to occur has been divided into three koala districts - koala district A, koala district B and koala district C. Each koala district is made up of areas with comparable koala populations (e.g. density, extent and significance of threatening processes affecting the population) which require similar management regimes.

Section 7.1 identifies which koala district your property is located in.

6.1.2 Koala habitat areas

Koala habitat areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). In order to protect this important koala habitat, clearing controls have been introduced into the Planning Regulation 2017 for development in koala habitat areas.

Please note that koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

There are two different categories of koala habitat area (core koala habitat area and locally refined koala habitat), which have been determined using two different methodologies. These methodologies are described in the document [Spatial modelling in South East Queensland](#).

Section 7.2 shows any koala habitat area that exists on your property.

Under the Nature Conservation (Koala) Conservation Plan 2017, an owner of land (or a person acting on the owner's behalf with written consent) can request to make, amend or revoke a koala habitat area determination if they believe, on reasonable grounds, that the existing determination for all or part of their property is incorrect.

More information on requests to make, amend or revoke a koala habitat area determination can be found in the document [Guideline - Requests to make, amend or revoke a koala habitat area determination](#).

The koala habitat area map will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

Changes to the koala habitat area map which occur between annual updates because of a request to make, amend or revoke a koala habitat area determination can be viewed on the register of approved requests to make, amend or revoke a koala habitat area available at: <https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/koalamaps>. The register includes the lot on plan for the change, the date the decision was made and the map issued to the landholder that shows areas determined to be koala habitat areas.

6.1.3 Koala priority areas

Koala priority areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Conservation efforts will be prioritised in these areas to ensure the conservation of viable koala populations in the wild including a focus on management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring. This includes a prohibition on clearing in koala habitat areas that are in koala priority areas under the Planning Regulation 2017 (subject to some exemptions).

Please note that koala priority areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley,

Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

Section 7.2 identifies if your property is in a koala priority area.

6.1.4 Identified koala broad-hectare areas

There are seven identified koala broad-hectare areas in SEQ. These are areas of koala habitat that are located in areas committed to meet development targets in the SEQ Regional Plan to accommodate SEQ's growing population including bring-forward Greenfield sites under the Queensland Housing Affordability Strategy and declared master planned areas under the repealed *Sustainable Planning Act 2009* and the repealed *Integrated Planning Act 1997*.

Specific assessment benchmarks apply to development applications for development proposed in identified koala broad-hectare areas to ensure koala conservation measures are incorporated into the proposed development.

Section 7.2 identifies if your property is in an identified koala broad-hectare area.

6.2 Koala habitat planning controls

On 7 February 2020, the Queensland Government introduced new planning controls to the Planning Regulation 2017 to strengthen the protection of koala habitat in South East Queensland (i.e. koala district A).

More information on these planning controls can be found here:

<https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy>.

As a high-level summary, the koala habitat planning controls make:

- development that involves interfering with koala habitat (defined below) in an area that is both a koala priority area and a koala habitat area, prohibited development (i.e. development for which a development application cannot be made);
- development that involves interfering with koala habitat (defined below) in an area that is a koala habitat area but is not a koala priority area, assessable development (i.e. development for which development approval is required); and
- development that is for extractive industries where the development involves interfering with koala habitat (defined below) in an area that is both a koala habitat area and a key resource area, assessable development (i.e. development for which development approval is required).

Interfering with koala habitat means:

- 1) Removing, cutting down, ringbarking, pushing over, poisoning or destroying in anyway, including by burning, flooding or draining native vegetation in a koala habitat area; but
- 2) Does not include destroying standing vegetation by stock or lopping a tree.

However, these planning controls do not apply if the development is exempted development as defined in Schedule 24 of the [Planning Regulation 2017](#). More information on exempted development can be found here:

<https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy>.

There are also assessment benchmarks that apply to development applications for:

- building works, operational works, material change of use or reconfiguration of a lot where:
 - the local government planning scheme makes the development assessable;
 - the premises includes an area that is both a koala priority area and a koala habitat area; and
 - the development does not involve interfering with koala habitat (defined above); and
- development in identified koala broad-hectare areas.

The [Guideline - Assessment Benchmarks in relation to Koala Habitat in South East Queensland assessment benchmarks](#) outlines these assessment benchmarks, the intent of these assessment benchmarks and advice on how proposed development may meet these assessment benchmarks.

6.3 Koala Conservation Plan clearing requirements

Section 10 and 11 of the [Nature Conservation \(Koala\) Conservation Plan 2017](#) prescribes requirements that must be met when clearing koala habitat in koala district A and koala district B.

These clearing requirements are independent to the koala habitat planning controls introduced into the Planning Regulation 2017, which means they must be complied with irrespective of any approvals or exemptions offered under other legislation.

Unlike the clearing controls prescribed in the Planning Regulation 2017 that are to protect koala habitat, the clearing requirements prescribed in the Nature Conservation (Koala) Conservation Plan 2017 are in place to prevent the injury or death of koalas when koala habitat is being cleared.

6.4 Contact information for DES

For further information on the koala protection framework:

Phone 13 QGOV (13 74 68)

Email koala.assessment@des.qld.gov.au

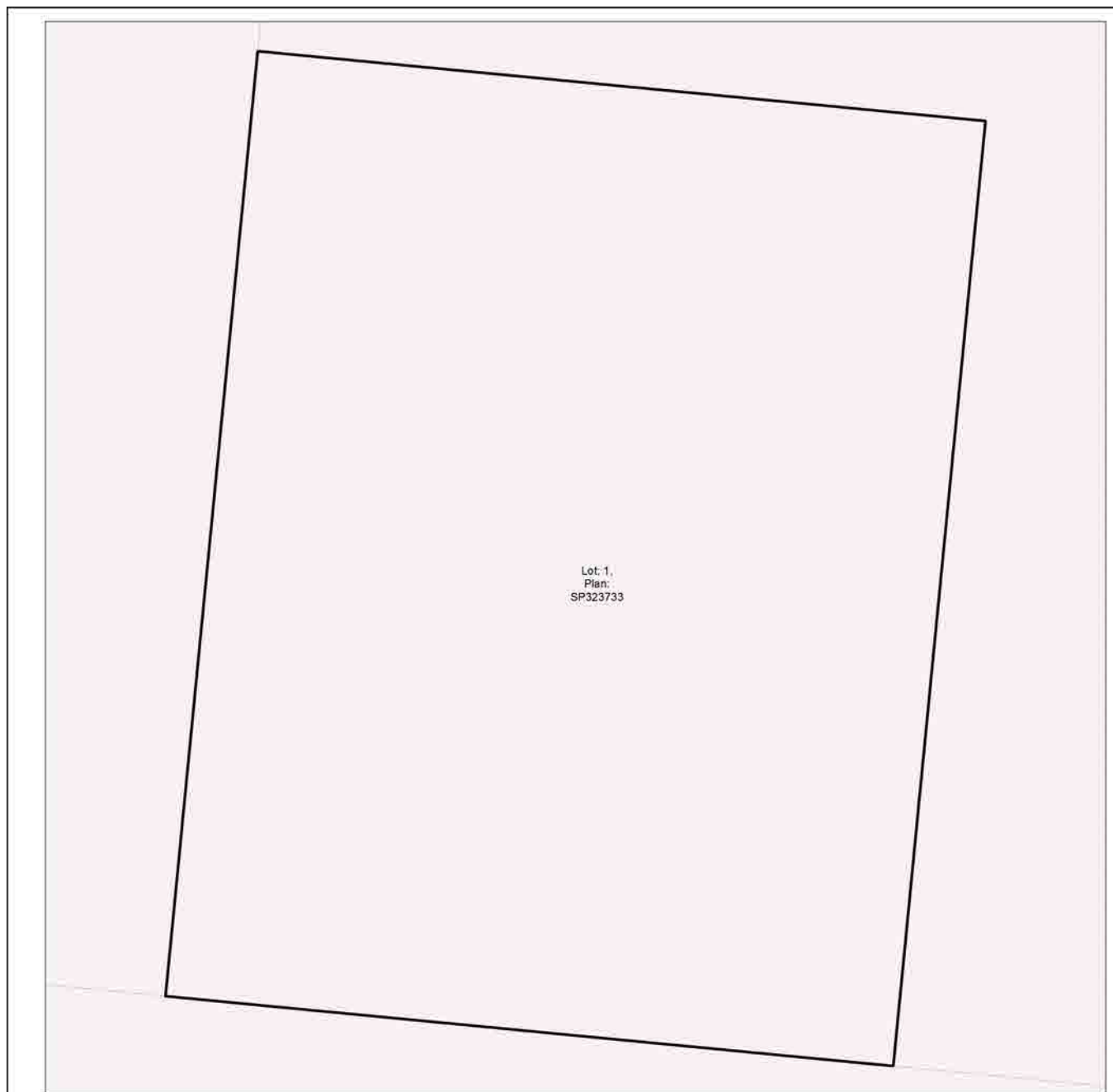
Visit <https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping>

7. Koala protection framework details for Lot: 1 Plan: SP323733

7.1 Koala districts













Koala District C

7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map



Koala priority area, koala habitat area and identified koala broad-hectare area map

Legend

-  Selected Lot and Plan
-  Koala habitat area (core)
-  Koala habitat area (locally refined)
-  Koala priority area
-  Identified koala broad-hectare area
-  Cadastral Boundaries
-  Towns
-  Highway
-  Connector
-  Street/Local Road
-  Major rivers/creeks
-  Queensland

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.



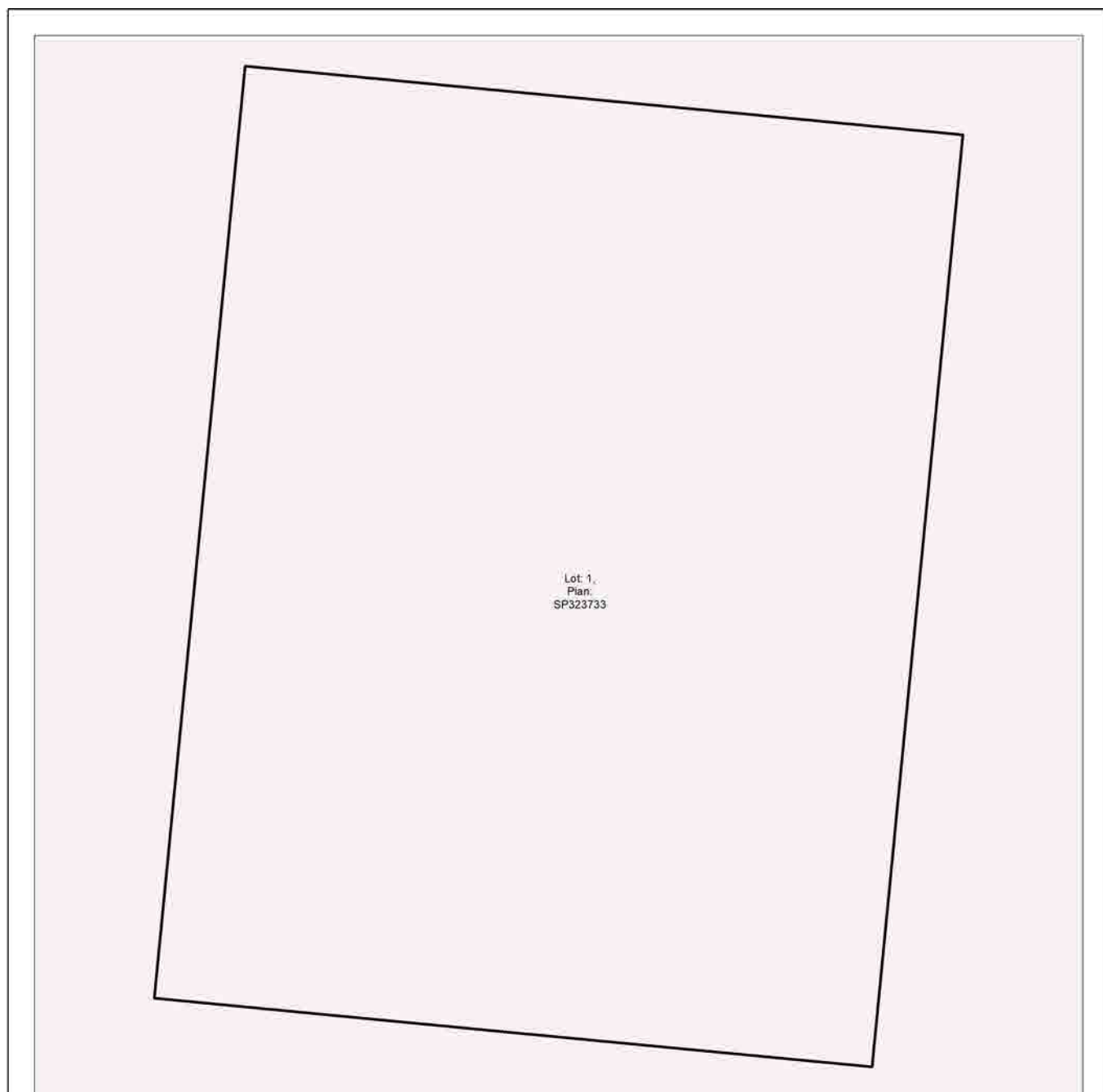
Disclaimer:

While every care is taken to ensure the accuracy of this product, the Department of Environment and Science acting on behalf of the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at:
<https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/>
 The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

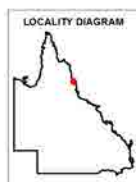
7.3 Koala habitat regional ecosystems for core koala habitat areas



Koala habitat regional ecosystems for core koala habitat areas

Legend

-  Selected Lot and Plan
-  Koala habitat area (core)
-  Towns
-  Highway
-  Connector
-  Street/Local Road
-  Major rivers/creeks
-  Queensland



N



DISCLAIMER:

While every care is taken to ensure the accuracy of this product, the Department of Environment and Science acting on behalf of the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

© The State of Queensland, 2022

This product is projected into GDA 1994 MGA Zone 55

8. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
<ul style="list-style-type: none"> • Interference with overland flow • Earthworks, significant disturbance 	<i>Water Act 2000</i> <i>Soil Conservation Act 1986</i>	Department of Regional Development, Manufacturing and Water (Queensland Government) Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au www.resources.qld.gov.au
<ul style="list-style-type: none"> • Indigenous Cultural Heritage 	<i>Aboriginal Cultural Heritage Act 2003</i> <i>Torres Strait Islander Cultural Heritage Act 2003</i>	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
<ul style="list-style-type: none"> • Mining and environmentally relevant activities • Infrastructure development (coastal) • Heritage issues 	<i>Environmental Protection Act 1994</i> <i>Coastal Protection and Management Act 1995</i> <i>Queensland Heritage Act 1992</i>	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
<ul style="list-style-type: none"> • Protected plants and protected areas 	<i>Nature Conservation Act 1992</i>	Department of Environment and Science (Queensland Government)	Ph: 1300 130 372 (option 4) palm@des.qld.gov.au www.des.qld.gov.au
<ul style="list-style-type: none"> • Koala mapping and regulations 	<i>Nature Conservation Act 1992</i>	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.qld.gov.au
<ul style="list-style-type: none"> • Interference with fish passage in a watercourse, mangroves • Forestry activities on State land tenures 	<i>Fisheries Act 1994</i> <i>Forestry Act 1959</i>	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
<ul style="list-style-type: none"> • Matters of National Environmental Significance including listed threatened species and ecological communities 	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Department of Agriculture, Water and the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
<ul style="list-style-type: none"> • Development and planning processes 	<i>Planning Act 2016</i> <i>State Development and Public Works Organisation Act 1971</i>	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
<ul style="list-style-type: none"> • Local government requirements 	<i>Local Government Act 2009</i> <i>Planning Act 2016</i>	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office
<ul style="list-style-type: none"> • Harvesting timber in the Wet Tropics of Qld World Heritage area 	<i>Wet Tropics World Heritage Protection and Management Act 1993</i>	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au



Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest
Lot: 1 Plan: SP323733

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



Table of Contents

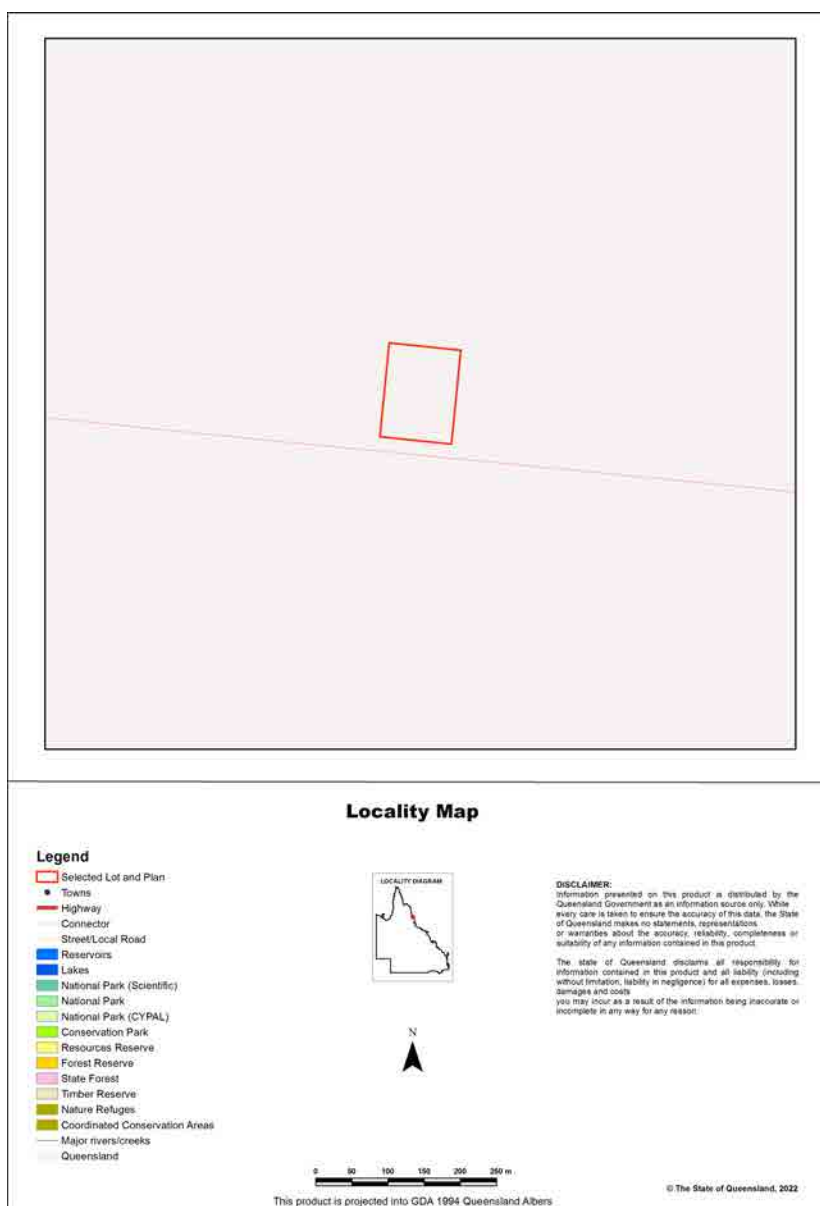
Assessment Area Details	4
Matters of State Environmental Significance (MSES)	5
MSES Categories	5
MSES Values Present	6
Additional Information with Respect to MSES Values Present	7
MSES - State Conservation Areas	7
MSES - Wetlands and Waterways	7
MSES - Species	7
MSES - Regulated Vegetation	9
Map 1 - MSES - State Conservation Areas	10
Map 2 - MSES - Wetlands and Waterways	11
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals	12
Map 3b - MSES - Species - Koala habitat area (SEQ)	13
Map 4 - MSES - Regulated Vegetation	14
Map 5 - MSES - Offset Areas	15
Appendices	16
Appendix 1 - Matters of State Environmental Significance (MSES) methodology	16
Appendix 2 - Source Data	17
Appendix 3 - Acronyms and Abbreviations	18

Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI Lot: 1 Plan: SP323733

Size (ha)	1.3
Local Government(s)	Cairns Regional
Bioregion(s)	Wet Tropics
Subregion(s)	Innisfail
Catchment(s)	Mulgrave-Russell



Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992* ;
- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004* ;
- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;
- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;
- Regulated vegetation under the *Vegetation Management Act 1999* that is:
 - Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;
 - Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;
 - Category R areas on the regulated vegetation management map;
 - Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;
 - Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;
- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;
- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;
- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;
- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0.0 ha	0.0 %
1b Protected Areas- nature refuges	0.0 ha	0.0 %
1c Protected Areas- special wildlife reserves	0.0 ha	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	0.0 ha	0.0 %
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %
6b High Ecological Value (HEV) waterways **	0.0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	0.0 ha	0.0 %
7b Special least concern animals	0.0 ha	0.0 %
7c i Koala habitat area - core (SEQ)	0.0 ha	0.0 %
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	0.0 ha	0.0 %
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	0.0 ha	0.0 %
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.0 ha	0.0 %
8d Regulated Vegetation - Essential habitat	0.0 ha	0.0 %
8e Regulated Vegetation - intersecting a watercourse **	0.0 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	0.0 ha	0.0 %
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(no results)

1b. Protected Areas - nature refuges

(no results)

1c. Protected Areas - special wildlife reserves

(no results)

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

(no results)

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Not applicable

7b. Special least concern animals

Not applicable

7c i. Koala habitat area - core (SEQ)

Not applicable

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
<i>Boronia keysii</i>		V	None
<i>Calyptorhynchus lathamii</i>	Glossy black cockatoo	V	None
<i>Casuarus casuaris johnsonii</i>	Sthn population cassowary	E	None
<i>Crinia tinnula</i>	Wallum froglet	V	None
<i>Denisonia maculata</i>	Ornamental snake	V	None
<i>Litoria freycineti</i>	Wallum rocketfrog	V	None
<i>Litoria olongburensis</i>	Wallum sedgefrog	V	None
<i>Melaleuca irbyana</i>		E	None
<i>Petaurus gracilis</i>	Mahogany Glider	E	None
<i>Petrogale persephone</i>	Proserpine rock-wallaby	E	None
<i>Phascolarctos cinereus</i>	Koala - outside SEQ*	V	None
<i>Pezoporus wallicus wallicus</i>	Eastern ground parrot	V	None
<i>Taudactylus pleione</i>	Kroombit tinkerfrog	E	None
<i>Xeromys myoides</i>	Water Mouse	V	None

*For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.

Threatened (endangered or vulnerable) wildlife species records

(no results)

Special least concern animal species records

(no results)

*Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:

<https://www.qld.gov.au/environment/plants-animals/species-list/>

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals** and **Map 3b - MSES - Species - Koala habitat area (SEQ)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/>

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:

<https://environment.ehp.qld.gov.au/regional-ecosystems/>

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Not applicable

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Not applicable

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Not applicable

8d. Regulated Vegetation - Essential habitat

Not applicable

8e. Regulated Vegetation - intersecting a watercourse**

(no results)

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Not applicable

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

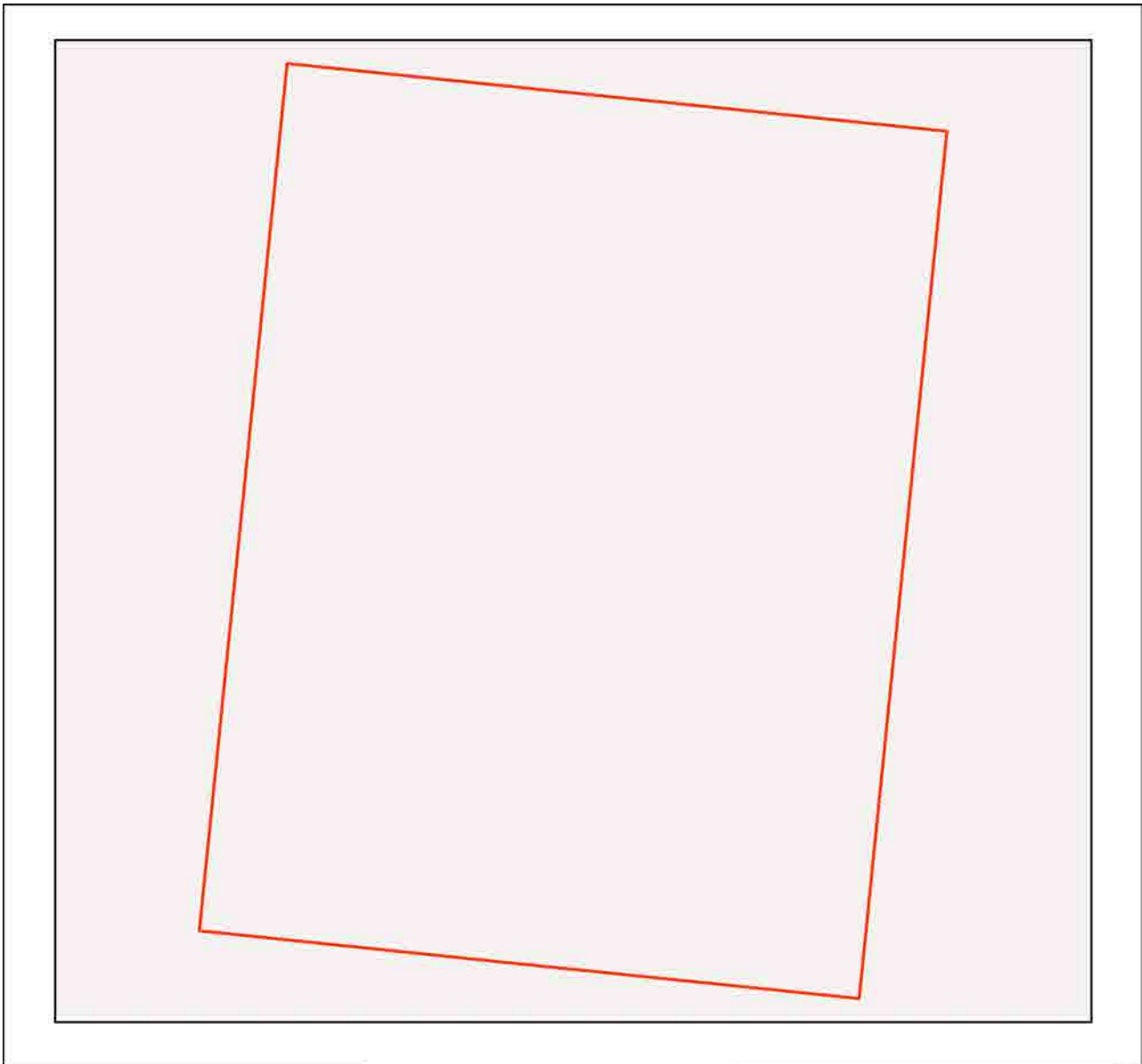
(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

(no results)


Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

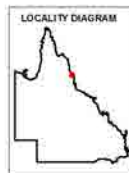
Map 1 - MSES - State Conservation Areas



MSES - State Conservation Areas

Area of Interest

-  Selected Lot and Plan
-  Towns
-  Freeways/Highways
-  Secondary roads
-  Major rivers/creeks
-  Protected area (estates, nature refuges, special wildlife reserves)
-  Declared fish habitat area (A and B areas)
-  Marine park (highly protected)



Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

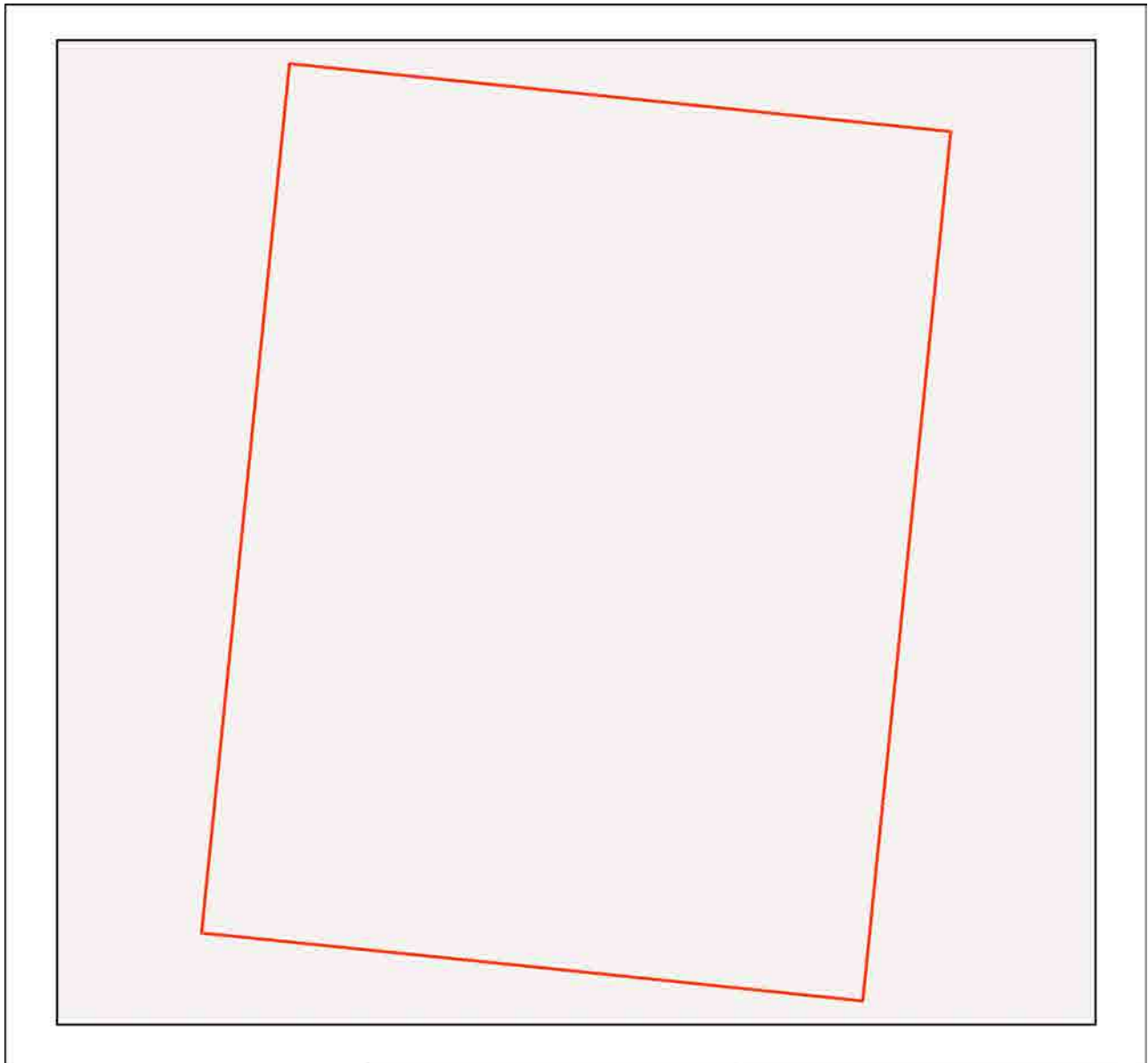
The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.



© The State of Queensland, 2022

This product is projected into GDA 1994 Queensland Albers

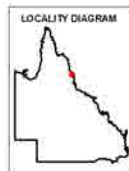
Map 2 - MSES - Wetlands and Waterways



MSES - Wetlands and Waterways

Area of Interest

-  Selected Lot and Plan
-  Towns
-  Freeways/Highways
-  Secondary roads
-  Major rivers/creeks
-  Declared high ecological value waters (watercourse)
-  Strategic environmental area (designated precinct)
-  Declared high ecological value waters (wetland)
-  High ecological significance wetlands



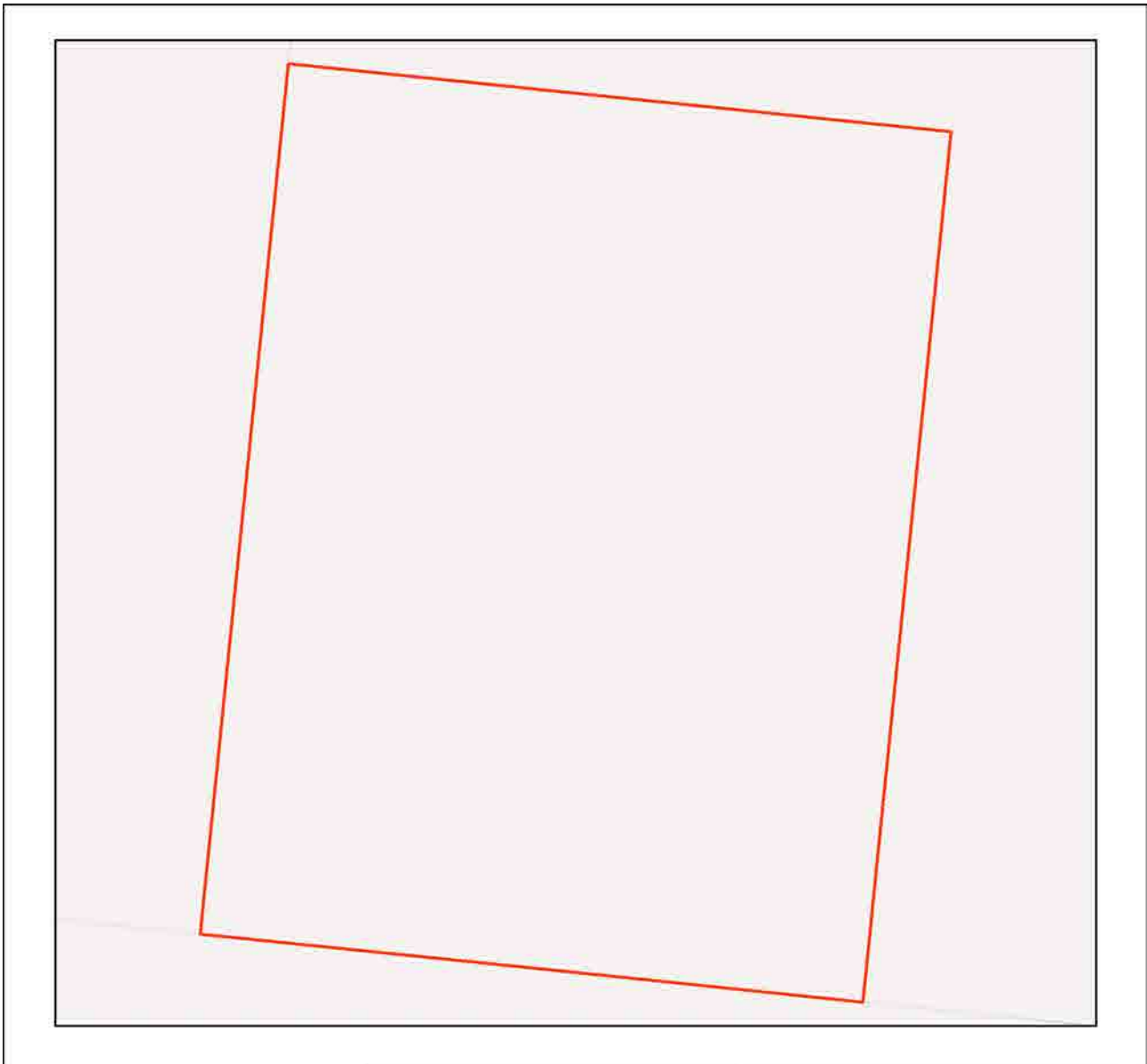
Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the state of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

© The State of Queensland, 2022



This product is projected into GDA 1994 Queensland Albers

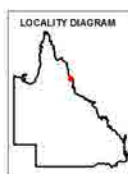
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals



MSES - Species Threatened (endangered or vulnerable) wildlife and special least concern animals

Area of Interest

-  Selected Lot and Plan
-  Towns
-  Freeways/Highways
-  Secondary roads
-  Major rivers/creeks
-  Wildlife habitat (special least concern)
-  Wildlife habitat (endangered or vulnerable)



Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the state of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

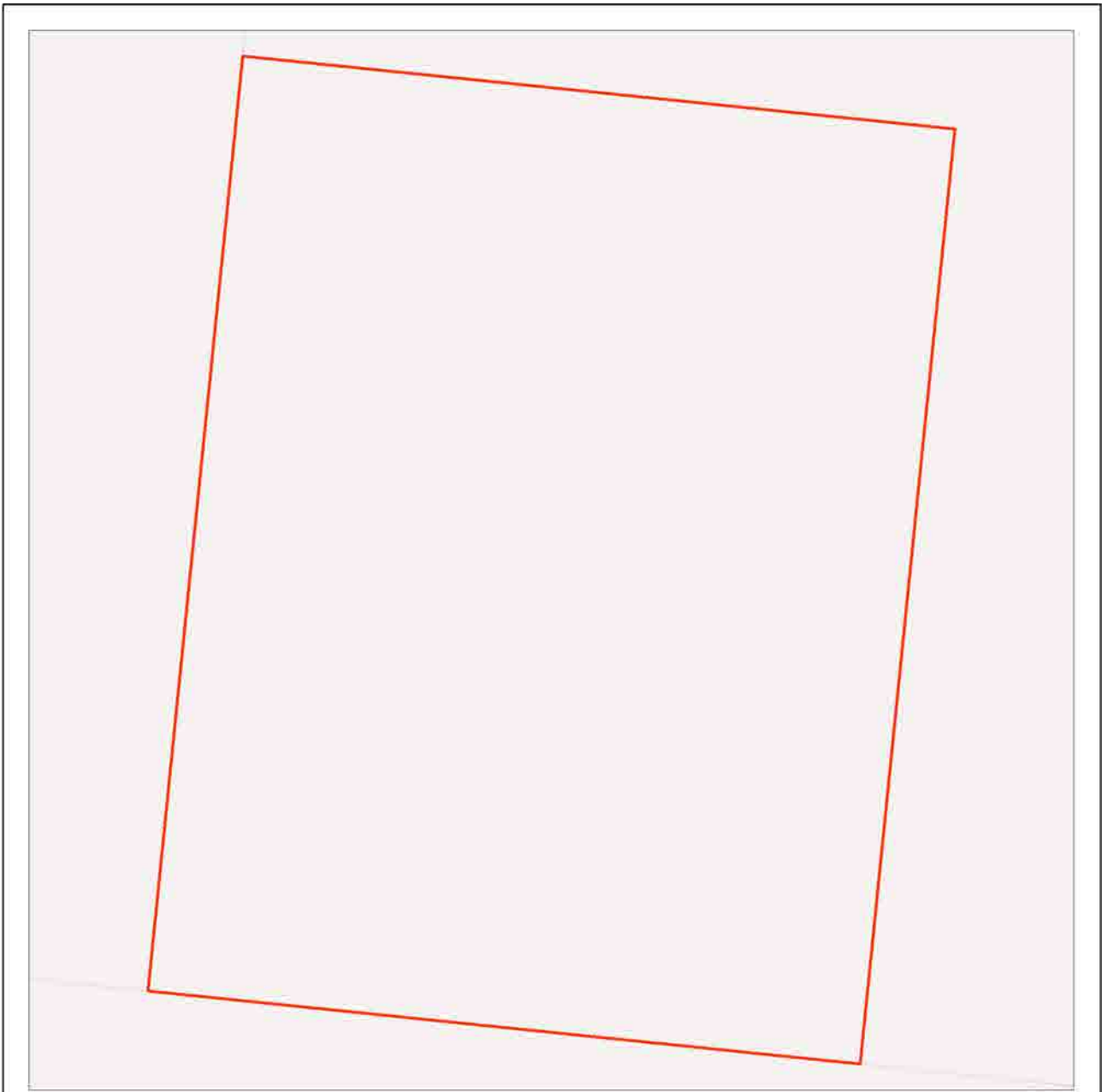
The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.



This product is projected into GDA 1994 Queensland Albers

© The State of Queensland, 2022

Map 3b - MSES - Species - Koala habitat area (SEQ)



MSES - Species Koala habitat area (SEQ)

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Koala habitat area (core)
- Koala habitat area (locally refined)



While every care is taken to ensure the accuracy of this product, the Department of Environment and Science acting on behalf of the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

The represented layers for SEQ 'koala habitat area-core' and 'koala habitat area-locally refined' in MSES are sourced directly from the regulatory mapping under the Nature Conservation (Koala) Conservation Plan 2017. Whilst every effort is made to ensure the information remains current, there may be delays between updating versions. Please refer to the original mapping for the most recent version. See <https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping>

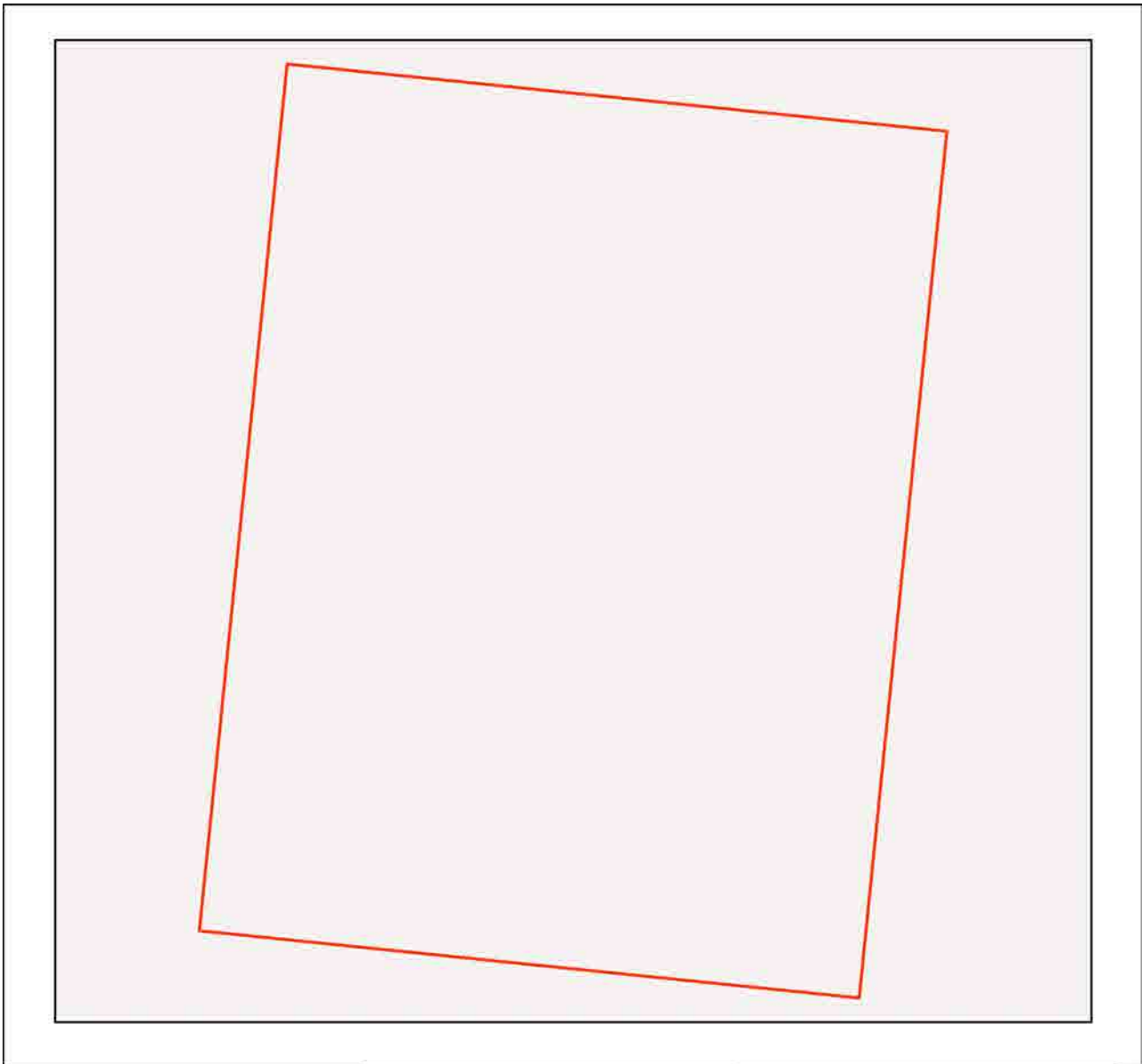
The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.



© The State of Queensland, 2022

This product is projected into GDA 1994 Queensland Albers

Map 4 - MSES - Regulated Vegetation



MSES - Regulated Vegetation

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Regulated vegetation (intersecting a watercourse)
- Regulated vegetation (100m from wetland)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (category R - GBR riverine)
- Regulated vegetation (essential habitat)



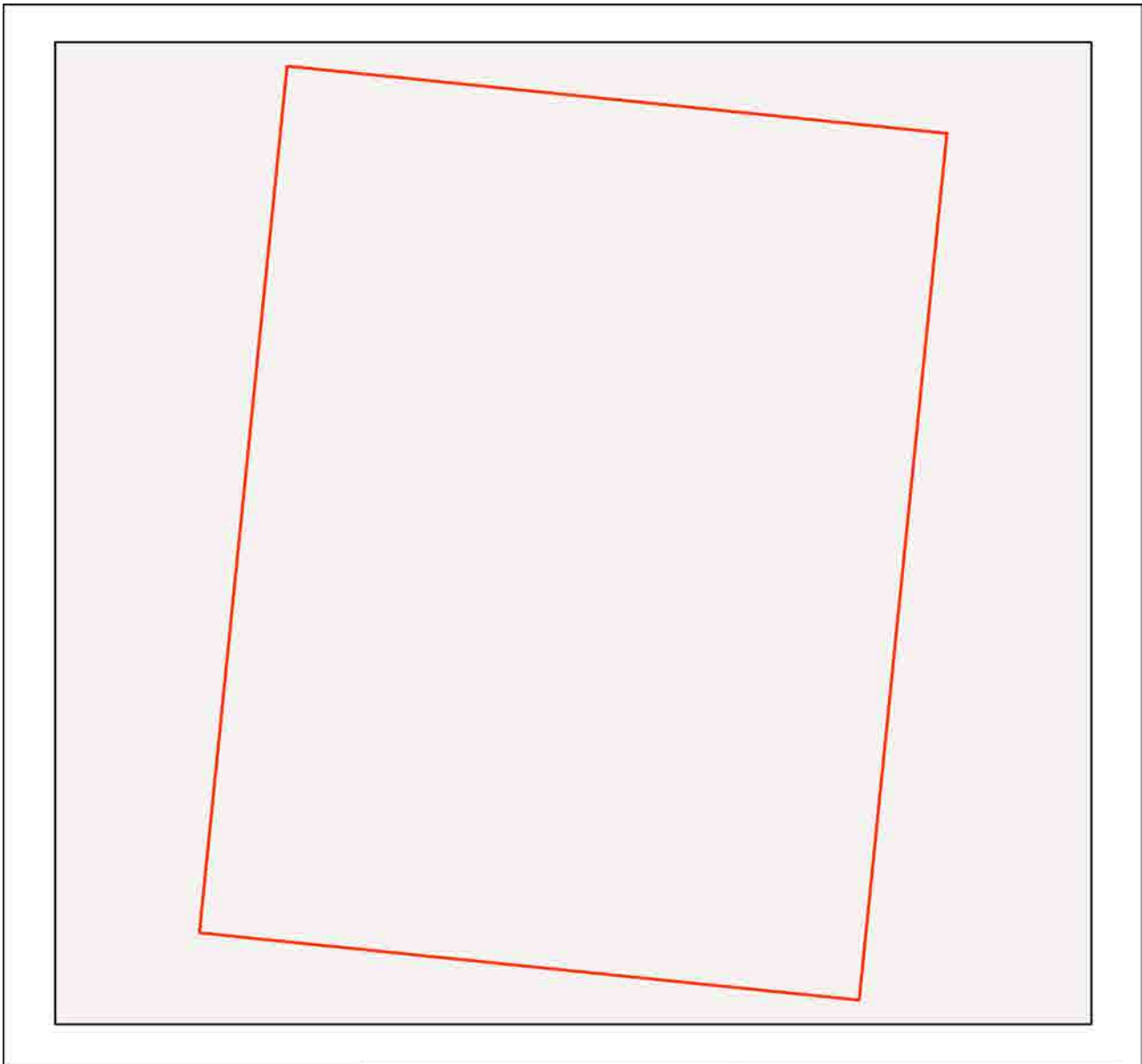
Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the state of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

© The State of Queensland, 2022


This product is projected into GDA 1994 Queensland Albers

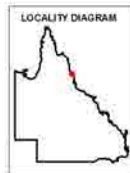
Map 5 - MSES - Offset Areas



MSES - Offsets

Area of Interest

-  Selected Lot and Plan
-  Towns
-  Freeways/Highways
-  Secondary roads
-  Major rivers/creeks
-  Legally secured offset area (offset register)
-  Legally secured offset area (vegetation offsets)



Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The state of Queensland disclaims all responsibility for information contained in this product and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

© The State of Queensland, 2022

This product is projected into GDA 1994 Queensland Albers

Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

<http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html> .

Appendix 2 - Source Data

The datasets listed below are available on request from:

<http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

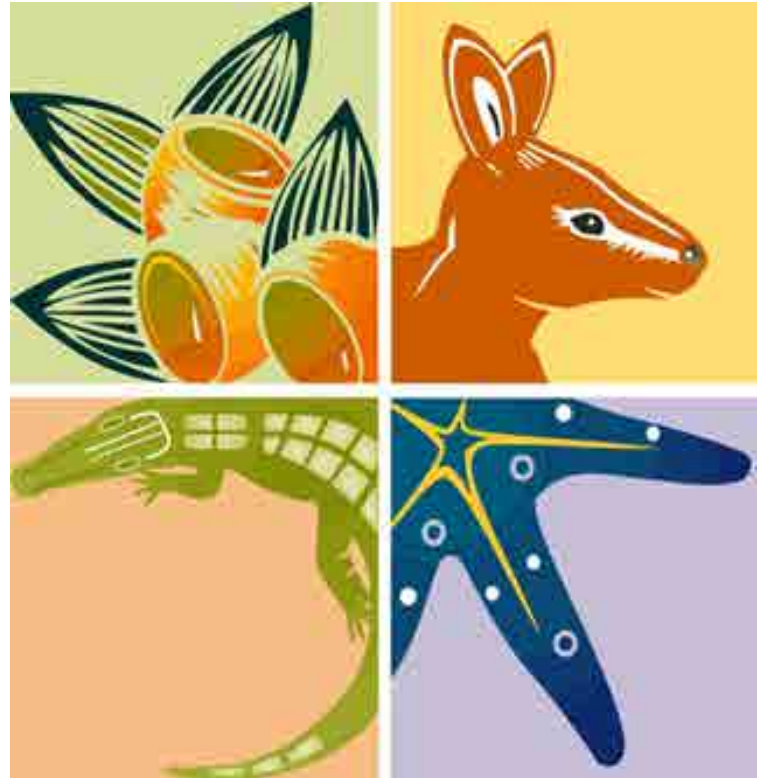
MSES layers	current QSpatial data (http://qspatial.information.qld.gov.au)
Protected Areas-Estates, Nature Refuges, Special Wildlife Reserves	- Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: - EPP Water intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 5) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	-WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- <i>Environmental Protection Act 1994</i>
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- <i>Nature Conservation Act 1992</i>
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- <i>Vegetation Management Act 1999</i>

WildNet Records

Conservation Significant Species List

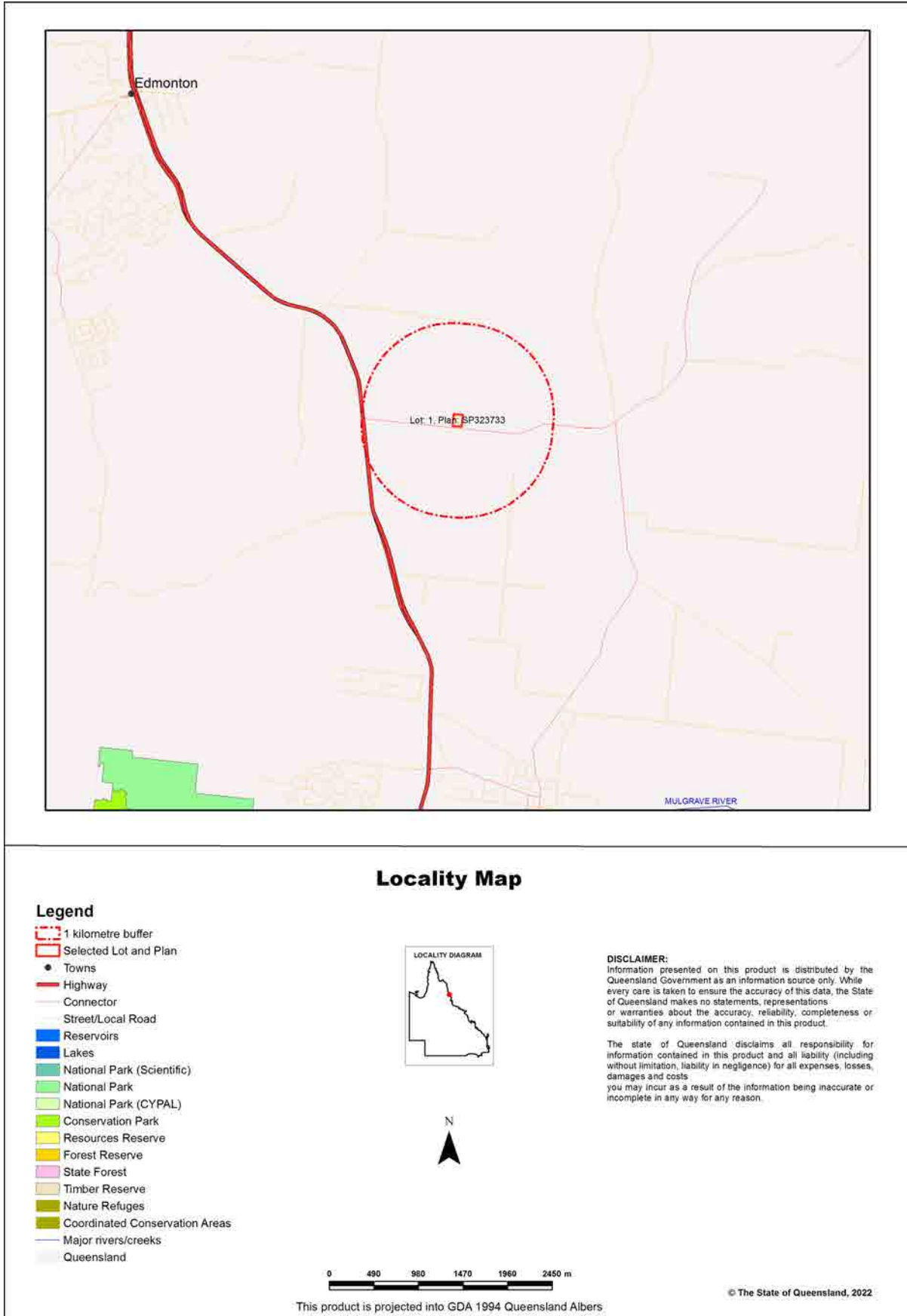


For the selected area of interest 1.3ha Lot: 1 Plan: SP323733

Current as at 24/05/2022

WildNetCSSpeciesList

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Lot: 1 Plan: SP323733.

Table 1. Area of interest details

Size (ha)	1.3
Local Government(s)	Cairns Regional
Bioregion(s)	Wet Tropics
Subregion(s)	Innisfail
Catchment(s)	Mulgrave-Russell

Protected Area(s)

No estates or reserves are located within the area of interest.

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

This report is derived from a spatial layer generated from the [WildNet database](#) managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

Conservation significant species are species listed:

- as [threatened](#) or near threatened under the Nature Conservation Act 1992;
- as threatened under the [Environment Protection and Biodiversity Conservation Act 1999](#) or
- [migratory species](#) protected under the following international agreements:
 - o Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
 - o China-Australia Migratory Bird Agreement
 - o Japan-Australia Migratory Bird Agreement
 - o Republic of Korea-Australia Migratory Bird Agreement

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1939	Animalia	Aves	Charadriidae	<i>Charadrius veredus</i>	oriental plover	SL	None	0	3	31/12/1996
1944	Animalia	Aves	Charadriidae	<i>Pluvialis fulva</i>	Pacific golden plover	SL	None	0	2	31/12/1996
1935	Animalia	Aves	Glareolidae	<i>Glareola maldivarum</i>	oriental pratincole	SL	None	0	5	31/12/1996
1571	Animalia	Aves	Hirundinidae	<i>Cecropis daurica</i>	red-rumped swallow	SL	None	0	1	11/01/1988

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1458	Animalia	Aves	Motacillidae	<i>Motacilla flava sensu lato</i>	yellow wagtail	SL	None	0	14	31/12/1996
1874	Animalia	Aves	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper	SL	None	0	1	11/01/1988
1844	Animalia	Aves	Scolopacidae	<i>Numenius minutus</i>	little curlew	SL	None	0	6	31/12/1996

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the [WildNet database](#) include:

- [Species profile search](#) - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- [Species lists](#) - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- [Biomaps](#) - view biodiversity information, including WildNet records approved for publication, and generate reports
- [Queensland Globe](#) - view spatial information, including WildNet records approved for publication
- [Qld wildlife data API](#) - access WildNet species information approved for publication such as notes, images and records etc.
- [WetlandMaps](#) - view species records, survey locations etc. approved for publication
- [WetlandSummary](#) - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- [WildNet wildlife records - published - Queensland](#) - spatial layer of WildNet records approved for publication generated weekly
- [Generalised distribution and densities of Queensland wildlife](#) - Queensland species distributions and densities generalised to a 10 km grid resolution
- [Conservation status of Queensland wildlife](#) - access current lists of priority species for Queensland including nomenclature and status information
- [Queensland Confidential Species](#) - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the [WildNet Team](#).

Other useful sites for accessing Queensland biodiversity data include:

- [Useful wildlife resources](#)
- [Queensland Government Data](#)
- [Atlas of Living Australia \(ALA\)](#)
- [Online Zoological Collections of Australian Museums \(OZCAM\)](#)
- [Australia's Virtual Herbarium \(AVH\)](#)
- [Protected Matters Search Tool](#)

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government, to the maximum extent permitted by law, makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

⊕ SARA DA Mapping

⊕ Non-SARA DA Mapping

⊖ SPP Assessment Benchmark Mapping

▶ LIVEABLE COMMUNITIES

▶ MINING AND EXTRACTIVE RESOURCES

▶ WATER QUALITY

▼ NATURAL HAZARDS RISK AND RESILIENCE



All



Flood hazard area - level 1 - Queensland floodplain assessment overlay



Flood hazard area - local government flood mapping area



Bushfire hazard area - bushfire prone area



Very High Potential Bushfire Intensity



High Potential Bushfire Intensity



Medium Potential Bushfire Intensity



Potential Impact Buffer



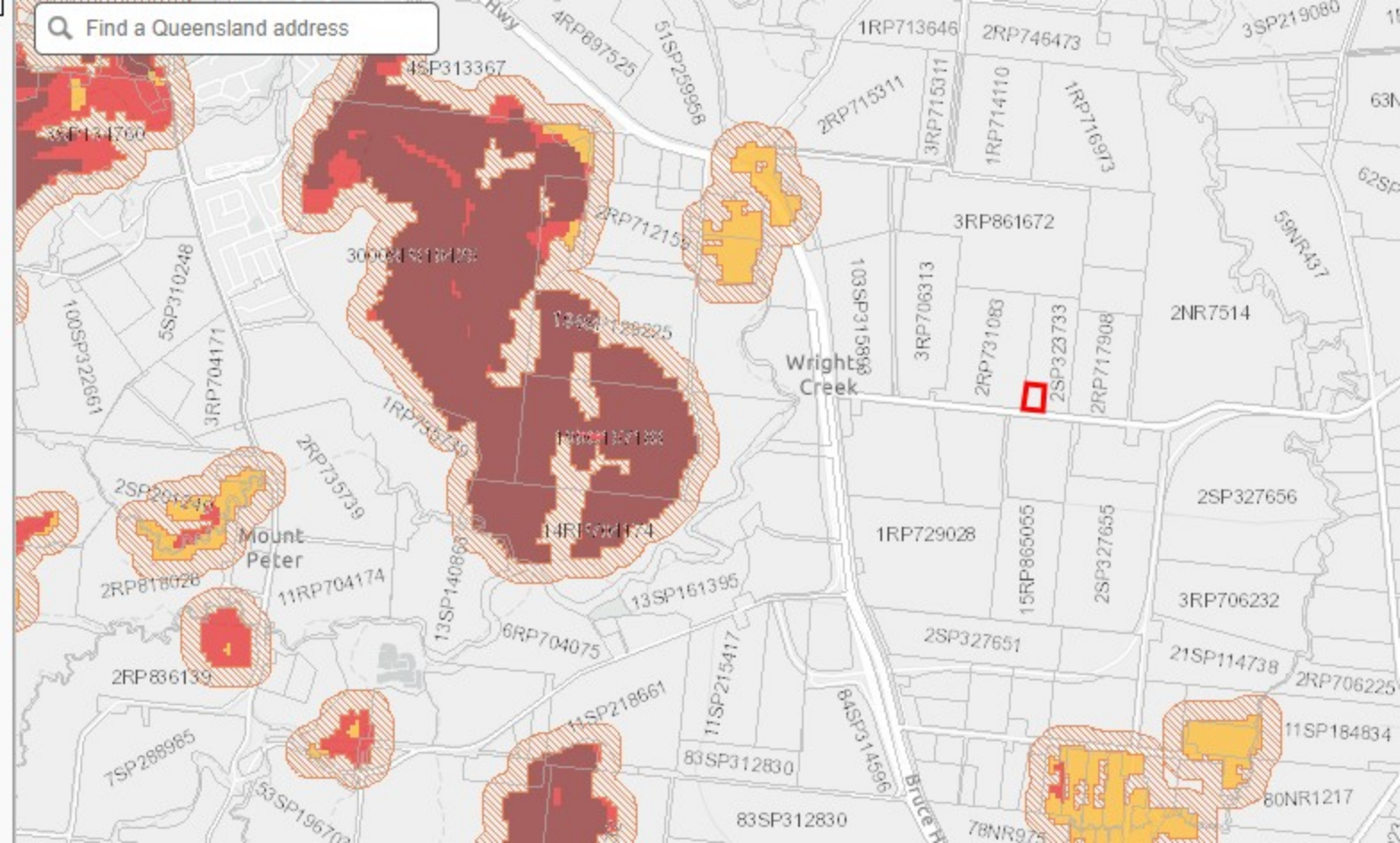
Erosion prone area

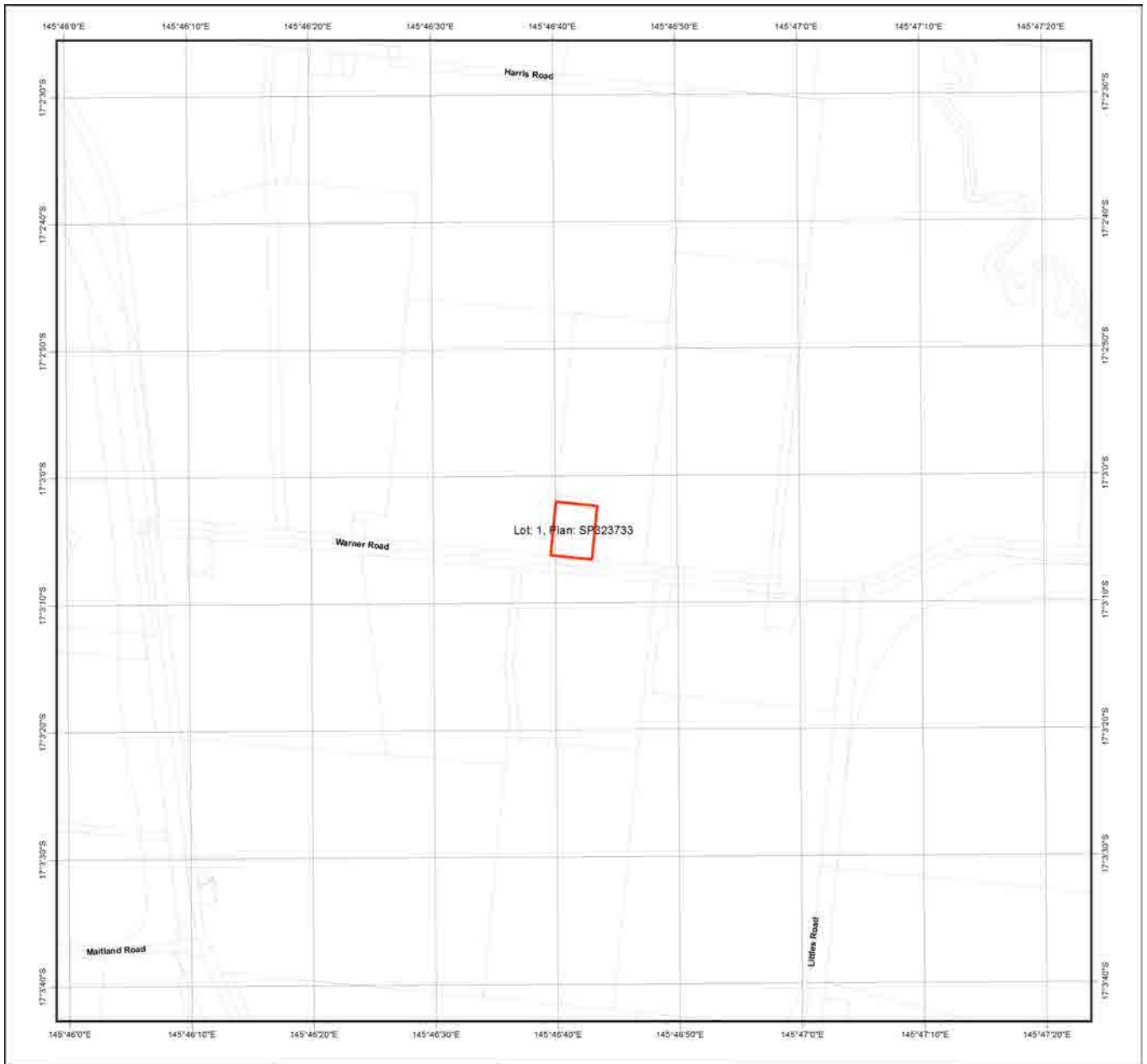


Medium storm tide inundation area








High storm tide inundation area

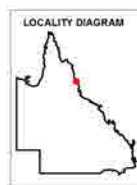




Coastal Hazard Areas Map Erosion Prone Area

Legend

-  Selected Lot and Plan
-  Erosion due to storm impact and long term trends including sediment supply deficit and channel migration
-  Erosion from permanent tidal inundation due to sea level rise
-  Coastal Management District
-  Coastal Building Lines



Notes

1. The areas shown on this map are indicative of the extent of erosion and permanent inundation defined by erosion prone area plans declared under the Coastal Protection and Management Act 1995. Only the declared erosion prone area plans should be used for development assessment. To determine the actual position of the erosion prone area a registered surveyor or geotechnical consultant may be required if there is any doubt.
2. Erosion prone area plans for each local government area and a comprehensive description of their determination are available from the Department of Environment and Science website.

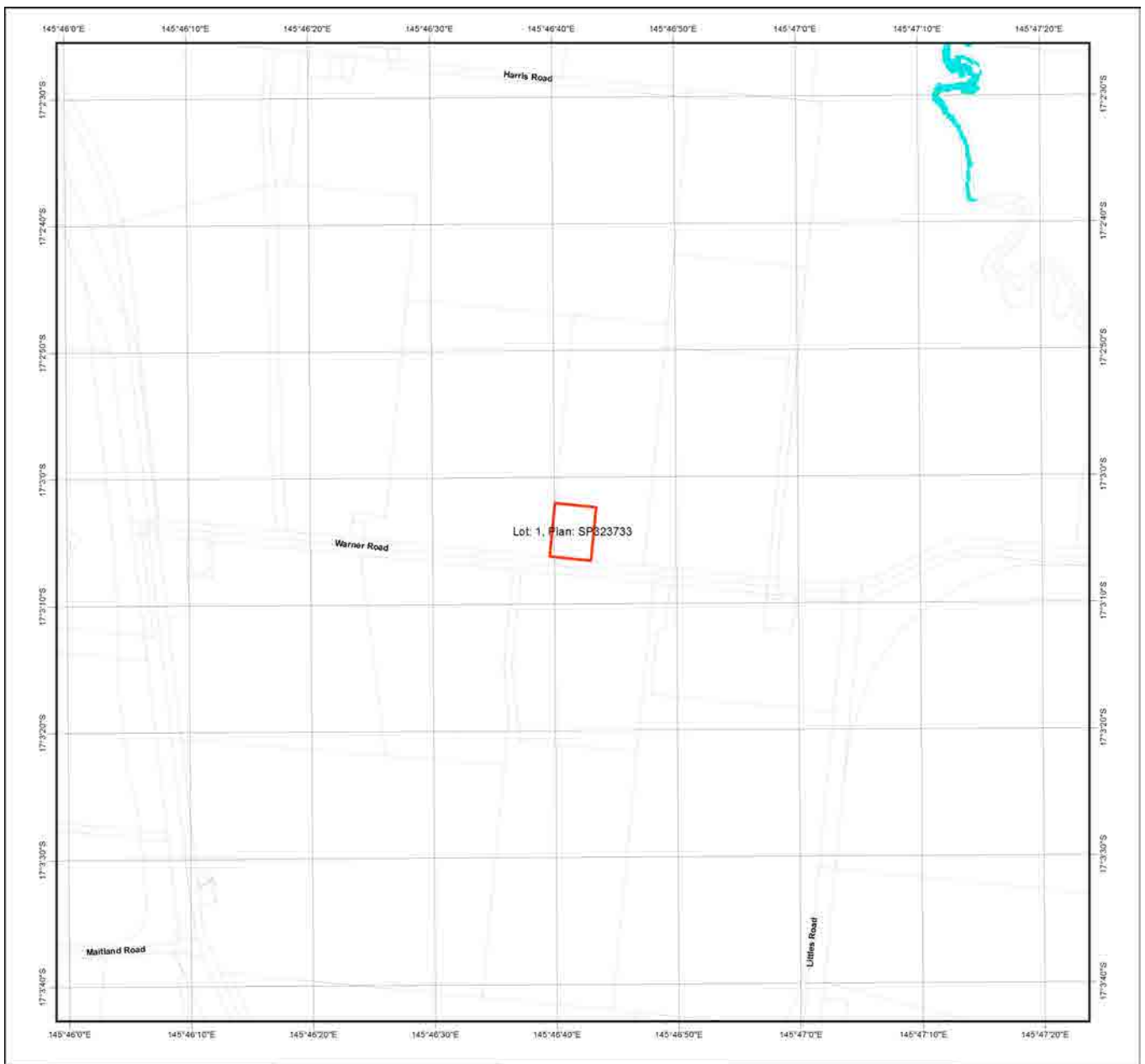
Version 7 - October 2016

Disclaimer

Whilst every care is taken to ensure the accuracy of this product, the Department of Environment and Science makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.

© The State of Queensland, 2022

This product is projected into GDA 1994 MGA Zone 55

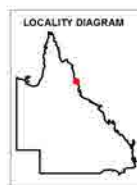


Coastal Hazard Areas Map Storm Tide Inundation Area

Legend

- Selected Lot and Plan
- High hazard area (greater than 1.0m water depth)
- Medium hazard area (less than 1.0m water depth)
- Coastal Management District
- Coastal hazard data not available in this area
- Coastal Building Lines

* Regional default values for a 100yr ARI inundation level including 0.8m sea level rise.



Notes

1. A default storm tide inundation level of 1.5 m HAT in South East Queensland regional planning area and 2 m HAT for the remainder of Queensland is used where projected storm tide inundation levels have not been determined locally.
2. The high hazard area may coincide with the area of permanent inundation - refer to the Erosion Prone Area map.
3. The map should be used as a guide only. Field surveys are recommended to verify feature boundaries.

Version 4 - July 2015

Disclaimer

Whilst every care is taken to ensure the accuracy of this product, the Department of Environment and Science makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.



This product is projected into GDA 1994 MGA Zone 55

© The State of Queensland, 2022

House Numbers

House Numbers

Road Labels

Road Names All

Road Names Intermediate

Road Names Major

Property Boundaries

Property Boundaries

Building Setbacks

Plans

Envelopes

Stormwater Drainage

Drainage Symbols Legend

Field Inlet

Kerb Inlet

Manhole

Pump Station

Endwall

Drainage Inlets / Manholes / Outlets

Drainage Pipes / Culverts / Channels

Abandoned

Culvert

Open Drain

Pipe

Waterway

Water Assets

Water Nodes

Water Mains

Potable 300mm and above

Potable 100mm - 299mm

Potable < 100mm

Private 100mm and above

Private < 100mm

Awaiting Approval 100mm and above

Awaiting Approval < 100mm

Raw 300mm and above

Raw < 300mm

Overflow or Scour

Water Nodes Legend

Air Release Valve

Altitude Valve

Auto Flush Valve

Butterfly Valve

Endcap

Flow Meter

Gate Valve

Gate Valve (Closed)

Hydrant Assembly (Private)

Hydrant Single

Hydraulic Control Valve

Intake

Junction

Meter

Penstock Valve

Pressure Reducing Valve

Pump

Reducer

Refluc Valve

Reservoir

Scour Outlet

Scour Valve

Stop Valve

Tower

Valve

WTP

WTP

Water Main (Abandoned)

Abandoned 300mm and above

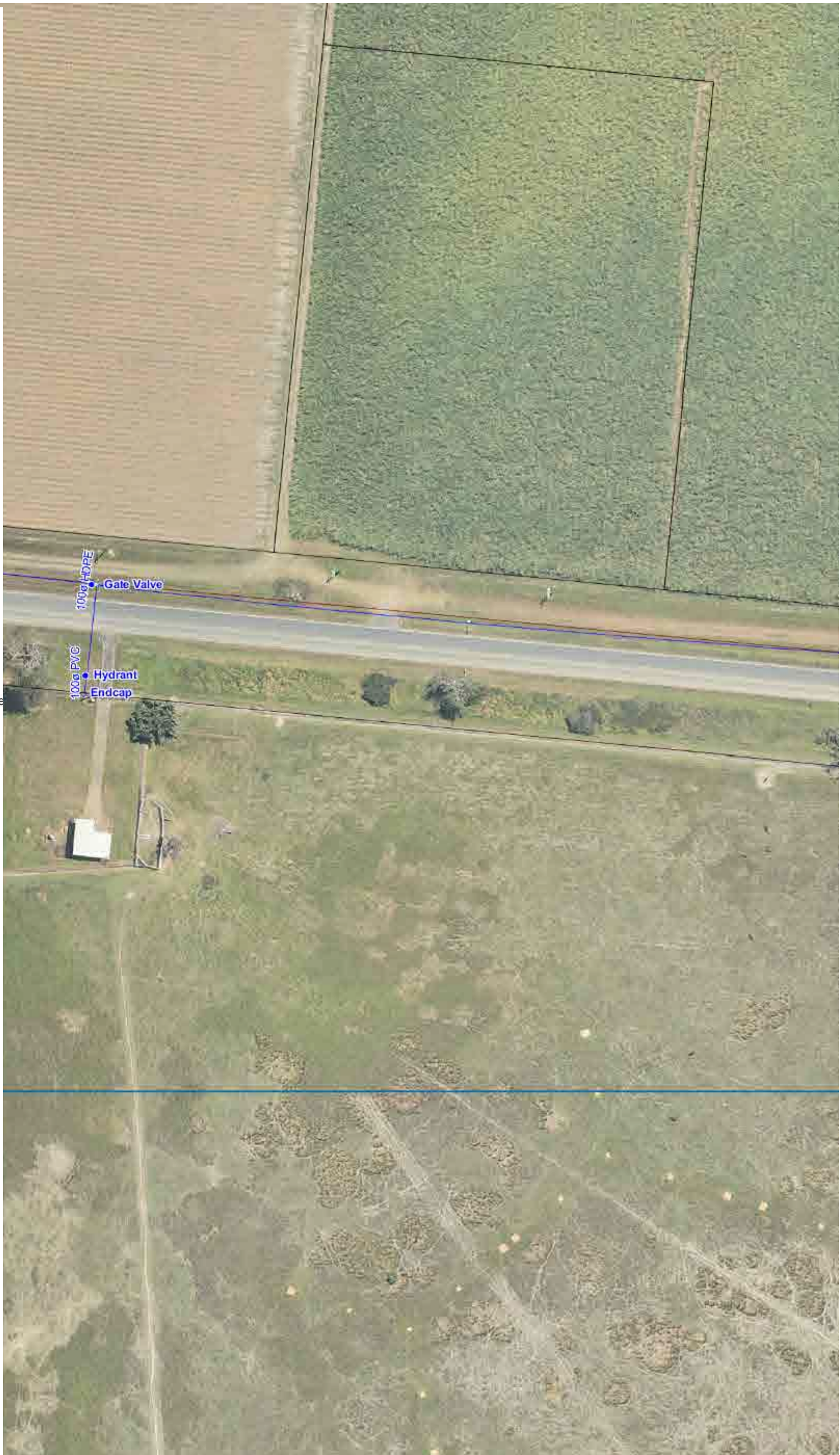
Abandoned 100mm - 299mm

Abandoned < 100mm

Water Main (Recycled)

Recycled 300mm and above

Recycled 100mm - 299mm



Cairns Regional Council COPYRIGHT
This document is and shall remain the property of the Cairns Regional Council. Using or copying this document or any part of it without specific authorization is absolutely prohibited.

The position of all services shown are approximate only. Services are to be physically located prior to the start of any works related to or affected by the information on the plan.

CAIRNS REGIONAL COUNCIL

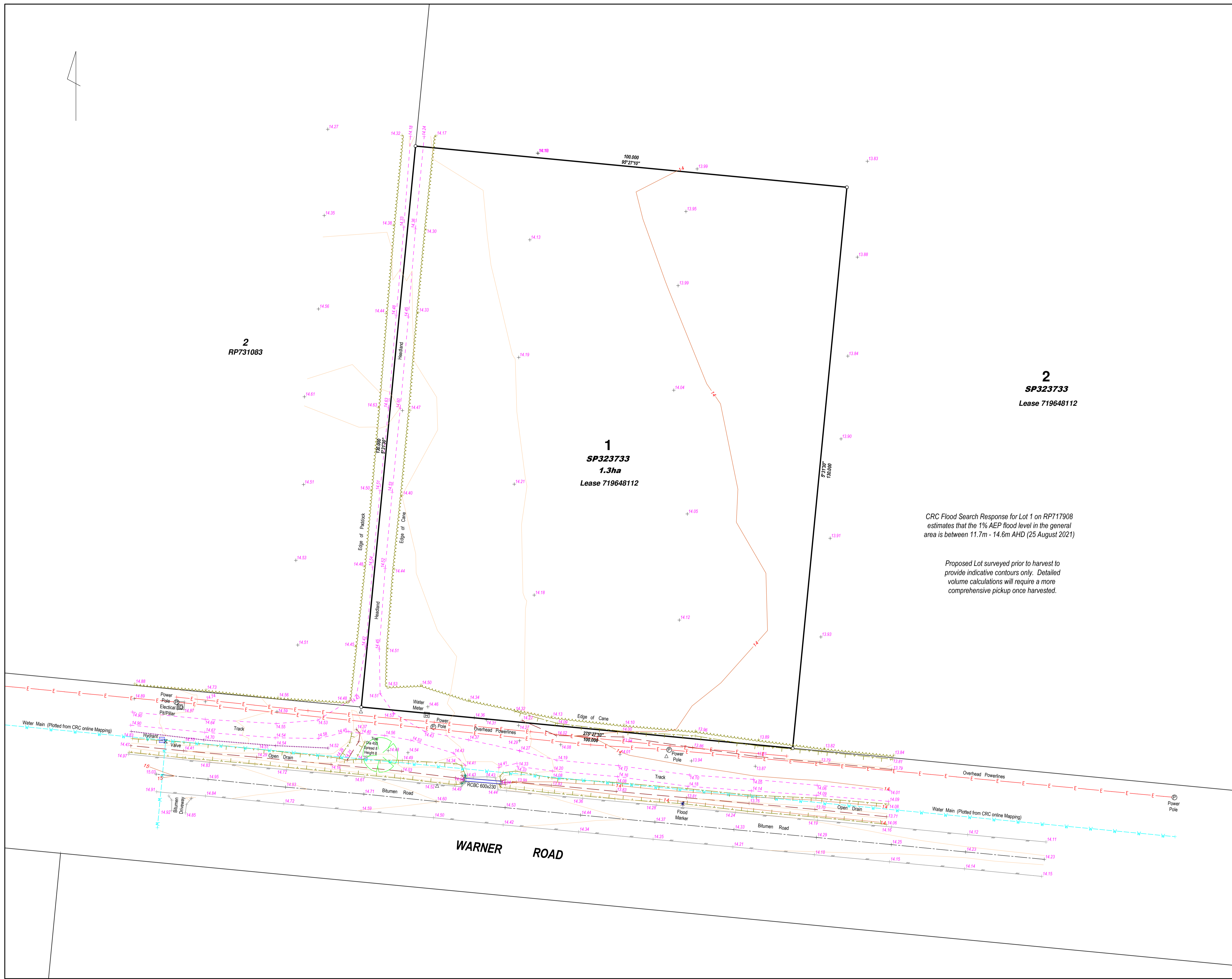
CRC Services Lot 1 SP323733



Scale = 1:1000

24-May-2022 A3P

DO NOT SCALE



2
RP731083

1
SP323733
1.3ha
Lease 719648112

2
SP323733
Lease 719648112

CRC Flood Search Response for Lot 1 on RP717908 estimates that the 1% AEP flood level in the general area is between 11.7m - 14.6m AHD (25 August 2021)

Proposed Lot surveyed prior to harvest to provide indicative contours only. Detailed volume calculations will require a more comprehensive pickup once harvested.

IMPORTANT NOTE

- This plan was prepared for the sole purposes of the client for the specific purpose of producing a detail plan. This plan is strictly limited to the purpose and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter. The plan is presented without the assumption of a duty of care to any other person (other than the Client) ("Third Party") and may not be relied on by Third Party.
- RPS Australia East Pty Ltd will not be liable (in negligence or otherwise) for any direct or indirect loss, damage, liability or claim arising out of or incidental to:
 - Third Party publishing, using or relying on the plan;
 - RPS Australia East Pty Ltd relying on information provided to it by the Client or a Third Party where the information is incorrect, incomplete, inaccurate, out-of-date or unreasonable;
 - any inaccuracies or other faults with information or data sourced from a Third Party;
 - RPS Australia East Pty Ltd relying on surface indicators that are incorrect or inaccurate;
 - the Client or any Third Party not verifying information in this plan where recommended by RPS Australia East Pty Ltd;
 - lodgement of this plan with any local authority against the recommendation of RPS Australia East Pty Ltd;
 - the accuracy, reliability, suitability or completeness of any approximations or estimates made or referred to by RPS Australia East Pty Ltd in this plan.
- Without limiting paragraph 1 or 2 above, this plan may not be copied, distributed, or reproduced by any process unless this note is clearly displayed on the plan.
- Scale shown is correct for the original plan and any copies of this plan should be verified by checking against the bar scale.
- Lot boundaries have been plotted from records. True boundary positions can only be determined by completing a Cadastral survey. SP323733 was not registered at the time of survey.
- Underground services have been plotted from CRC online Mapping and are approximate only. 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.

NOTES

Level Datum: AHD D (Vide GNSS)
 Origin of Levels: PM94673
 RL13.563
 Meridian: MGA2020 Z55 Vide SP323733
 Origin of Coordinates: GDA94
 PM94673
 E 370455.637
 N 8114259.635
 Distances are ground distances not Grid.
 Contour Interval: 0.2m
 Index: 1.0m

SCALE 1:400 IS APPLICABLE ONLY TO THE ORIGINAL SHEET SIZE (A1).

AMENDMENTS	
A:	INIT: AMEND DESCRIPTION
PROJECT MANAGER	CHECKED
D Garget	
SURVEYED	DRAFTING CHECKED
TW	
DRAWN	CAD REF
TW/DG	
SHEET SIZE	PR150263-3.mjo
A1	
SHEET 1 OF SHEETS	1

RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



Detail & Contour Survey
 Proposed Lot 1 on SP323733
 Warner Road
 GORDONVALE
 Cairns Regional Council


SCALE	DATE	DRAWING NO.	ISSUE
1:400	23/09/21	PR150263-3	

CairnsPlan 2016 Property Report for 1SP323733

The information provided in this report is made available for general reference purposes only and does not replace the need to obtain a Planning and Development Certificate or the need to seek professional legal or town planning advice.

Visit Council's website to [request a Planning and Development Certificate](#).

Property Information

Property Address	1L Warner Road, WRIGHTS CREEK	
Lot Plan	1SP323733	
Parcel Number	165474	
Total Area	13,000 m ²	
Division	Division 1 - Cr Brett Moller	
More Information	View in CairnsPlan 2016 Interactive Mapping View in Queensland Government State Planning Policy Interactive Mapping System (External Site) View in Queensland Government Development Assessment Mapping System (External Site) View Queensland Government SmartMap (External Site)	

 Selected Property Property Boundaries

Development Applications

Development Applications searchable on Council's DA Online system.

Applicable Development Applications can be viewed by visiting [Council's DA Online System](#) and searching for this property.

Please note that not all Development Applications are available to view in Council's DA Online system. For a complete list of applicable Development Applications, visit Council's website to [request a Planning and Development Certificate](#).

CairnsPlan 2016 Summary

The table below provides a summary of the Zones, Local Plans and Overlays that apply to the selected property.

Zoning Plan	Applicable Zone Cairns South State Development Area Rural	More Information Download the Rural Zone Code Download the Rural Compliance Table Download the Rural Zone Table of Assessment
Acid Sulfate Soils Overlay	Applicable Precinct or Area Land above 5m & below 20m AHD	More Information Download the Acid Sulfate Soils Overlay Code Download the Acid Sulfate Soils Overlay Compliance Table Download the Acid Sulfate Soils Overlay Map
Airport Environs Overlay - Procedures for air navigation services - aircraft operational (PANS-OPS) surfaces	Applicable Precinct or Area Procedures for Air Navigation Services - Aircraft Operational (PANS-OPS) Surfaces	More Information Download the Airport Environs Overlay Code Download the Airport Environs Overlay Compliance Table Download the Airport Environs Overlay Map
Flood and Inundation Hazard Overlay	Applicable Precinct or Area Precinct 4 - Floodplain Assessment Designated flood hazard area - Floodplain assessment trigger area	More Information Download the Flood and Inundation Hazards Overlay Code Download the Flood and Inundation Hazards Overlay Compliance Table Download the Flood and Inundation Hazards Overlay Map
Landscape Values Overlay	Applicable Precinct or Area Medium Landscape Value	More Information Download the Landscape Values Overlay Code Download the Landscape Values Overlay Compliance Table Download the Landscape Values Overlay Map
Transport Network Overlay	Applicable Road Hierarchy designation State Controlled Road Major transport corridor buffer area <i>Refer to the map in the Transport Network Overlay section of this report for more detailed information.</i>	More Information Download the Transport Network Overlay Code Download the Transport Network Overlay Compliance Table Download the Transport Network Overlay Map
Part 10 Other Plans	Applicable Precinct or Area Cairns South State Development Area	More Information Download the Part 10 Other Plans Overlay Code Download the Part 10 Other Plans Overlay Map

Zones and Zone Precincts

Applicable Zone

Cairns South State Development Area
Rural

More Information

- [Download the Rural Zone Code](#)
- [Download the Rural Compliance Table](#)
- [Download the Rural Zone Table of Assessment](#)



Selected Property

Property Boundaries

Zone Precinct

Zoning

- | | | | |
|--|--|---|---|
| <input type="checkbox"/> Low Density Residential | <input type="checkbox"/> Low-medium Density Residential | <input type="checkbox"/> Medium Density Residential | <input type="checkbox"/> Tourist Accommodation |
| <input type="checkbox"/> Principal Centre | <input type="checkbox"/> Major Centre | <input type="checkbox"/> District Centre | <input type="checkbox"/> Local Centre |
| <input type="checkbox"/> Neighbourhood Centre | <input type="checkbox"/> Sport and Recreation | <input type="checkbox"/> Open Space | <input type="checkbox"/> Environmental Management |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Township | <input type="checkbox"/> Low Impact Industry | <input type="checkbox"/> Medium Impact Industry |
| <input type="checkbox"/> High Impact Industry | <input type="checkbox"/> Waterfront and Marine Industry | <input type="checkbox"/> Tourism | <input type="checkbox"/> Community Facilities |
| <input type="checkbox"/> Emerging Community Zone | <input type="checkbox"/> Mixed Use | <input type="checkbox"/> Rural | <input type="checkbox"/> Rural Residential |
| <input type="checkbox"/> Special Purpose | <input type="checkbox"/> Specialised Centre | <input type="checkbox"/> Cairns Airport Land | <input type="checkbox"/> Strategic Port Land |
| <input type="checkbox"/> Cairns South State Development Area | <input type="checkbox"/> Tropical North State Development Area | | |

Acid Sulfate Soils Overlay

Applicable Precinct or Area

Land above 5m & below 20m AHD

More Information

[Download the Acid Sulfate Soils Overlay Code](#)

[Download the Acid Sulfate Soils Overlay Compliance Table](#)

[Download the Acid Sulfate Soils Overlay Map](#)



Selected Property

Property Boundaries

Acid Sulfate Soils Overlay

Land above 5m & below 20m AHD

Land at or below 5m AHD

Airport Environs Overlay - Procedures for air navigation services - aircraft operational (PANS-OPS) surfaces

Applicable Precinct or Area

Procedures for Air Navigation Services - Aircraft Operational (PANS-OPS) Surfaces

More Information

- [Download the Airport Environs Overlay Code](#)
- [Download the Airport Environs Overlay Compliance Table](#)
- [Download the Airport Environs Overlay Map](#)



Selected Property

Property Boundaries

Procedures for Air Navigation Services—Aircraft Operational (PANS-OPS) Surfaces

Flood and Inundation Hazard Overlay

Applicable Precinct or Area

Precinct 4 - Floodplain Assessment

Designated flood hazard area - Floodplain assessment trigger area

More Information

[Download the Flood and Inundation Hazards Overlay Code](#)

[Download the Flood and Inundation Hazards Overlay Compliance Table](#)

[Download the Flood and Inundation Hazards Overlay Map](#)



Selected Property

Property Boundaries

Flood Precincts

Precinct 1 - Barron River Delta

Precinct 2 - Mount Peter

Sub-precinct 2a - Low-medium hazard area

Sub-precinct 2b - High extreme hazard area

Precinct 3 - Sub-precinct Zone 1 - CBD & Environs

Precinct 3 - Sub-precinct Zone 2 - CBD & Environs

Precinct 4 - Floodplain Assessment

Inundation hazard area

Flood Inundation Hazard

Designated flood hazard area - Flood Inundation trigger area

Designated flood hazard area - Floodplain assessment trigger area

Storm tide inundation hazard area

Landscape Values Overlay


Applicable Precinct or Area

Medium Landscape Value

More Information


- [Download the Landscape Values Overlay Code](#)
- [Download the Landscape Values Overlay Compliance Table](#)
- [Download the Landscape Values Overlay Map](#)



 Selected Property

 Property Boundaries

Landscape Values

 Coastal scenery

 High landscape values

 Medium Landscape Value

Transport Network Overlay - Road Hierarchy

Applicable Road Hierarchy designation

State Controlled Road

Major transport corridor buffer area

Refer to the map in the Transport Network Overlay section of this report for more detailed information.

More Information

[Download the Transport Network Overlay Code](#)

[Download the Transport Network Overlay Compliance Table](#)

[Download the Transport Network Overlay Map](#)



 Selected Property

 Property Boundaries

 Future state controlled road

Road Hierarchy

 State Controlled Road

 Future State Controlled Road

 Sub Arterial Road


 Future Sub Arterial Road

 Collector Road

 Major Collector Road

 Future Major Collector Road

 Minor Collector Road


 Future Minor Collector Road

 Access Road

 Future Access Road


 Industrial Road

 Future Industrial Road

 Rural Road

 Future Rural Road

 Unformed Road

 Major transport corridor buffer area

Part 10 Other Plans

Applicable Precinct or Area

Cairns South State Development Area

More Information


[Download the Part 10 Other Plans Overlay Code](#)

[Download the Part 10 Other Plans Overlay Map](#)



 Selected Property

 Property Boundaries

 Wet Tropics of Queensland World Heritage Area

 Cairns Airport Land

State Development Areas

 Cairns South State Development Area

 Tropical North State Development Area

 Strategic Port Land

Disclaimer

This report is not a substitute for a Planning and Development Certificate and should not be relied upon where the reliance may result in loss, damage or injury. While every effort is taken to ensure the information in this report is accurate and up to date, Cairns Regional Council makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs that may occur as a result of the report being inaccurate or incomplete in any way or for any reason.

Appendix F State Interest Mapping DAMS

State Assessment and Referral Agency

Date: 08/02/2022



Queensland Government

© The State of Queensland 2022.

Disclaimer:
This map has been generated from the information supplied to the Queensland Government for the purposes of the Development Assessment Mapping System. The map generated has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document solely the responsibility of those parties. This information is supplied subject to the full terms and conditions available on the department's website.



Matters of Interest for all selected Lot Plans

State-controlled road

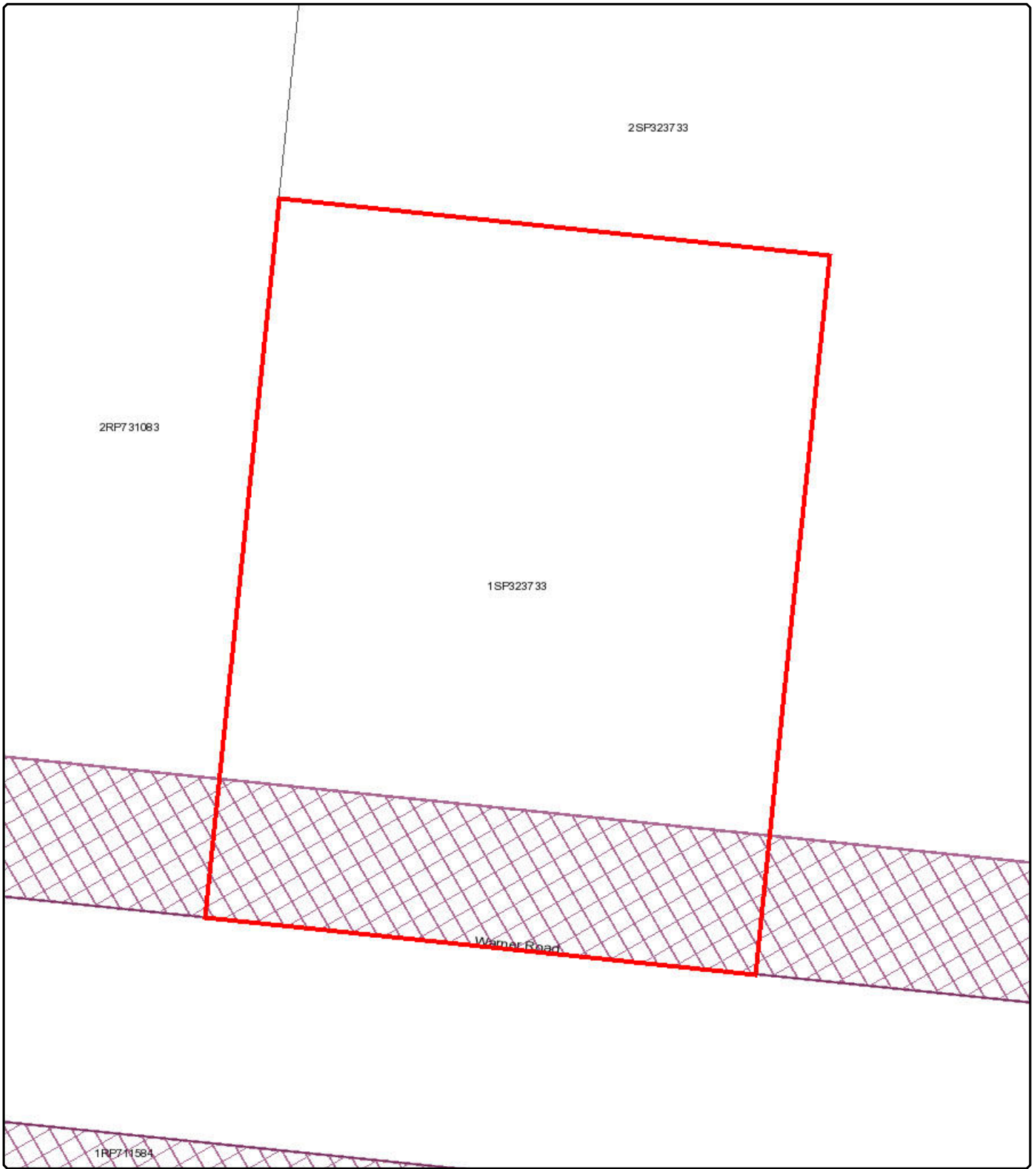
Area within 25m of a State-controlled road

Matters of Interest by Lot Plan

Lot Plan: 1SP323733 (Area: 13000 m²)

State-controlled road

Area within 25m of a State-controlled road



State Assessment and Referral Agency


Date: 08/02/2022

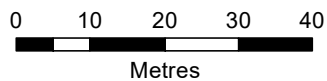


Queensland Government
© The State of Queensland 2022.

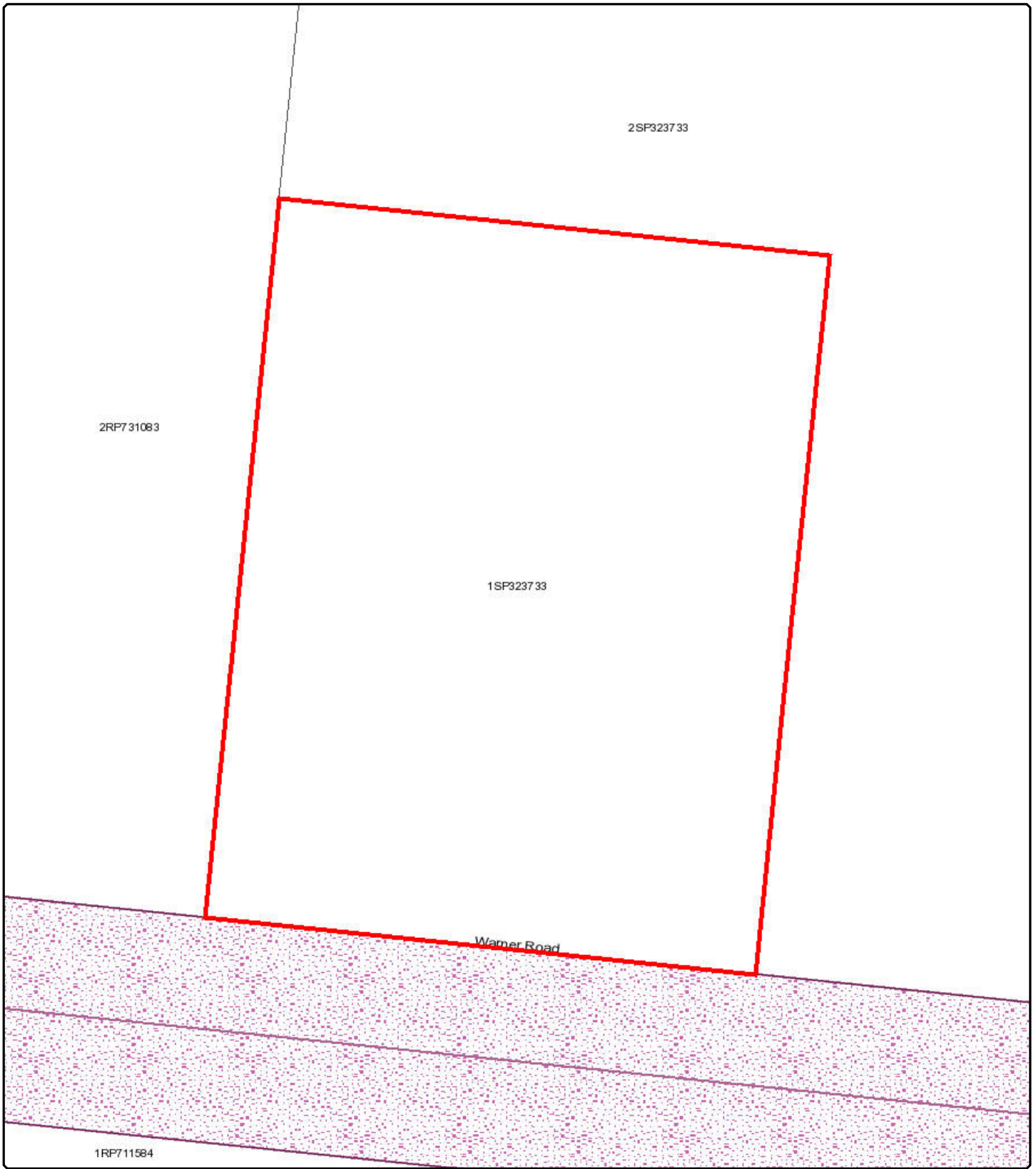


Legend

- Area within 25m of a State-controlled road
-  Area within 25m of a State-controlled road



Disclaimer:
This map has been generated from the information supplied to the Queensland Government for the purposes of the Development Assessment Mapping System. The map generated has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document solely the responsibility of those parties. This information is supplied subject to the full terms and conditions available on the department's website.



State Assessment and Referral Agency

Date: 08/02/2022



Queensland Government
© The State of Queensland 2022.

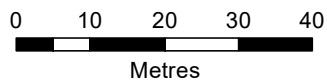


Legend

State-controlled road



State-controlled road



Disclaimer:

This map has been generated from the information supplied to the Queensland Government for the purposes of the Development Assessment Mapping System. The map generated has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document solely the responsibility of those parties. This information is supplied subject to the full terms and conditions available on the department's website.

Appendix G Engineering Report Asphalt and Concrete Batching Plants



Engineering Report

Proposed Asphalt and Concrete Plant, Warner Road Wrights Creek

Project No.: 21145

Prepared for Koppen Construction Pty Ltd

Document Control

Document:	Engineering Report
File Location:	C:\OSE\OSE Group\Operations - Docs\Projects\2021\21145 Asphalt and Concrete Plant Warner Rd\Engineering
Project Name:	Proposed Asphalt and Concrete Plant Warner Rod, Wrights Creek
Project Number:	21145
Prepared For:	Koppen Construction Pty Ltd

Revision History

Revision	Date	Prepared By	Reviewed By	Approved By
Rev1	30/05/2022	PDR	CT	PDR

Company Details

Project Manager:	Peter De Roma
Signature:	
Address:	Art Work Spaces, 36 Abbott Street, Cairns QLD 4870
Phone:	+61 427 90 20 77
Email:	Peter.deroma@osegroup.com.au

TABLE OF CONTENTS

1.	INTRODUCTION.....	3
2.	FLOODING.....	3
	2.1. Flood Impacts to Neighbouring Properties	7
3.	TRAFFIC.....	7
	3.1. Traffic Generation	7
	3.2. Road Network and Access.....	8
	3.3. Queuing Considerations.....	9
	3.4. Traffic Management Plan.....	9
4.	WATER SUPPLY	10
	4.1. Water Demand.....	10
	4.2. Existing Water Supplies.....	10
5.	SEWAGE TREATMENT AND DISPOSAL	11
6.	STORMWATER QUANTITY AND QUALITY MANAGEMENT.....	12
	6.1. Rainfall and Evapotranspiration.....	12
	6.1.1. Site Hydrology and Catchment	13
	6.1.2. Pre-development	13
	6.1.3. Post Development	13
	6.2. Stormwater Detention and Quality Devices	13
	6.2.1. Pollutant Concentrations.....	15
	6.2.2. Gross Pollutant Trap	16
7.	GEOTECHNICAL INVESTIGATION.....	17
	7.1. Background	17
	7.2. Site Investigation Methodology	18
	7.3. Site Investigation Findings	19
	7.4. Geotechnical Design Parameters and Considerations	20
8.	CONSTRUCTION MANAGEMENT PLAN	20
9.	SUMMARY.....	21

Appendix A - Detailed Civil Engineering Drawings

Appendix B - Vehicular Turning Paths

Appendix C - Geotechnical Investigation Results

INTRODUCTION

OSE Group were engaged by Koppen Construction Pty Ltd to undertake an engineering assessment for a proposed Asphalt and Concrete Plant located at Lot 101 of Lot 1 RP717908, Warner Road. Refer Figure 1 for site location.

The purpose of this report is to assess the impact on engineering infrastructure as well as propose any upgrades that may be required to appropriately service the development.

The Asphalt and Concrete Plant development will generally consist of the following elements:

- Asphalt storage tanks, 27m tower and associated mixing plant (Capacity 160 tonnes per hour, 80,000 tonnes per annum)
- Reclaimed Asphalt plant (storage and reuse of 5,000 tonnes per annum)
- Raw material stockpiles
- Laboratory, site office, amenities buildings and carpark
- Concrete batching plant (Capacity 80m³ per hour)
- General truck movement areas loading and unloading locations
- Associated miscellaneous infrastructure

The site is currently used for agricultural production being a cane farm.



Figure 1 – Site Location Lot 1

1. FLOODING

Cairns Regional Council (Council) has mapped the site as flood affected, and hence the development is guided by the flood and inundation hazards overlay code. The site is potentially subject to inundation from Wright and Mackeys Creeks, with a catchment extending south-west to Mount Peter and Lamb Range. This floodplain is traversed by the Bruce Highway upstream of the site, currently undergoing upgrade as part of Edmonton to Gordonvale (E2G) project. E2G detailed design was completed in 2020, with construction due

for completion by mid-2023. This upgrade includes significant road crest increases and cross drainage structures that will influence site flooding, as per Figure 2.



Figure 2 Cross Drainage structures E2G

It is understood that AECOM completed the E2G flood modelling and the results have been made available to Council. A request to Council was made for potential flood levels across Lot 1. The flood modelling for E2G has determined expected flood levels for an extreme event being a 1% Annual Exceedance Probability (AEP) flood (1 in 100 year ARI event). These predicted levels are shown in Figure 3 for the general area as provided in correspondence from Council.

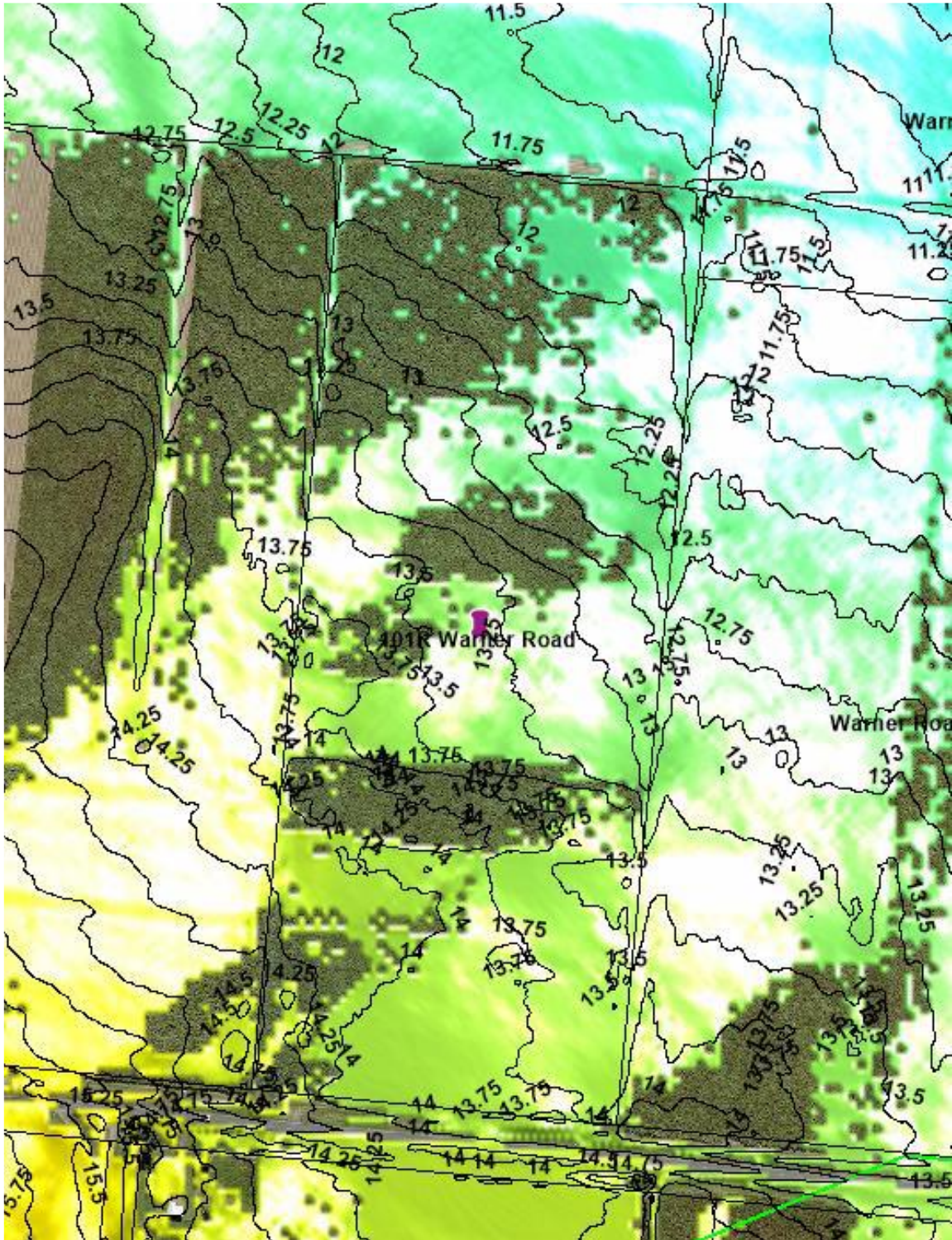


Figure 3 – 1% AEP flood levels

A review of Figure 3 provides for 1% AEP levels which can be interpreted for the newly created Lot 1 are shown in Figure 4 relative to the existing ground levels.

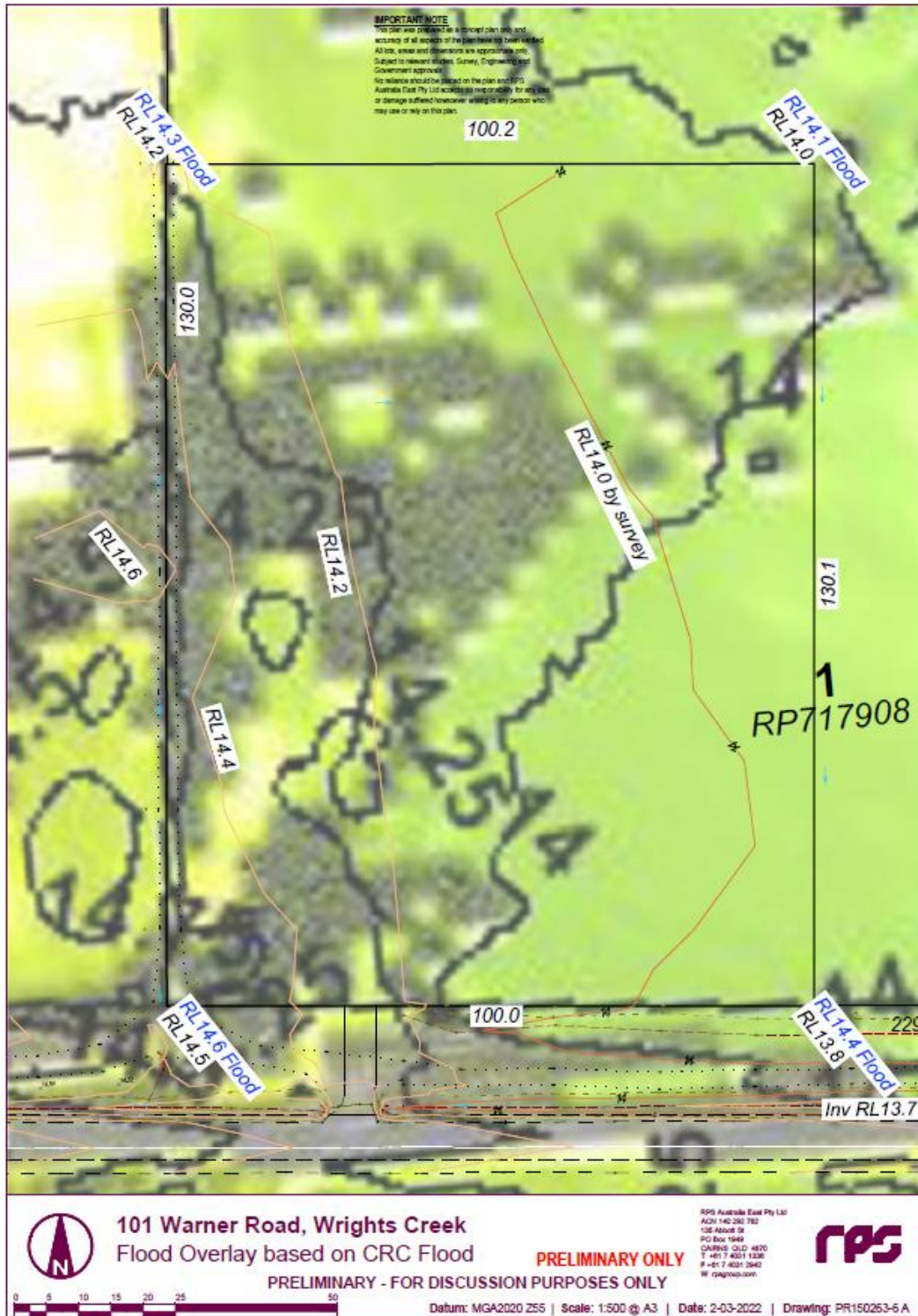


Figure 4 – 1% AEP flood levels relative to ground levels on newly created Lot 1

Approximately 40% of the site is not inundated as shown in the dark colour in Figure 4.

However, the lot will need to be filled 300mm above 1%AEP to provide for adequate freeboard. Figure 4 suggests the following fill levels for each boundary corner:

- South-western corner – minimum fill proposed height RL14.9m

- South-eastern corner – minimum fill proposed height RL14.7m
- North-western corner – minimum fill proposed height RL14.6m
- North-eastern corner – minimum fill proposed height RL14.4m

It should be noted however that at the frontage of the site the table drain located in Warner Road grades from west to east and all stormwater from the rear of the property will need to be directed to the road frontage. On this basis the fill levels to the rear of the property will be higher than the minimum levels indicated above to achieve fall. The proposed civil design is shown with further engineering details for final fill design levels for the lot in Appendix A.

1.1. FLOOD IMPACTS TO NEIGHBOURING PROPERTIES

A specific flood model of the site has not been undertaken to determine impacts on neighbouring properties as the property is part of the State's designated High Impact Industry Precinct which is all generally located within the same flood plain and as modelled as part of the E2G road project. On this basis all future developments within the precinct will be required to fill above the 1%AEP flood levels. It is assumed the State anticipates that associated impacts of filling within the precinct on neighbouring properties will be dealt with as a whole of government approach outside of individual development approvals. In any event the anticipated impact from filling within the subject property will create insignificant afflux to adjoining properties due to the following reasons:

- The existing ground contours of the site grade from the western boundary to the eastern boundary and presumably this would be the direction of any natural stormwater flow.
- Flood modelling from E2G suggests that most of the eastern portion of the site is not inundated with flood waters tending to be present on the downslope eastern boundary and separated from the southern flood plan traversed by Warner Road.

The above suggests during a 1%AEP flood event water does not flow across the site from east to west but tends to back up into the eastern side of the property. Filling the subject site would not tend to create an afflux to the upstream properties as it does not generally flow across the property. On this basis it is suggested that any afflux attributable to filling above the 1%AEP would create negligible impact on neighbouring properties.

Notwithstanding 1%AEP events, it is proposed to fill the site such that stormwater within the site is directed to the road frontage and does not cross the property boundaries and cause nuisance or impact on adjoining properties which may be developed in the future.

2. TRAFFIC

2.1. TRAFFIC GENERATION

Traffic generation has been assessed based on maximum production rates for the plant as follows:

- Up to 90 truck movements for asphalt delivery per day
- Up to 36 truck movements for materials delivery per day associated with the asphalt plant
- Up to 90 truck movements for concrete delivery per day
- Up to 30 truck movements for materials delivery per day associated with the concrete plant
- Truck movements associated with the Reclaimed Asphalt are considered negligible

This totals up to 246 movements per day i.e., 123 truckloads per day when both Asphalt and Concrete plants are at full capacity.

2.2. ROAD NETWORK AND ACCESS

The subject site is currently accessed directly off Warner Road which intersects the Bruce Highway at the intersection known locally as the 'Yarrabah' Intersection. Warner Road services all properties located in the east Trinity district and the township of Yarrabah. Local land uses consist mainly of agricultural and residential and therefore traffic generation from these uses range from light vehicles to heavy vehicles. However as part of the E2G highway upgrade, the Warner Road (Yarrabah) Bruce highway intersection will be closed and a new overpass and road constructed further south of the Warner Road alignment. The new Pine Creek- Yarrabah Road alignment then connects back to Warner Road approximately 800m east of the subject site. See Figure 6 showing new Warner Pine Creek-Yarrabah intersection and Figure 7 showing proposed closure of Warner Road to Bruce Highway intersection. Traffic utilising the facility will generally be emanating from the Bruce Highway through the most used route being the new Pine Creek- Yarrabah Road and the intersection with Warner Road. Very little traffic will be generated through the Warner-Harris connector road as access to the Bruce Highway cannot be gained through this route.

Warner Road carriageway consists of a two-lane, bitumen seal total 7.0m width. A 100km/hr speed limit currently applies to Warner Road. An assessment of carriageway width from Ausroads suggests a recommended minimum road width carriageway of 3.5m each lane, noting that traffic generation will be less than 500vehicles/day once the Warner Road Bruce Highway connection is closed. Therefore the existing carriageway of 3.5m each lane is acceptable, however it is recommended that the speed be reduced to 60km/hour in the vicinity of the intersection access into the subject site to align with industrial heavy vehicle traffic safety requirements.

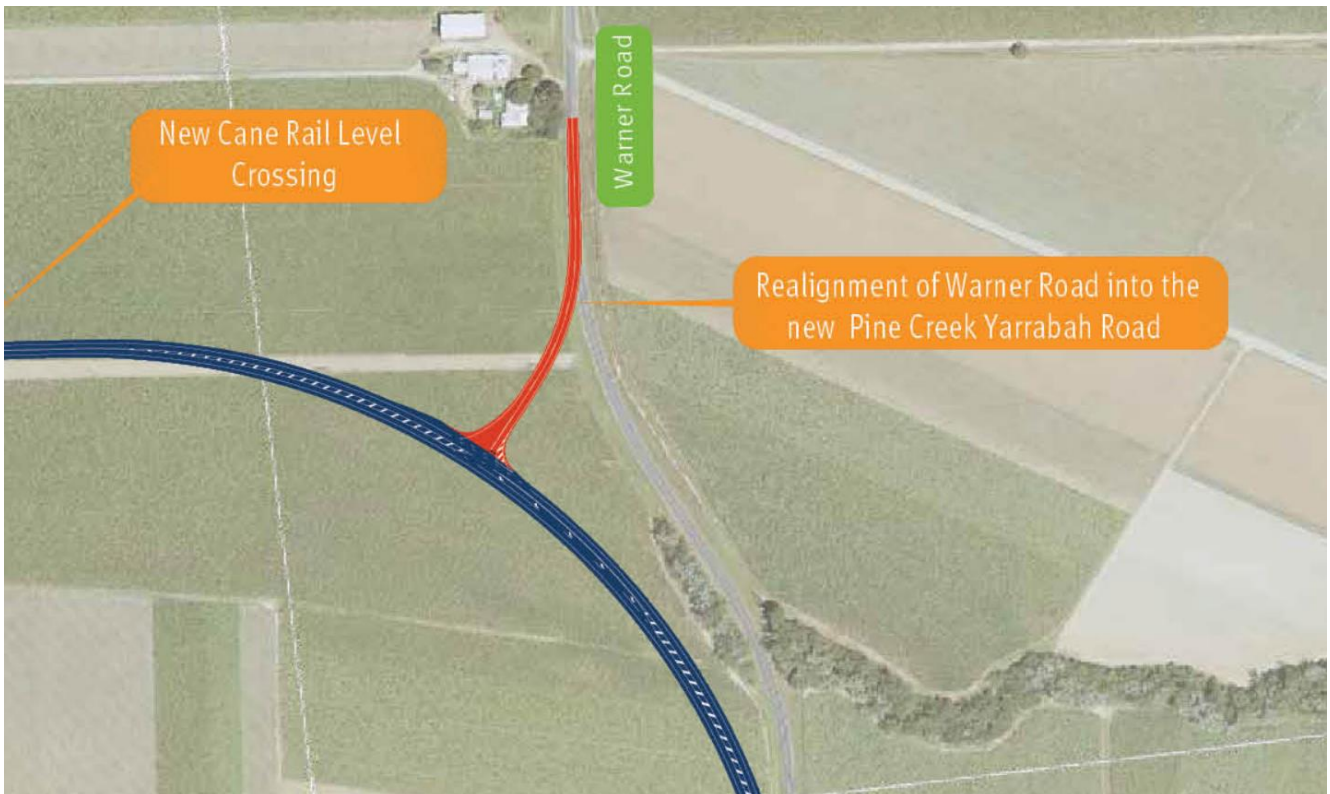


Figure 5 – Warner Road to Pine Creek-Yarrabah Road intersection

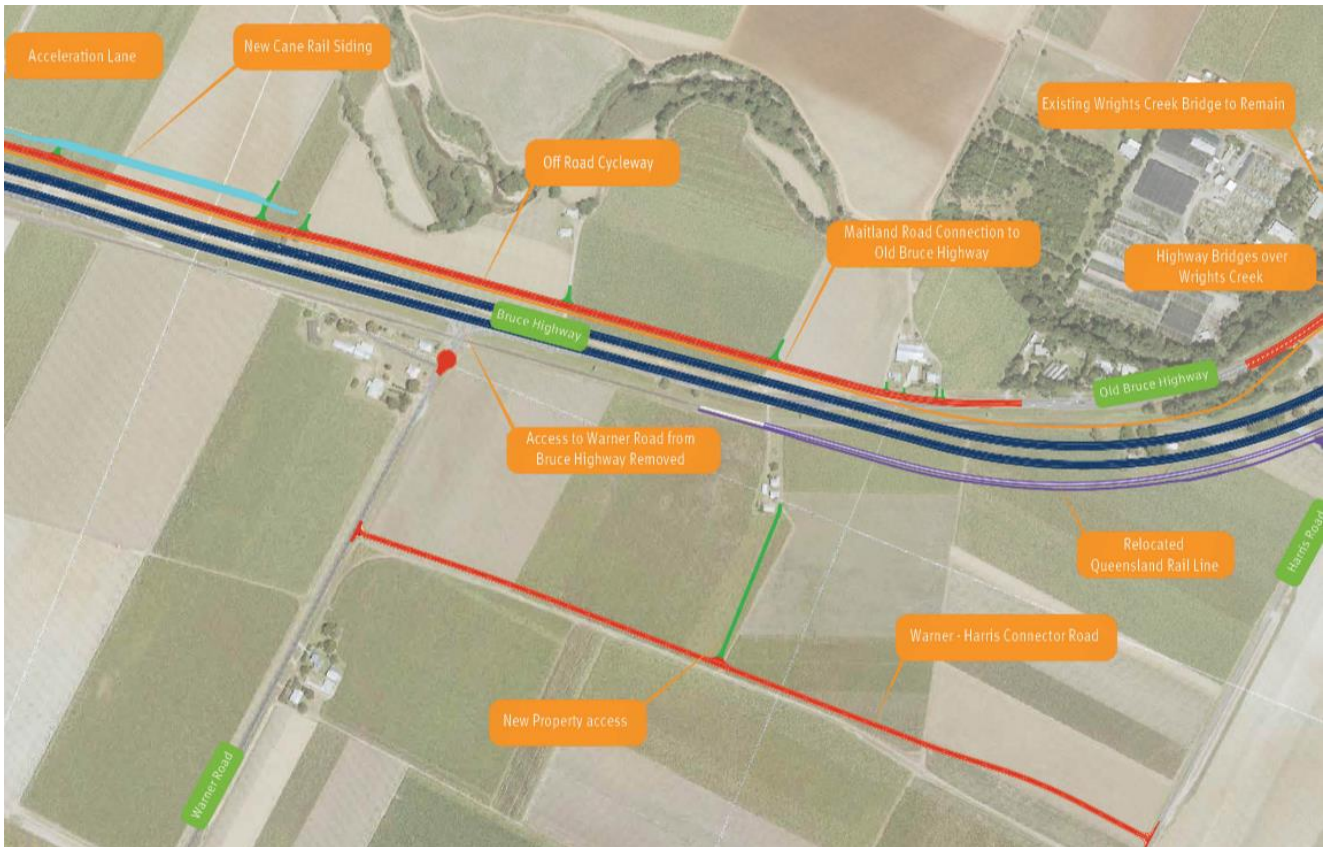


Figure 6 – Warner Road Bruce Highway Intersection Closure

Note: Extracts for Figures 5 and 6 taken from Transport and Main Roads information

The proposed asphalt and concrete plant require two vehicular access points from Warner Road. Two access points allow for one way traffic flow across the site by trucks generally entering from the eastern access and departing from the western access. The site layout allows all vehicles to enter, circulate and exit the site in a forward direction. Vehicle turning paths are provided in Appendix B.

The access intersections will require road widening, line marking and signage reposting to 60km/hour is recommended but subject to TMR approval. Refer Appendix A for proposed access layout and engineering details.

Site distance requirements have been assessed for the proposed intersections as more than adequate as there are no horizontal or vertical alignment changes for 500m in either direction.

2.3. QUEUING CONSIDERATIONS

When the Asphalt and Concrete plants are at full capacity, trucks will be entering the site at a rate of 12 trucks per hour based on a 10-hour working day. Trucks will be on site an average of 10minutes. The site has sufficient internal queuing lengths to avoid trucks queuing on the road reserve, noting the 12 trucks per hour are a combination of asphalt, concrete and material delivery trucks.

2.4. TRAFFIC MANAGEMENT PLAN

Prior to construction, a Traffic Management Plan (TMP) will be prepared for proposed construction works on Warner Road. As the road is currently a State controlled road, it is assumed that approval will be required

from Department of Transport and Main Roads (TMR) to undertake the works. Part of the approval will be the requirement to submit a TMP which addresses TMR technical standards and requirements to address risk and management of traffic through the work. The construction contractor is normally best placed to

3. WATER SUPPLY

3.1. WATER DEMAND

Water demand for the facility is generated from the following activities:

- Concrete batching
- Truck washdown and suppression
- Site amenities

Concrete batching demand

At maximum production of 80m³/hour the batching plant will consume approximately 14.4kL/hour based on average concrete mix design requiring 180L/m³. Over the day however the plant is not expected to remain at full production and is more likely to achieve an average day demand of 40m³/hour for 8 hours.

Therefore peak demand for concrete batching will be 14.4kL/hour, or 4L/s.

Average day demand will be 57.6kL/day.

Annual average demand will be approximately 12.7ML per annum.

Truck Washdown and Dust Suppression demand

Truck washdown facility will not be used regularly and is only installed for use infrequently. Dust suppression on site may be required from time to time during the dry season. These uses have been estimated to demand approximately 1000L/day.

Site Amenities demand

It is anticipated that the facility will require up to approximately 10-12 personnel on site during working hours. Only normal working hours demand will apply which will exclude laundry and showering etc. Based on the 200L/person/day this equates to daily water usage of 2200L/day which is negligible compared to the industrial activities on site.

Total demands (concrete and amenities) have been assessed as follows:

Peak Demand = 4.6L/hour

Average day demand = 61kL/day

Average annual demand = 13.4ML per annum

3.2. EXISTING WATER SUPPLIES

The site can be serviced from two possible water supply sources:

- Existing 150 diameter water supply main located in the road reserve to the frontage of the site

- Existing ground water bore
- It is proposed the facility would be connected to the 150-diameter main to supply mainly the amenities. Bulk water for concrete production would be sourced from the ground water bore. The site currently shares an existing water allocation of 50ML with Lot 2 to the east for the use of agricultural purposes. It is proposed to apply to the Department of Regional Development, Manufacturing and Water for part allocation of the 50ML and to be made available for industrial purposes.

Based on the above, the amenities will be the only facility onsite which would be serviced from the 150-diameter main. Given the amenity demand and capacity of the main there would be no issues for the site to be adequately serviced from the main for this domestic flow. Preliminary discussions have been made with Cairns Regional Council (CRC) to determine their views on the connection. CRC's response suggested that they would not oppose the connection for the office amenities however the servicing of the Concrete batching plant could be problematic. On this basis it is imperative for the concrete batching to have access to the underground water allocation to service the Concrete batching activities. To this end, discussions have been made with the Department of Regional Development, Manufacturing and Water regarding submission of a subdivision of the shared water allocation and to also change its use from 'agricultural' to 'any'. Preliminary discussions with the Department suggest changing the use would be acceptable and as long as the owner of Lot 2 (State owned) agrees to the subdivision then they would have no objection approving the subdivision. It is noted that a current subdivision application has been submitted to the owner of Lot 2 (the State) for consideration of execution.

With regard to firefighting, depending on detailed design the facility could either be supplied from the 150mm diameter main or the ground water bore and supplemented with booster pumping and adequate storage.

4. SEWAGE TREATMENT AND DISPOSAL

The site is not currently serviced by Council sewerage network. Therefore the effluent generation will require onsite treatment and disposal. This is typically achieved by installing a proprietary sewage treatment package plant which then pumps to a prepared land area for effluent polishing and disposal, typically a prepared landscaped area. The treatment plant treats effluent to an appropriate standard prior to discharging to the effluent disposal area. The disposal area further refines the effluent by removing nutrients.

Discussions with Koppen Construction indicate that 10-12 staff will be located at the site during work hours. AS 1547-2012 *On-site Domestic Wastewater Management* does not provide specific advice for anticipated effluent design loads for similar industrial uses, however does include a per-fixture flow allowance of 60L/person/day for water closet and handbasin, and an additional 10L/person/day for a kitchen in Table H2 *Typical Domestic Wastewater Design Flow Allowances for Each Fixture - Australia*. While the site would likely be limited to a small kitchenette, an allowance of 70L/person/day is considered a reasonable conservative estimate. For comparison, the closest category to the proposed structure is a "rural factory" in Table H4 *Typical Domestic Wastewater Design Flow Allowances – Domestic Wastewater from Commercial Premises – New Zealand*, with a design flow of 50L/person/day. Based on 70L/person/day and 12 equivalent persons, a total flow load of 840L/day is obtained.

A geotechnical site investigation was undertaken in April 2022 as outlined in Section 7. Observed soil conditions on site indicate moderately structured medium to heavy clays, or Soil Category 6 in AS 1547. Permeability testing identified K_{sat} values of 0.25m/d in AH1 and 0.06m/d in AH3, based on auger hole depths

of 0.5 and 0.6m respectively. These results indicate low permeability of the soil and that a traditional trench/bed effluent disposal system within existing soils is likely not feasible.

Two common types of disposal treatment system used in low permeability soils are sand mound systems and evapotranspiration (ETA) beds/trenches. As the site will be filled to approximately 1m above existing ground level, it is envisioned that a region of sand fill can be used as a pseudo-mound, with an overlying garden to assist with evapotranspiration. Both of these systems in Category 6 soils have a Design Loading Rate (DLR) of 5mm/day. Using a design load of 840L/day, this results in a required treatment area of 168m².

The typical dimensions of a mound on flat ground provided in Figure N1 of AS 1547-2012 are 1275mm high (450mm topsoil/cover, 225mm distribution bed, 600mm sand fill) which results in an 8.85-9.65m base width mound (1V:3H sides), dependent upon selected bed width, if only the mound system were considered (i.e. ignoring the ETA component). Typical ETA beds, however, only have 100mm topsoil and 200mm cover, which would reduce the total height to 1125mm and width to 7.95-8.75m.

Using these dimensions as an initial indication of required area and a loading of 840l/day, an area of 25m x 6m with 20.2 x 1.2m bed would comprise capacity of 121.2L/day for the ETA component and 750L/day for the mound component for a capacity of 871.2L/day. This exceeds the 840L/day anticipated loading. It is understood that the intention is for the area to be developed over coming years, which will require connection of a sewer main within an anticipated 10 years. While typically Council would require a reserve area of 100% of the proposed treatment area to replace or extend the system, it is our professional opinion that this will not be required due to anticipated sewer connection in the near future. Appendix A contains details and location of the effluent disposal area and proprietary sewage treatment plant as shown the detailed civil engineering plans.

5. STORMWATER QUANTITY AND QUALITY MANAGEMENT

5.1. RAINFALL AND EVAPOTRANSPIRATION

Rainfall data, maximum/minimum temperatures and evaporation rates have been acquired from Meringa Sugar Research station (approx. 2.0km from Asphalt Plant site) via Bureau of Meteorology (BOM) and the SILO climate data portal (Queensland Government). As the site is within close proximity to this weather station the data is considered suitable for analysis of hydrology for the site. Hydrology data at Meringa Sugar Research Station is shown in Table 1

Table 1 – Hydrology Data – Meringa Sugar Station

Parameter	Value
Total Yearly Rainfall	2020mm*
Annual Days of Rainfall	141 Days*
Average Evaporation Rate for Rain Days	4.944mm
Average Daily Rainfall	14.2mm
Maximum Daily Rainfall (29/01/2019)	494mm Approx. 2% AEP (Q50) - Tc 24 Hr

*Mean averages derived from data between 1990 to 2021

5.1.1. SITE HYDROLOGY AND CATCHMENT

The site is approximately 130m long and 100m wide with an area of 1.3 Ha. Due to requirements of filling of the majority of the site to achieve flood immunity, all external stormwater will be prevented from entering the site in any direction. All rainwater falling on the site will grade to a longitudinal bio-retention swale on the eastern boundary which then outlets to Warner Road. The site in its entirety will be sealed with a hardstand surface (concrete or asphalt) and therefore will be 100% impervious.

5.1.2. PRE-DEVELOPMENT

The site is currently a cane farm paddock grading away from Warner Road at an approximate grade of 0.3%. The area was part of a larger block of agricultural land and is generally inundated in a 1%AEP flood event. On this basis there is no formalized stormwater drainage management established.

5.1.3. POST DEVELOPMENT

The only legal point of discharge available for drainage is Warner Road as there are no drainage easements/reserves or roads on either side and rear boundary. On this basis a civil design for earthworks filling and drainage has been developed in combination with filling to achieve flood immunity of 1%AEP and grading to the rear boundary of the lot via a bioretention swale drain. As there is no legal point of discharge at this location, it is proposed to capture the 1 year storm event and pump back to the Warner Road table drain until such time as road and drainage corridors are allocated. The swale is capable of containing and detaining up to a 50 year storm event. For events over a 50 year storm, the swale will over top on the easterly bund and overflow in a non-concentrated manner to the neighbouring cane paddock which is likely to be inundated as it is part of the flood plain. At 1%AEP (100 year) flood event the entire surrounding cane area neighbouring properties will be completely inundated under flood. Stormwater from the subject lot will be released into adjacent flood waters constituting a no worsening situation.

Stormwater grading and capture for 1 year storm events will be such that it does not cross neighbouring boundaries to cause nuisance. The capacity of the table drain in Warner Road will require an upgrade by increasing the size of the drain to receive the additional catchment which under the predeveloped scenario would not normally receive. Site gradings have been undertaken utilising minimum gradients at 0.5% to achieve the most efficient filling design. A time of concentration of 9 mins has been determined for the site. Due to the design surface being predominately impermeable and well graded with high evaporation rate, it is assumed all flows are maintained with no loss factor applied.

5.2. STORMWATER DETENTION AND QUALITY DEVICES

A stormwater device has been modelled for the site to both attenuate flows and remove potential contaminants prior to release to waters. A bioretention swale has been modelled using EPA SWMM with the following parameters: 120m in length and 4m wide graded at 0.5% with 600mm depth of sandy loam filter media (288m³ Volume). The swale will be located along the low side of the site (eastern boundary) to both attenuate the peak stormwater discharged and stormwater pollutants. Due to the raising of the site above 1%AEP, no groundwater issues are anticipated. The bioretention swale is not modeled having a containment lining as it will be constructed within the fill platform which will generally consist of impermeable homogenous material. In addition, geotechnical investigations revealed the underlying subgrade is generally impermeable. Therefore, pollutants will be contained/treated within the storage media and no seepage (exfiltration) will occur permeating into surrounding earth. Table 2 provides the assumed properties of the swale.

Table 2 – Assumed properties of bioretention swale

Retention Basin Properties	Value
Filter area/storage surface area	480m ²
Ponding Depth Above Filter Media	380mm*
Filter Media (Sandy Loam) Hydraulic Conductivity	180mm/hr
Unlined Filter Media Perimeter (m)	248m
Base lined	No
Vegetated with Nutrient Removal Plants	Yes
Underdrain Present	Yes
Filter Media Infiltration Rate	32.4L/s
Perforated Collection Pipe Dia. (2 of.)	150mm
Perforated Pipe Inflow (50% blockage factor)	351.21L/s
Perforated Pipe flow at Capacity (1 of.)	16.17L/s
Downstream Bund Height	1m

*Derived Max. depth for Q1 event

With regard to water quality and quantity discharge limits for stormwater flows, The State Planning Policy for water quality stipulates the design objectives for the wet tropics to reduce nutrients and sediment from the development. An extract is provided below in Table 3 for the post development.

Table 3 – Extract State Planning Policy – Water Quality Objectives

Climatic region	Design objectives				
	Reductions in mean annual load from unmitigated development (%)				
	Total suspended solids (TSS)	Total phosphorus (TP)	Total nitrogen (TN)	Gross pollutants >5mm	Waterway stability management
South East Queensland	80	60	45	90	Limit the peak 1-year ARI event discharge within the receiving waterway to the pre-development peak 1-year ARI discharge
Central Queensland (south)	85	60	45	90	
Central Queensland (north)	75	60	40 ¹⁵	90	
Cape York ¹⁴ , wet tropics and dry tropics	80	60 ¹⁶	40	90	
Western Queensland ¹⁴	85	60	45	90	

With regard to achieving stormwater peak discharge attenuation, it is required to limit the peak 1-year ARI event discharge within the receiving waterway to the predeveloped peak of 1 year ARI discharge. Table 4 below provides a summary of calculated peak stormwater flow rate and filter time for the developed scenario and how this will be reduced by the detention outflow to a predeveloped state.

Table 4 - Summary of peak Stormwater Flow Rates/Times

AEP% (Q)	Developed	Detention Basin Filter Time ^	Detention Basin Outlet Flow
63.2% (1 year storm)	295.2 L/s	4 hr 06 mins (246 mins)	34 l/s*

^ Evaporation has not been taken into account – time it takes for entire developed flow to exit the detention basin

*Basin Outlet Flow determined by outlet capacity of Bioretention Basin Pipe Capacity and maximum infiltration rate of filter media.

5.2.1. POLLUTANT CONCENTRATIONS

As there are no groundwater effects on the site (due to mass filling and site being well above the water table) there is no 'Baseflow' pollutant concentrations. Due to Far North Queensland Regional Organisation of Councils (FNQROC), WET TROPICS or Great Barrier Reef Marine Park Authority (GBRMPA) not having any reported 'Stormflow pollutant Concentration Parameters'; two base mean storm flow pollutant concentration parameters have been selected as check cases as follows:

- Mackay Regional Council 'MUSIC' Guidelines
- 'Using MUSIC in the Sydney Drinking Water Catchment'

Land use/zoning of this site is determined as industrial. The United States Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) has been used to model water quality reduction scenarios based on the parameters provided in Table 5.

Table 5 - Summary of Pollutant Concentrations

Storm Flow Parameters	Log10(mg/L)		
	TSS	TP	TN
Mackay MUSIC Guidelines - Industrial	1.92	-0.59	0.25
Using MUSIC in the Sydney Drinking Water Catchment - Industrial	2.15	-0.60	0.30
Conversion to mg/L			
	TSS	TP	TN
Mackay MUSIC Guidelines - Industrial	83.176	0.257	1.778
Using MUSIC in the Sydney Drinking Water Catchment - Industrial	141.254	0.251	1.995

Storm event durations range from 5 minutes to days based on a monsoonal tropic climate for Cairns/Gordonvale. From analysis of hydrographs and storm duration of the 'First Flush Q 3 month' Storm and the 63.2% AEP (Q1), a Time Step of 2 hours has been chosen. Table 6 provides model results for Pollutant Concentrations at the Bioretention Basin Outlet.

Table 6 - Model Results of Pollutant Concentrations at Bioretention Basin Outlet

Location	TSS		TP		TN	
	Inflow to Bioretention Concentration	Outlet Concentration	Inflow to Bioretention Concentration	Outlet Concentration	Inflow to Bioretention Concentration	Outlet Concentration
Mackay	83.176 mg/l	41.18 mg/l* [^]	0.257 mg/l	0.142 mg/l* [§]	1.778 mg/l	0.776 mg/l*
Sydney	141.254 mg/l	69.93 mg/l* [^]	0.251 mg/l	0.134 mg/l* [§]	1.995 mg/l	0.871 mg/l*

*Derived from using EPA SWMM software and findings from article ‘Evaluation of Pollutant Removal Efficiency by small scale nature-based solutions focusing on Bio-retention cells, vegetative swale and porous pavement, MDPI 2021’.

[^]TSS absorption derived by settling velocity due to gravity (head) through Bioretention media.

[§]0.13mg/l Irreducible concentration and 13% reduction of pollutant concentrations higher in every time step.

5.2.2. GROSS POLLUTANT TRAP

As a secondary measure to enhance further polishing of water quality, it is recommended a Gross Pollutant Trap (GPT) be implemented at the outlet of the Bioretention Basin as an end of line measure. An ‘Ecosol GPT’ is suggested as its efficiency properties align with the required design objectives as per Table 7 below.

Table 7 - Ecosol GPT Removal Efficiencies

Pollutant	Removal Efficiency
Total Suspended Solids (TSS)	61%
Total Phosphorus (TP)	29%
Total Nitrogen (TN)	1%
Gross Pollutants	98%
Total Hydrocarbons	99% (dry weather emergency spills)

With incorporation of the GPT Table 8 provides a summary of overall effectiveness of Pollutant Reductions.

Table 8 - Overall Treatment Effectiveness for Pollutant Reduction

Storm Parameter	Pollutant	Before Bioretention	Bioretention Outlet	GPT % Reduction	GPT Pollutant Concentration at outlet	% Reduction
Mackay	TSS	83.176 mg/l	41.18 mg/l	61%	16.06mg/l	80.6%
Sydney		141.254 mg/l	69.93 mg/l		27.27mg/l	80.6%
Mackay	TP	0.257 mg/l	0.142 mg/l	29%	0.101mg/l	60.7%
Sydney		0.251mg/l	0.134 mg/l		0.095mg/l	62.2%
Mackay	TN	1.778mg/l	0.776 mg/l	1%	0.768mg/l	56.8%
Sydney		1.995mg/l	0.871 mg/l		0.862mg/l	56.7%

Appendix A contains details of the proposed bioretention system and stormwater management infrastructure.

6. GEOTECHNICAL INVESTIGATION

6.1. BACKGROUND

According to the Department of Natural Resources and Mines (DNRM) 1:100,000 ‘Bartle Frere’ geological maps, the site geology comprises quaternary alluvium, described as “Clay, silt, sand and gravel; flood-plain alluvium.” overlying metamorphic rocks of the Hodgkinson Formation. The CSIRO soils report “Soils of the Babinda-Cairns Area, North Queensland” categorises the soils on site as the Clifton unit, described as “Strongly bleached gradational textured soils on alluvial fans from metamorphic rocks, usually contain ironstone nodules or gravels in B horizon.”

The site is presently an operational cane farm, covered almost entirely in mature cane excluding the western boundary at the time of the site investigation as shown in Figure 8.



Figure 7 – Western boundary at time of investigation

6.2. SITE INVESTIGATION METHODOLOGY

A site investigation was undertaken to identify soil properties at the site on 19 April 2022. The area available to conduct the site investigation was limited due to a requirement to avoid damage to the existing cane. Additionally, services including water mains and telecoms are present within or near to the site. As a result, three (3) locations were tested using hand tools only, located near to the south-western, north-western and south-eastern corners of the site. In total, three (3) Dynamic Cone Penetrometer (DCP) tests, two (2) hand augers and two (2) permeameter tests were undertaken. Figure 9 shows the test locations.



Figure 8 – Site map including test locations

6.3. SITE INVESTIGATION FINDINGS

DCP testing identified variable stiffness soils in the upper 0.6m, soft to firm soil from 0.6m to 1.7-1.8m and hard soils below this depth. In AH1, 0.35m of Clayey Silt overlaid pale brown high plasticity Silty Clay. In AH3, the upper 0.3m comprises Clayey Silt fill, where several shards of blue and brown glass and one small piece of PVC were found. From 0.3-0.5m was high liquid limit Clayey Silt similar to the AH1 topsoil, overlying the same pale brown, high plasticity Silty Clay. DCP, hand auger and permeameter logs are provided in Appendix C.

Two (2) water bores are located on site, with Queensland Government bore reports including drilling logs available for both. Soil profile was identical in both boreholes and is summarised in Table 9. This correlates with the observed shallow soils from the hand augered holes.

Table 9 – Registered Bore 72320 strata logs

DEPTH FROM (m)	DEPTH TO (m)	STRATA DESCRIPTION
0.0	0.3	TOP SOIL
0.3	13.0	CLAY, MULTI-COLOURED
13.0	14.5	GRAVEL, CLAYBOUND
14.5	19.5	SAND COARSE & GRAVEL, WITH SOME CLAY BOUND LAYERS AND SOME CLAY LAYERS
19.5	21.5	CLAY, SILTY, BROWN

Observed soil conditions on site indicate moderately structured medium to heavy clays, or Soil Category 6 in AS 1547. Permeability testing identified K_{sat} values of 0.25m/d in AH1 and 0.06m/d in AH3, based on auger

hole depths of 0.5 and 0.6m respectively. The higher K_{sat} value in AH1 may represent the influence on cane roots on the soil or other structural factors. On-site effluent disposal is discussed further in Section 5.

6.4. GEOTECHNICAL DESIGN PARAMETERS AND CONSIDERATIONS

When preparing the site for construction, the topsoil layer will need to be removed. Additionally, any uncontrolled fill such as that identified in the upper 0.3m of AH3 will need to be removed. If this is done, the bearing capacity at the layer 0.6m below existing ground level can be considered to be 60kPa. Given approximately 1.6m of imported, controlled fill above this to act as a bridging layer, bearing capacity for typical footings within the upper 600mm fill can be considered to exceed 100kPa. Should proposed structures exceed 100kPa working load, analysis should be undertaken considering the proposed footings and fill material.

Fill used under proposed pavement or structures should comply with TMR Class A1 properties as outlined in Table 10. Compaction should be to 95% Maximum Dry Density (MDD).

Table 10 – Class A1 soil properties

PROPERTY	VALUE
WPI	<1200
PI (%)	≥ 7
Minimum % Passing 0.075mm	15
Coefficient of Uniformity	-
Emerson Class Number	>3

When preparing the site, cane is to be harvested and the top 600mm of soil grubbed. Based on the elevation of the site, origin of the soil profile and limited proposed excavation, it is not anticipated that acid sulphate soils will be encountered during construction.

7. CONSTRUCTION MANAGEMENT PLAN

Prior to construction works, a Construction Management Plan (CMP) which will cover the duration of the construction activities, will be developed by the construction contractor. Elements of the plan will consist of:

- public safety, amenity and site security
- construction hours
- noise control
- air and dust management
- stormwater and sediment control
- waste management
- traffic management

Note as part of the erosion and sediment control (ESC) during construction, an ESC strategy has been prepared in Appendix A to assist the construction contractor to prepare a detailed ESC plan.



8. SUMMARY

The proposed development has been assessed for infrastructure servicing requirements and impact to adjoining properties. It is concluded that the development can be adequately serviced and impacts with regard to flooding, stormwater and traffic can be appropriately mitigated with the proposed upgrades as recommended in this report.

Appendix A – Detailed Civil Engineering Plans

CIVIL SITE WORKS FOR PROPOSED ASPHALT PLANT WARNER ROAD - GORDONVALE FOR KOPPEN CONSTRUCTION PTY LTD



DRAWING INDEX

21145-C000	COVER SHEET, DRAWING INDEX AND LOCALITY PLAN
21145-C001	ENGINEERING NOTES
21145-C002	INTERNAL SITE LAYOUT - GENERAL ARRANGEMENT PLAN
21145-C003	RETAINING WALL DETAILS
21145-C004	EARTHWORKS SECTION AND DETAILS
21145-C005	BIORETENTION SWALE SECTION & STORMWATER INVERT LEVELS
21145-C006	ON SITE SEWER TREATMENT SECTIONS AND DETAILS
21145-C007	SITE CONTOUR PLAN AND SETOUT
21145-C008	EROSION AND SEDIMENT CONTROL STRATEGY DURING CONSTRUCTION
21145-C009	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE GENERAL ARRANGEMENT
21145-C010	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE PAVEMENT, SURFACING AND SETOUT PLAN
21145-C011	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE LINEMARKING SETOUT
21145-C012	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE CONTOUR PLAN
21145-C013	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE ANNOTATED CROSS SECTIONS - SHEET 1 OF 2
21145-C014	EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE ANNOTATED CROSS SECTIONS - SHEET 2 OF 2
21145-SK001	SITE VEHICLE TURN MOVEMENT SKETCHES 1 OF 4
21145-SK002	SITE VEHICLE TURN MOVEMENT SKETCHES 2 OF 4
21145-SK003	SITE VEHICLE TURN MOVEMENT SKETCHES 3 OF 4
21145-SK004	SITE VEHICLE TURN MOVEMENT SKETCHES 4 OF 4
21145-SK005	LANDSCAPING PLAN - AND PLANTING SCHEDULES

A 30.05.22 INITIAL ISSUE

REV DATE REVISION NOTES

DESIGNER

OSE
GROUP

Address: 35 ABBOTT ST, CAIRNS 4870
Email: admin@osegroup.com.au

CLIENT

KOPPEN
CONSTRUCTION

PROJECT

ASPHALT & CONCRETE BATCHING PLANT
WARNER ROAD - GORDONVALE

DRAWN

DJM

DESIGNED

DJM

DRAWING CHECK

PDR

DESIGN REVIEW

PDR

APPROVED

DATE -

TITLE

COVER SHEET, DRAWING INDEX
AND LOCALITY PLAN

SCALE

AS SHOWN

DRAWING No

21145-C000

REV

A

SURVEY & EXISTING SERVICES

- HORIZONTAL DATUM IS MGA2020 - ZONE 55
- LEVEL DATUM IS AHD.
- THE ORIGIN FOR THE LEVELS IS - PM AND LOCATED AT E:370455.637 N:8114259.635
- REFER RPS SURVEYORS FOR THE SURVEY STATION SETOUT DETAILS
- THE EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE DERIVED FROM SURFACE SURVEY AND COUNCIL RECORDS AND MAY NOT REPRESENT THE EXISTING SERVICES PRESENT BELOW THE SURFACE.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE ALL EXISTING SERVICES PRIOR TO ANY EXCAVATION, PARTICULARLY ON FOOTPATHS.
- ALL DAMAGE TO EXISTING SERVICES SHALL BE MADE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT AUTHORITY, ALL AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL NOTIFY THE RELEVANT AUTHORITY IMMEDIATELY WHEN ANY DAMAGE OCCURS.
- THE LINE AND LEVEL OF EXISTING UNDERGROUND SERVICES SHALL BE DETERMINED BY THE CONTRACTOR AND THE ENGINEER SHALL BE NOTIFIED OF ANY POTENTIAL CLASHES WITH DESIGN STRUCTURES AND SERVICES PRIOR TO COMMENCING CONSTRUCTION.
- EXISTING OUTLET LEVELS OR CONNECTION LEVELS FOR ALL DESIGN STORMWATER AND SEWER SHALL BE CONFIRMED BY THE CONTRACTOR AND THE ENGINEER SHALL BE NOTIFIED OF ANY VARIATIONS PRIOR TO COMMENCING CONSTRUCTION.
- EXISTING SERVICES ON THE DRAWINGS ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE. NO RESPONSIBLY IS TAKEN BY THE PRINCIPAL OR SUPERINTENDENT FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR IS TO ESTABLISH ON SITE THE EXACT POSITION OF ALL UNDERGROUND SERVICES IN THE PROPOSED WORKS AREA. METHODS FOR ACHIEVING THIS WILL INCLUDE BUT NOT BE LIMITED TO:-
 - CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS.
 - CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES.
 - COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES.
 - HAND EXCAVATING TO EXPOSE ALL SUCH SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.
- THE CONTRACTOR IS TO BRING TO THE SUPERINTENDENT'S ATTENTION ANY DISCREPANCIES BETWEEN THE EXISTING SERVICES THUS IDENTIFIED AND DOCUMENTED SERVICES WHICH MIGHT AFFECT THE PROPOSED WORKS. APPROPRIATE MEASURES TO RESOLVE ANY CONFLICT WILL BE DOCUMENTED BY THE SUPERINTENDENT.
- THIS DESIGN HAS BEEN BASED ON SERVICE AUTHORITY "AS CONSTRUCTED" INFORMATION AND LIMITED POTHOLING OR NO POTHOLING HAS BEEN UNDERTAKEN TO VERIFY EXISTING SERVICE LOCATIONS AND DEPTHS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERTAKE POTHOLING TO VERIFY THE DESIGN. NOTIFY THE DESIGN CONSULTANTS OF ANY SERVICE CLASHES.
- THE CONTRACTOR SHALL EXCAVATE BY HAND TO EXPOSE THE WATER MAINS AND/OR SEWERS AND SHALL CONSTRUCT A CONCRETE SPANNING SLAB TO COUNCIL REQUIREMENTS OVER THE WATER MAINS OR SEWERS SO THAT NO LOADS ARE IMPOSED ONTO THOSE MAINS.

EARTHWORKS NOTES

- ALL FOOTPATHS SHALL BE GRASSED (DRILL SEEDED WITH APPROVED GRASS SPECIES) IN ACCORDANCE WITH LANDSCAPE SPECIFICATIONS, FERTILIZED AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD.
- CLEAR TREES, LARGE SHRUBS ETC FROM THE AREA OF LOTS AND ROAD RESERVES. ONLY FOR CONSTRUCTION OF ROADS AND SERVICES, AND EITHER REMOVE FROM SITE OR ALTERNATIVELY CHIP MULCH AND STOCKPILE FOR RE-USE IN LANDSCAPING. CONTRACTOR SHALL OBTAIN COUNCIL INSPECTION AND APPROVAL PRIOR TO COMMENCING ANY TREE AND VEGETATION CLEARING. ALL VEGETATION/CONSERVATION ZONES SHALL BE RETAINED AND SHALL BE ADEQUATELY FENCED/SEGREGATED PRIOR TO COMMENCING CONSTRUCTION.
- SLASH THE EARTHWORKS AREA. CONTINUE SLASHING AREAS AS NECESSARY AND AS INSTRUCTED BY THE SUPERINTENDENT DURING THE CONTRACT AND MAINTENANCE PERIOD TO KEEP GRASS TO A MAXIMUM 50mm TO 100mm HIGH.
- ALL GULLIES AND DEPRESSIONS REQUIRING FILLING SHALL BE CLEARED, GRUBBED AND CLEANED OUT OF SILT, BOULDERS, DEBRIS ETC TO PROVIDE A CLEAN, FIRM BASE PRIOR TO PLACING ANY FILL OR FILTER MATERIALS. COMPACT ALL NATURAL SUBGRADES WITH 6 TO 8 PASSES OF A 10 TONNE VIBRATING ROLLER PRIOR TO PLACING ANY FILL MATERIALS. PLACE SUBSOIL DRAIN/SIMATS TO ENGINEERS APPROVALS AT THE BASE OF ALL SUCH FILLS AND OUTLET TO THE STORMWATER DRAINAGE SYSTEM. NOTIFY THE SUPERINTENDENT FOR AN INSPECTION PRIOR TO PLACING ANY FILL MATERIALS.
- WHERE FILL IS PLACED ON SLOPING EXISTING SURFACE, THE EXISTING SURFACE SHALL BE BENCHED AND THE BENCH COMPACTED TO 98% SRDD PRIOR TO PLACING THE FILL MATERIAL.
- REMOVE SURFACE ROCKS AND REUSE IN SCOUR PROTECTION. REMOVE EXCESS FROM SITE OR STOCKPILE AS DIRECTED. ALL COSTS TO BE INCLUDED IN CONTRACT LUMP SUM.
- THE CONTRACTOR SHALL ENSURE NO PONDING AREAS RESULT FROM THE EARTHWORKS OPERATION. ANY SUCH AREAS WHICH DEVELOP SHALL BE RECTIFIED AS DIRECTED BY THE SUPERINTENDENT. THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT OF THE DEVELOPMENT OR EXISTENCE OF ANY SUCH PONDING AREAS.
- BATTERS IN EXCESS OF 1.5m HIGH SHALL BE ASSESSED AND REPORTED FOR STABILITY (DURING CONSTRUCTION) BY A GEOTECHNICAL ENGINEER. COPIES OF REPORTS SHALL BE FORWARDED TO THE SUPERINTENDENT AND TO COUNCIL.
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY BERMS AT THE TOP OF ALL BATTERS TO DIRECT AND CONTROL RUNOFF TO A SINGLE LOCATION. THE DISCHARGE OVER THE BATTER SHALL BE THROUGH A STABILISED CHUTE ADDRESSED IN THE CONTRACTORS PLAN, e.g. REINFORCED TURF, GEOTEXTILE, CONCRETE OR SIMILAR.
- ALL BATTERS FRONTING THE ROAD RESERVES (AND NOT IN PRIVATE PROPERTY) SHALL BE FINISHED AT 1 ON 2 AND LANDSCAPED WITH LOW MAINTENANCE PLANTS IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL.
- THE CONTRACTOR SHALL ENSURE THE PROPOSED CONSTRUCTION EQUIPMENT TO BE USED ON THE SITE WILL NOT DAMAGE EXISTING UNDERGROUND INFRASTRUCTURE, IN PARTICULAR HEAVY EQUIPMENT TRAVERSING OVER A.C. MAINS WITH NOMINAL COVERS.

IMPORTED NON-PLASTIC FILL

- AS METRIC SIEVE % PASSING BY WEIGHT

75mm	100
2.36mm	25 - 70
75um	0 - 30
- MINIATURE ABRASION LOSS PASSING 2.36mm 0 - 15
- LINEAR SHRINKAGE PASSING 4.25um 0 - 8
- MATERIAL RETAINED ON 2.36mm SIEVE SHALL CONSIST OF SOUND STONE
- SOAKED CBR 15 AT 98% SRDD COMPACTION

PAVEMENT

- 150mm BASE COURSE TYPE 2.2 (CBR 60) COMPACTED TO 100% SRDD.
- 150mm SUB BASE COURSE TYPE 2.3 (CBR 45) COMPACTED TO 100% SRDD.
- SUB GRADE (CBR 5 MINIMUM) TRIMMED AND COMPACTED TO 98% SRDD.
- SUB GRADE CBR (SOAKED AT 98% SRDD) TO BE CHECKED AND SUBMITTED TO THE ENGINEER FOR CONFIRMATION OF PAVEMENT DESIGN (REFER PAVEMENT SUBGRADE NOTES).

GENERAL PAVEMENT NOTES

- THE CONTRACTOR SHALL ADVISE THE ENGINEER, IN WRITING, OF THE SOURCE OF GRAVEL SUPPLY, PROOF OF GRADING, CBR AND TYPE, AT LEAST ONE WEEK PRIOR TO PAVEMENT GRAVEL BEING DELIVERED TO THE SITE.
- NO PAVEMENT GRAVEL SHALL BE DELIVERED TO THE SITE UNTIL AFTER THE CONTRACTOR HAS RECEIVED WRITTEN CONFIRMATION OF THE PAVEMENT DESIGN FROM THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT THE PAVEMENT COURSES ARE SET DOWN SUFFICIENTLY TO ALLOW FOR THE THICKNESS OF ASPHALT (AND/OR BITUMEN) SEAL COAT.

ASPHALT - INTERNAL SITE WORKS

- THE PAVEMENT SHALL BE BROOMED CLEAN AND SHALL BE DRY PRIOR TO APPLYING PRIME COAT.
- PRIME COAT SHALL BE APPLIED 48 HOURS PRIOR TO ASPHALT SEALING.
- APPLY 40mm OF APPROVED ASPHALT.
- THE PRIME COAT AND HOT MIX DESIGN SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH TMR SPECIFICATION REQUIREMENTS, WITH POLYMER ADDITIVES.

ENVIRONMENTAL PROTECTION AND EROSION SEDIMENT CONTROL

- THE CONTRACTOR IS RESPONSIBLE WITHIN THE LIMITS IMPOSED BY THE WORKS, TO PROTECT AND PRESERVE THE NATURAL ENVIRONMENT AND AVOID POLLUTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INCORPORATION OF APPROPRIATE CONTROL MEASURES CONFORMING WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY.
- ALL BARE EARTH AREAS, FOOTPATHS, DRAINS AND CUT BATTERS UP TO 1 on 4 SLOPES SHALL BE DRILLED SEEDED WITH APPROVED GRASS SPECIES, FERTILISED AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD.
- ALL CUT AND FILL BATTERS STEEPER THAN 1 on 4 SHALL BE HYDROMULCHED WITH APPROVED SUITABLE GRASS SPECIES AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD.

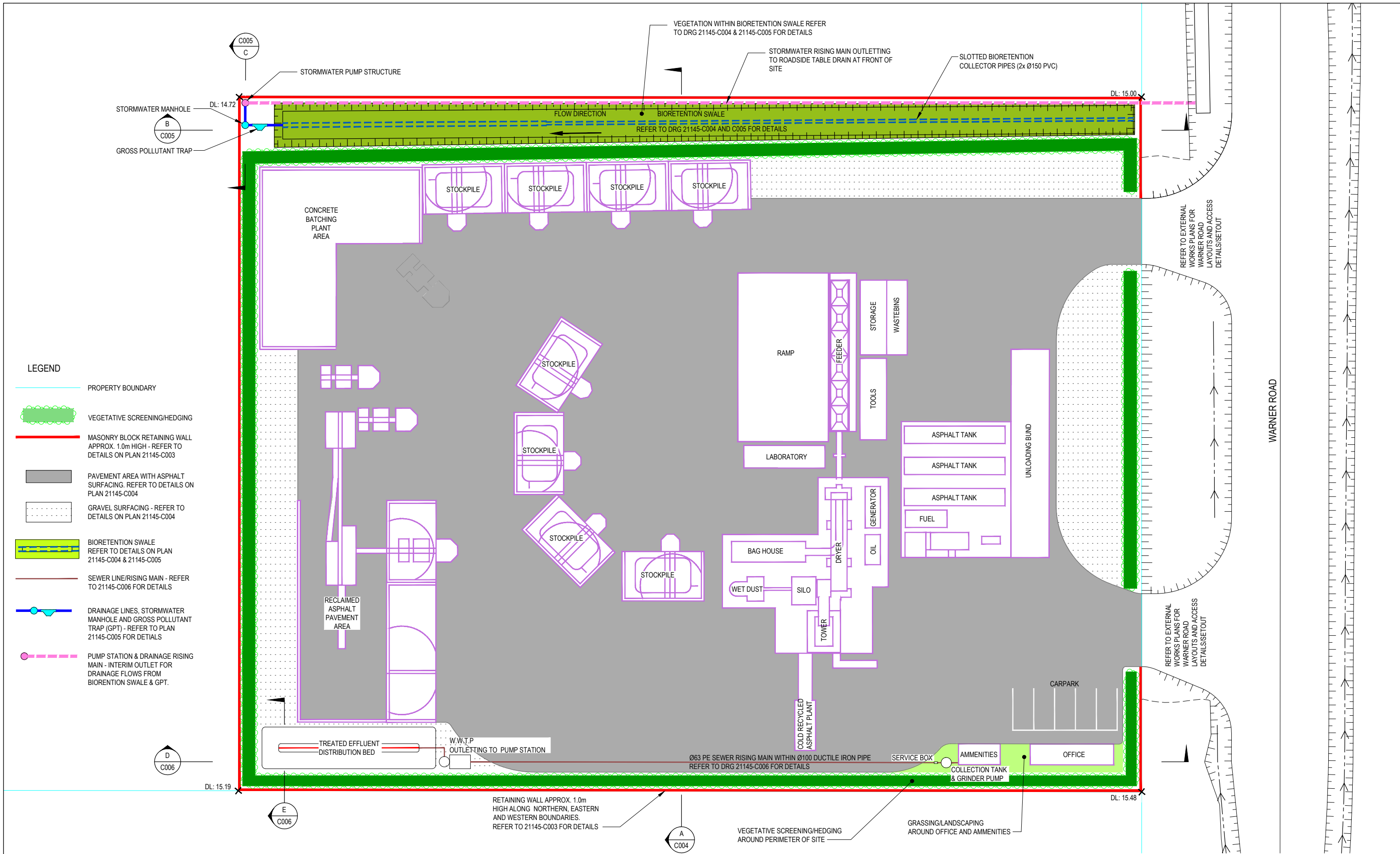
EROSION SEDIMENT CONTROL STRATEGY AND ENVIRONMENTAL PROTECTION

- THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND PRESERVE THE NATURAL ENVIRONMENT AND SHALL AVOID ENVIRONMENTAL POLLUTION IN ACCORDANCE WITH THE ENVIRONMENTAL PROTECTION ACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INCORPORATION OF APPROPRIATE CONTROL AND MANAGEMENT MEASURES CONFORMING TO THE REQUIREMENTS OF THE ACT AND THE RELEVANT AUTHORITIES.
- THE EROSION AND SEDIMENT CONTROL STRATEGY, SHOWN OR NOTED ON THESE DRAWINGS, HAS BEEN PROVIDED AS A GUIDE.
- THE CONTRACTOR SHALL PROVIDE AN EROSION SEDIMENT CONTROL PLAN (ESCP) FOR EACH PHASE OF HIS PROPOSED CONSTRUCTION PROGRAM AND WORK METHODS, AND IS WHOLLY RESPONSIBLE FOR THE IMPLEMENTATION, CONTROL AND MANAGEMENT OF SUCH PLAN.
- THE CONTRACTOR SHALL INSTALL ALL DEVICES/MEASURES NECESSARY TO COMPLY WITH THE PROVISIONS OF THE ESCP FNQROC DEVELOPMENT MANUAL, THE ENVIRONMENTAL PROTECTION ACT, AND COUNCIL REQUIREMENTS.
- THE ESCP SHALL INCLUDE SUCH MEASURES AS SHOWN ON THE STRATEGIC PLAN.
- OSE GROUP DO NOT ACCEPT RESPONSIBILITY FOR THE CONTRACTOR'S DESIGN & IMPLEMENTATION OF HIS ESCP NOR THE CONSEQUENCES OF HIS FAILURE TO APPLY ALL REASONABLE CONTROLS.
- ALL STORMWATER INLETS, TRENCHES, ETC. SHALL BE CONSTRUCTED IN SUCH A WAY AS TO PREVENT THE ENTRY OF SEDIMENT INTO THE STRUCTURE. IF IT IS NECESSARY TO DISCHARGE INTO SUCH INLETS THEN SUITABLE SILT TRAPS SHALL BE CONSTRUCTED UPSTREAM OF THE INLETS SUCH THAT OVERFLOW FROM TRAPS ENTERS THE DRAINS AFTER THE SEDIMENT HAS DROPPED OUT.
- ALL SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE END OF THE MAINTENANCE PERIOD, UNLESS NOTED OTHERWISE. ALL SEDIMENT CONTROL DEVICES ARE TO BE FULLY MAINTAINED IN AN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND THE MAINTENANCE PERIOD. THE CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT CONTROL DEVICES ARE KEPT FREE OF SEDIMENT BUILD-UP.
- SEDIMENT FENCES SHALL BE INSTALLED SUCH THAT THE BASE OF THE FENCE IS PLACED 150MM MINIMUM BELOW GROUND LEVEL, AND ANCHORED SECURELY IN SUCH POSITION.
- ALL VEHICLE EXIT POINTS SHALL HAVE SHAKER GRIDS, WASH BAYS OR SIMILAR TO PREVENT VEHICLES FROM TRACKING SOIL AND MUD OFF SITE.
- ALL SOIL STOCKPILES SHALL BE PROTECTED AGAINST WIND EROSION BY COVERING AND AGAINST STORMWATER RUNOFF BY SILT FENCES AT THE DOWNHILL SLOPES. STOCKPILE LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND EROSION/CONTROL MEASURES IMPLEMENTED & MAINTAINED FOR THE LIFE OF THE STOCKPILE.
- THE CONTRACTOR SHALL INSTALL TURF STRIPS BEHIND ALL KERB & CHANNEL, ADJACENT CONCRETE INVERTS AND ALLOTMENT DRAINS ETC WHERE DIRTY WATER SHEET FLOWS INTO DRAINAGE COLLECTION SYSTEMS.
- DIVERT CLEAN WATER AROUND AREAS OF CONSTRUCTION.
- DRILL SEED ALL ROAD SHOULDERS, FOOTPATHS, DRAINS AND CUT BATTERS UP TO 1 on 4 SLOPE SHALL BE DRILL SEEDED WITH APPROVED GRASS SPECIES, FERTILIZED AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD
- HYDROMULCH ALL CUT AND FILL BATTERS STEEPER THAN 1 on 4, WITH APPROVED SUITABLE GRASS SPECIES AND MAINTAINED FOR THE REQUIRED MAINTENANCE PERIOD
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY BERMS AT THE TOP OF ALL BATTERS TO DIRECT AND CONTROL RUNOFF TO A SINGLE LOCATION. THE DISCHARGE OVER THE BATTER SHALL BE THROUGH A STABILIZED CHUTE ADDRESSED IN THE CONTRACTORS PLAN, e.g. REINFORCED TURF, GEOTEXTILE, CONCRETE OR SIMILAR.
- ALL WORKS AND MATERIALS SHALL BE IN ACCORDANCE WITH FNQROC.

TRENCHES (DRAINAGE, SEWERAGE, SERVICES)

- PLACE AND COMPACT SAND BEDDING, SAND SURROUND AND SAND BACKFILL TO ALL TRENCHES UP TO THE UNDERSIDE OF THE PAVEMENT IN ROADWAYS AND DRIVEWAYS, AND UP TO 150mm BELOW FINISHED SURFACE LEVEL ELSEWHERE.

A 30.05.22 INITIAL ISSUE	DESIGNER	 <p>Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au</p>	CLIENT		PROJECT		TITLE			
					ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE		ENGINEERING NOTES			
REV DATE REVISION NOTES					DRAWN DJM	DRAWING CHECK PDR	APPROVED	SCALE	DRAWING No	REV
					DESIGNED DJM	DESIGN REVIEW PDR	DATE -	1:500 (A3)	21145-C001	A



LEGEND

- PROPERTY BOUNDARY
- VEGETATIVE SCREENING/HEDGING
- MASONRY BLOCK RETAINING WALL APPROX. 1.0m HIGH - REFER TO DETAILS ON PLAN 21145-C003
- PAVEMENT AREA WITH ASPHALT SURFACING. REFER TO DETAILS ON PLAN 21145-C004
- GRAVEL SURFACING - REFER TO DETAILS ON PLAN 21145-C004
- BIORETENTION SWALE REFER TO DETAILS ON PLAN 21145-C004 & 21145-C005
- SEWER LINE/RISING MAIN - REFER TO 21145-C006 FOR DETAILS
- DRAINAGE LINES, STORMWATER MANHOLE AND GROSS POLLUTANT TRAP (GPT) - REFER TO PLAN 21145-C005 FOR DETAILS
- PUMP STATION & DRAINAGE RISING MAIN - INTERIM OUTLET FOR DRAINAGE FLOWS FROM BIORETENTION SWALE & GPT.

<p>B 6.06.22 STORMWATER SCHEME AMMENDED A 30.05.22 INITIAL ISSUE</p> <p>REV DATE REVISION NOTES</p>	<p>SCALE 1:500</p>	<p>DESIGNER</p> <p>OSE GROUP</p> <p>Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au</p>	<p>CLIENT</p> <p>KOPPEN CONSTRUCTION</p>	<p>PROJECT</p> <p>ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE</p>	<p>TITLE</p> <p>INTERNAL SITE LAYOUT - GENERAL ARRANGEMENT PLAN</p>												
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DRAWN DJM</td> <td style="width: 33%;">DRAWING CHECK PDR</td> <td style="width: 33%;">APPROVED</td> </tr> <tr> <td>DESIGNED DJM</td> <td>DESIGN REVIEW PDR</td> <td>DATE -</td> </tr> </table>	DRAWN DJM	DRAWING CHECK PDR	APPROVED	DESIGNED DJM	DESIGN REVIEW PDR	DATE -	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">SCALE 1:500</td> <td style="width: 33%;">DRAWING No (A3)</td> <td style="width: 33%;">DRAWING No 21145-C002</td> </tr> <tr> <td colspan="2"></td> <td style="text-align: right;">REV B</td> </tr> </table>	SCALE 1:500	DRAWING No (A3)	DRAWING No 21145-C002			REV B
DRAWN DJM	DRAWING CHECK PDR	APPROVED															
DESIGNED DJM	DESIGN REVIEW PDR	DATE -															
SCALE 1:500	DRAWING No (A3)	DRAWING No 21145-C002															
		REV B															

6/06/2022 12:37:32 PM File: C:\Users\darnal\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg

SITE PREPARATIONS, EARTHWORKS AND FOUNDATION NOTES

- THE DESIGN OF THE STRUCTURE HAS BEEN BASED ON THE FOUNDATION HAVING A MINIMUM BEARING CAPACITY OF 100 KPA.
- BEFORE ANY CONCRETE IS PLACED, THE SAFE BEARING CAPACITY OF THE GROUND SHALL BE VERIFIED WITH A GEOTECHNICAL INVESTIGATION. IF THE BEARING PRESSURE IS ASSESSED AS BEING LESS THAN THE SPECIFIED, THE DESIGN ENGINEER IS TO BE NOTIFIED IN WRITING.
- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXCAVATIONS IN STABLE CONDITIONS. PROTECT SURROUNDING PROPERTY AND SERVICES FROM ADVERSE EFFECTS OF GROUND WORKS. PROVIDE TEMPORARY WORKS AS REQUIRED. PROVIDE SHORING CERTIFIED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ALL DEEP EXCAVATIONS WHERE REQUIRED.
- DO NOT UNDERMINE EXISTING FOOTINGS.
- KEEP EXCAVATIONS FREE OF WATER. PROVIDE ADEQUATE DRAINAGE TO ENSURE FOUNDATION IS NOT AFFECTED BY MOISTURE. PREVENT FOUNDATION DRYING OUT DUE TO EXPOSURE. PLACE BLINDING, FOOTINGS, PILES AND BACKFILL AS SOON AS PRACTICABLE AFTER EXCAVATION.
- EARTHWORKS SHALL BE IN ACCORDANCE WITH AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS" AND AS FOLLOWS.
- STRIP BUILDING PLATFORM OF ALL TOPSOIL AND VEGETATION TO A MINIMUM DEPTH OF 150MM AND STOCKPILE. REMOVE ALL DELETERIOUS MATTER.
- THE CONTRACTOR SHALL CHECK ALL EXCAVATIONS FOR ORGANIC MATERIAL AND RUBBISH. IF ANY OF THIS MATERIAL IS FOUND, IT SHALL BE REMOVED FROM THE WORKS TO A PLACE DESIGNATED BY THE SUPERINTENDENT.
- UNLESS NOTED OTHERWISE IN SPECIFICATION, FOOTING AND SLABS SHALL BE FOUNDED ON COMPACTED MATERIAL OR CONTROLLED FILL COMPACTED IN ACCORDANCE WITH THE FOLLOWING AS APPROPRIATE FOR MATERIAL TYPE:
 - SANDS WITH 5% FINES OR LESS. FIELD DENSITY INDEX NOT LESS THAN 65% OF LABORATORY REFERENCE DENSITY DETERMINED IN ACCORDANCE WITH AS1289.5.6.1.
 - SILTS AND SANDS WITH MORE THAN 5% FINES, DRY DENSITY RATIO OF NOT LESS THAN 98% OF LABORATORY REFERENCE DENSITY DETERMINED IN ACCORDANCE WITH AS 1289.5.1.1.
 - CLAYS, DRY DENSITY RATIO OF NOT LESS THAN 95% OF LABORATORY REFERENCE DENSITY DETERMINED IN ACCORDANCE WITH AS 1289.5.1.1 OR 90% IN ACCORDANCE WITH AS 1289.5.2.1-1. CLAY FILL SHOULD BE MOIST TO ALLOW COMPACTION AND REDUCE SUBSEQUENT MOVEMENT. REACTIVE CLAY FILL SHOULD BE AVOIDED.
- EXPOSURE OF EXCAVATED FOOTINGS SHALL BE MINIMISED TO PREVENT LOCALISED MOISTURE CHANGES DURING THE CONSTRUCTION PERIOD.
- BACKFILL AND REQUIRED FILL UNDER SLABS AND FOOTINGS SHALL BE CONTROLLED FILL OF APPROVED NON-PLASTIC/ GRANULAR MATERIAL, MIN SOAKED CBR VALUE OF 15%, COMPACTED IN 200MM MAXIMUM THICK LAYERS TO 98% SRDD AND PLACED STRICTLY TO AS 3798.
- MATERIAL WON FROM THIS SITE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER FOR APPROVAL PRIOR TO USE AS FILL.
- TREE REMOVAL: WHERE A TREE IS REMOVED, EXCAVATE 200MM BELOW EXTENT OF ROOT BALL. COMPACT EXPOSED SURFACE TO 98% SRDD TO A DEPTH OF AT LEAST 250MM. PLACE FILL AS UNDER CLAUSE 9.
- A 50MM MINIMUM BLINDING LAYER OF SAND, COMPACTED TO 95% MAX DRY DENSITY SHALL BE APPLIED TO THE BASE OF ALL SLABS-ON-GROUND IMMEDIATELY AFTER VERIFICATION OF THE BEARING CAPACITY BY THE GEOTECHNICAL ENGINEER.
- DAMP PROOF MEMBRANE UNDER FOUNDATIONS TO BE 0.2MM THICK POLYETHYLENE FILM. LAP JOINTS 200MM. SEAL LAP PENETRATIONS AND ANY PUNCTURES WITH DOUBLE-SIDED BUTYL ADHESIVE TAPE.
- WHERE THE FOUNDING MATERIAL IS DEEPER THAN REQUIRED FOR THE FOOTING, THE EXCAVATION IS TO BE BACKFILLED WITH A WEAK MIX CONCRETE (N10) TO THE UNDERSIDE OF THE FOOTING.
- FOLLOWING CONSTRUCTION FOUNDATION MAINTENANCE TO BE IN ACCORDANCE WITH CSIRO BUILDING TECHNOLOGY FILE 18 "FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE: A HOMEOWNER'S GUIDE".

CONCRETE AND REINFORCEMENT NOTES

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600.
- MINIMUM COVER TO ALL REINFORCEMENT AGAINST SURFACES SHALL BE AS FOLLOWING U.N.O.
 - FOOTINGS - 75mm BOTTOM, 65mm SIDES AND TOP
 - COVER SHALL BE 45mm WHERE SURFACE IS EXTERIOR ABOVE GROUND.
 - WITHIN CONCRETE MASONRY BLOCK - 10mm.
- SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES. ALL CONCRETE THICKNESSES SHOWN ARE MINIMUM STRUCTURAL REQUIREMENTS; NO REDUCTION IN THICKNESS DUE TO FALLS OR TOPPING IS PERMITTED. REFER ARCHITECTS DRAWINGS FOR CONFIRMATION OF ALL SLAB FALLS AND STEPS.
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- CONSTRUCTION JOINTS SHALL HAVE CONCRETE FACES FULLY SCABBLED, CLEANED AND COATED WITH A CEMENT/WATER SLURRY IMMEDIATELY PRIOR TO PLACING ADJACENT CONCRETE; AND ARE TO BE USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED.
- CONTROL JOINTS SHALL BE CONSTRUCTED AS SPECIFIED.
- SAW CUTTING SHALL BE CARRIED OUT WITHIN 6 HOURS OF CONCRETE HARDENING.
- STEEL REINFORCEMENT IS TO COMPLY WITH AS 3600 AND AS/NZ 4671, AND IS REPRESENTED DIAGRAMMATICALLY, FSY = 500MPa.
- U.N.O., SPLICING OF REINFORCEMENT IS TO BE A MINIMUM OF:

N12	450mm
N16	600mm
N20	800mm
- MESH TWO CROSS WIRES PLUS 25mm
- HORIZONTAL BARS WITH MORE THAN 300mm CONCRETE UNDER THEM SHALL HAVE LAPS 1.25 TIMES THESE LENGTHS.
- WELDING OR SITE BENDING OF REINFORCEMENT IS NOT PERMITTED WITHOUT APPROVAL OF THE ENGINEER.
- ALL REINFORCEMENT SHALL BE SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING, BAR CHAIRS AT 800mm MAX. CENTRES BOTH DIRECTIONS. SUPPORTS OVER MEMBRANES ARE TO BE PLACED SO AS TO PREVENT PUNCTURING OF THE MEMBRANE.
- FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610 - FORMWORK FOR CONCRETE AND ALL RELEVANT CONSTRUCTION SAFETY LEGISLATION. U.N.O. FINISHES SHALL BE CLASS 2. MINIMUM FORMWORK STRIPPING TIMES FOR IN-SITU CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 5.4.3, TABLE 5.4.1 OF AS 3610.
- CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES. CONCRETE SPECIFICATION, U.N.O. ON DRAWINGS:

	CLASS & GRADE	SLUMP	MAX. AGG. SIZE
BASE SLAB OF RETAINING WALL	N32	80mm ± 15mm	20mm
FILLING 200 & 300 CM	N20	220mm ± 30mm	10mm

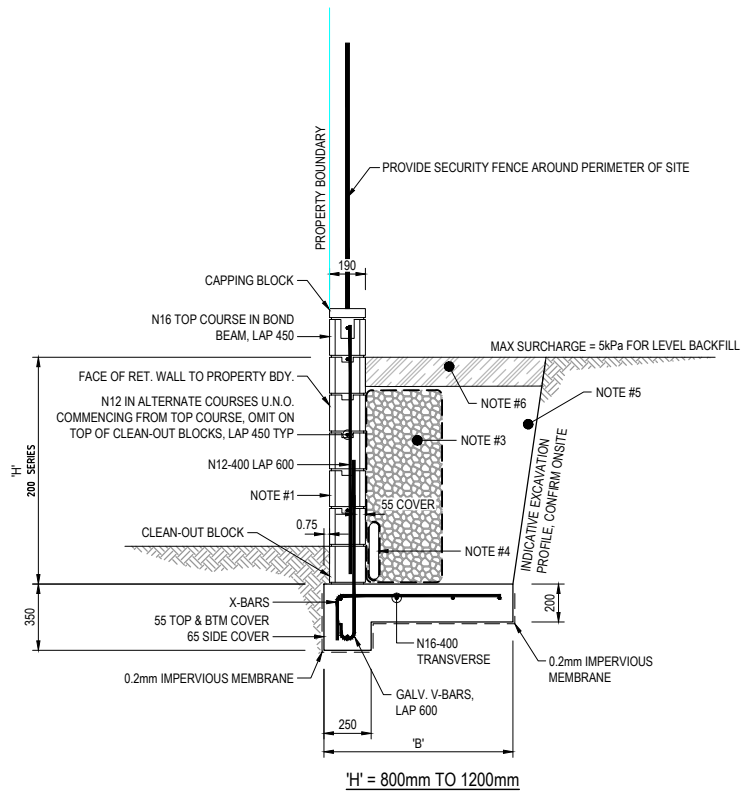
- METHOD OF PLACEMENT BY PUMP.
PROJECT ASSESSMENT IS NOT REQUIRED.
- PROVIDE A 10mm x 10mm CHAMFER TO EXPOSED EDGES ON CONCRETE UNO.
 - CURE CONCRETE IN ACCORDANCE WITH AS3600 FOR 7 DAYS AND PRIOR TO THE REMOVAL OF FORMWORK.

CONCRETE MASONRY NOTE

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3700.
- REFER TO PUBLICATIONS "M454 CONCRETE MASONRY WALLING- SINGLE-LEAF MASONRY DESIGN MANUAL", "M445 "CONCRETE MASONRY HANDBOOK" AND "M455 DESIGN AND CONSTRUCTION OF CONCRETE MASONRY BUILDINGS" BY CMAA FOR DETAILS ON WORKMANSHIP, FIXING TO GABLE ENDS, BASEMENT WALLS, TANKING, WATERPROOFING ETC. MINIMUM OF 20MM GROUT COVER TO ANY STEEL REINFORCEMENT MEMBER.
- CHASES OR HOLES SHALL NOT BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. EMBEDDED ITEMS SHALL NOT BE PLACED INSIDE CORES CONTAINING REINFORCEMENT.
- ALL WALL INTERSECTIONS SHALL BE OF BONDED CONSTRUCTION FOR INTERNAL NON-LOADBEARING UNREINFORCED WALLS (MASONRY MESH, 500 LONG, AT 400 CRS VERT) OR TIED FOR INTERNAL LOAD-BEARING REINFORCED WALLS (L8 TIES AT 400 CRS VERT, BENT DOWN 100mm INTO GROUTED CORES).
- BUILD IN ALL FIXINGS FOR ARCHITECTURAL DETAILS NOT SPECIFICALLY SHOWN ON THE ENGINEER'S DRAWINGS.
- CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF CONCRETE BLOCKS TO AS/NZS 4455.1-2008 AND DR04313 SHALL BE FUC = 15MPa.
- REINFORCEMENT AND CONCRETE MASONRY BLOCK CORE FILLING SHALL COMPLY WITH THE NOTES ON "CONCRETE AND REINFORCEMENT". GROUT SHALL HAVE A CEMENT CONTENT OF NOT LESS THAN 300kg/m³.
- PROVIDE CLEANOUT BLOCKS AT THE BASE OF EVERY CORE TO BE FILLED AND HAVE ALL MORTAR DROPPINGS REMOVED PRIOR TO COMMENCEMENT OF CORE FILLING. ALTERNATIVELY, THE BUILDER SHALL OPEN SUCH CORES FOR CLEANING BY AN APPROVED METHOD.
- ALL CORES TO BE CONCRETE FILLED SHALL BE CLEANED OUT BY HOSING PRIOR TO FINAL SETTING OF MORTAR AT ALL LIFTS, OR BY RODDING PRIOR TO CONCRETE FILLING.
- MORTAR USED IN BLOCKWORK THAT IS TO BE GROUTED OR REINFORCED SHALL BE OF CLASSIFICATION M3 TO AS 3700, FOR GENERAL PURPOSE APPLICATION WITH MODERATE EXPOSURE; REFER TO CMAA'S RECOMMENDATIONS IN "CM01 CONCRETE MASONRY - HAND BOOK"

CLASS	CEMENT	LIME	SAND	METHYL CELLULOSE (DYNEX) WATER THICKENER ADDED
M3 (CHARACTERISTIC COMPRESSIVE STRENGTH 20 MPa)	1	1	6	OPTIONAL
	1	0	5	YES
	- CEMENT CONTENT NOT LESS THAN 300kg/m ³			
	- COARSE AGGREGATE SIZE MAX 10mm			

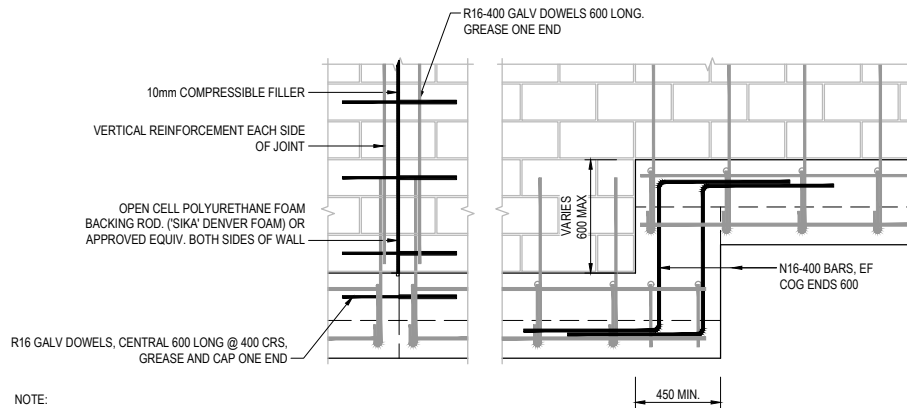
- FOR HIGH DURABILITY APPLICATIONS WITH SEVERE EXPOSURE USE MORTAR TYPE M4 AND REFER TO CMAA'S RECOMMENDATIONS IN "CM01 CONCRETE MASONRY - HAND BOOK".
- BOND BEAM REINFORCING SHALL BE CONTINUOUS AT WALL INTERSECTIONS AND BARS ANCHORED AND LAPPED TO DEVELOP FULL TENSILE STRENGTH.
 - A CANTILEVER RETAINING WALL SHALL BE PROPPED UNTIL CORE FILL HAS ATTAINED ITS DESIGN STRENGTH. IF BACKFILL IS TO BE PLACED BEHIND THE WALL.
 - A PROPPED CANTILEVER RETAINING WALL SHALL BE PROPPED UNTIL THE SUPPORTING SLAB OVER HAS ATTAINED ITS DESIGN STRENGTH.
 - MAXIMUM HEIGHT FOR GROUT FILLING OF HOLLOW CORES IS LIMITED TO 2400mm IN ONE POUR AND TO 3000mm IN TWO POURS ABOUT 30 MINUTES APART.



RETAINING WALLS - TYPE 1

SCALE: 1:20

PROVIDE WALL CONTROL JOINTS AT MAX 10m CENTRES. PROVIDE EXPANSION JOINT IN BASE SLAB AT SAME LOCATIONS.



EXPANSION JOINT DETAIL

SCALE: NTS

FOOTING STEP DETAIL

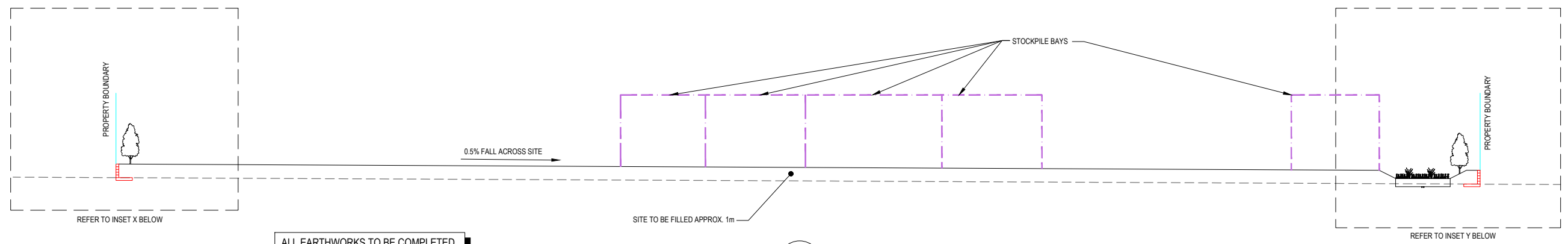
SCALE: NTS

RETAINING WALL SCHEDULE - TYPE 1				
TOTAL HEIGHT 'H' (mm)	BLOCKWORK HEIGHT	REINFORCEMENT		BASE DIMENSIONS 'B'
	200 SERIES	X-BARS	V-BARS	LEVEL
800	800	N12-400	N12-400	800
1000	1000	N12-400	N12-400	900
1200	1200	N12-400	N12-400	1000

NOTES:

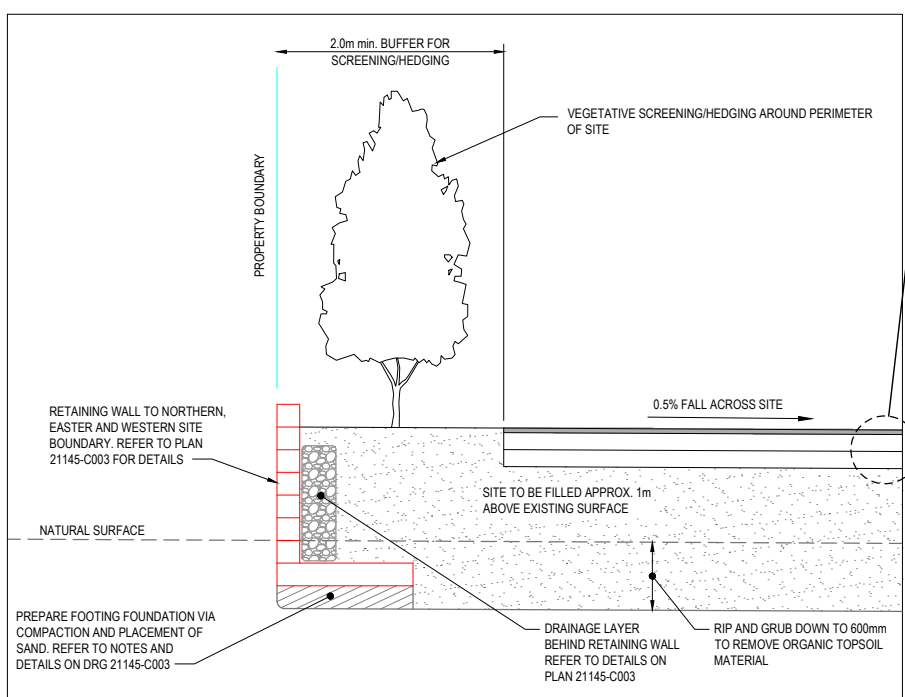
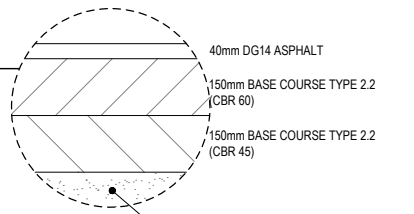
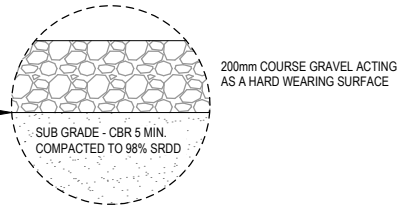
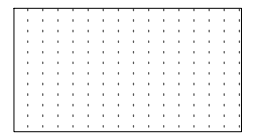
- 'H' MASONRY BLOCKS (SEE DETAIL FOR WIDTH), FILL ALL CORES WITH 20MPa CONCRETE. PAINT SURFACE OF WALL INTERFACING SOIL WITH 2 COATS OF AN APPROVED BITUMASTIC SEALANT IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION OR SIMILAR APPROVED WATER-PROOF MEMBRANE.
- MIN. 10mm CRUSHED ROCK DRAINAGE FILL MATERIAL (300 MIN WIDE), WRAPPED IN GEOTEXTILE FABRIC, LAP 600.
- 300 MEGAFLO (MIN.) SIZE TO BE CONFIRMED BY ENGINEER, ALTERNATIVELY; 2-Ø100 AGLINE PIPES WRAPPED IN GEOTEXTILE SOCK.
- IMPORTED CLEAN BACKFILL MATERIAL COMPACTED TO 85% SRDD.
- 150mm THICK COMPACTED CLAY SURFACE SEAL.
- ADDITIONAL LOADS APPLIED FROM FENCING STRUCTURES PLACED ON TOP OF THE RETAINING WALLS HAVE NOT BEEN ALLOWED FOR IN THIS DESIGN. CONSULT ENGINEER IF FENCING STRUCTURES ARE PROPOSED.

A 30.05.22 INITIAL ISSUE		<p>Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au</p>		PROJECT	ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE	RETAINING WALL DETAILS					
				DRAWN	DJM	DRAWING CHECK	PDR	APPROVED				
REV DATE REVISION NOTES				DESIGNED	DJM	DESIGN REVIEW	PDR	SCALE AS SHOWN	DRAWING No	21145-C003	REV	A

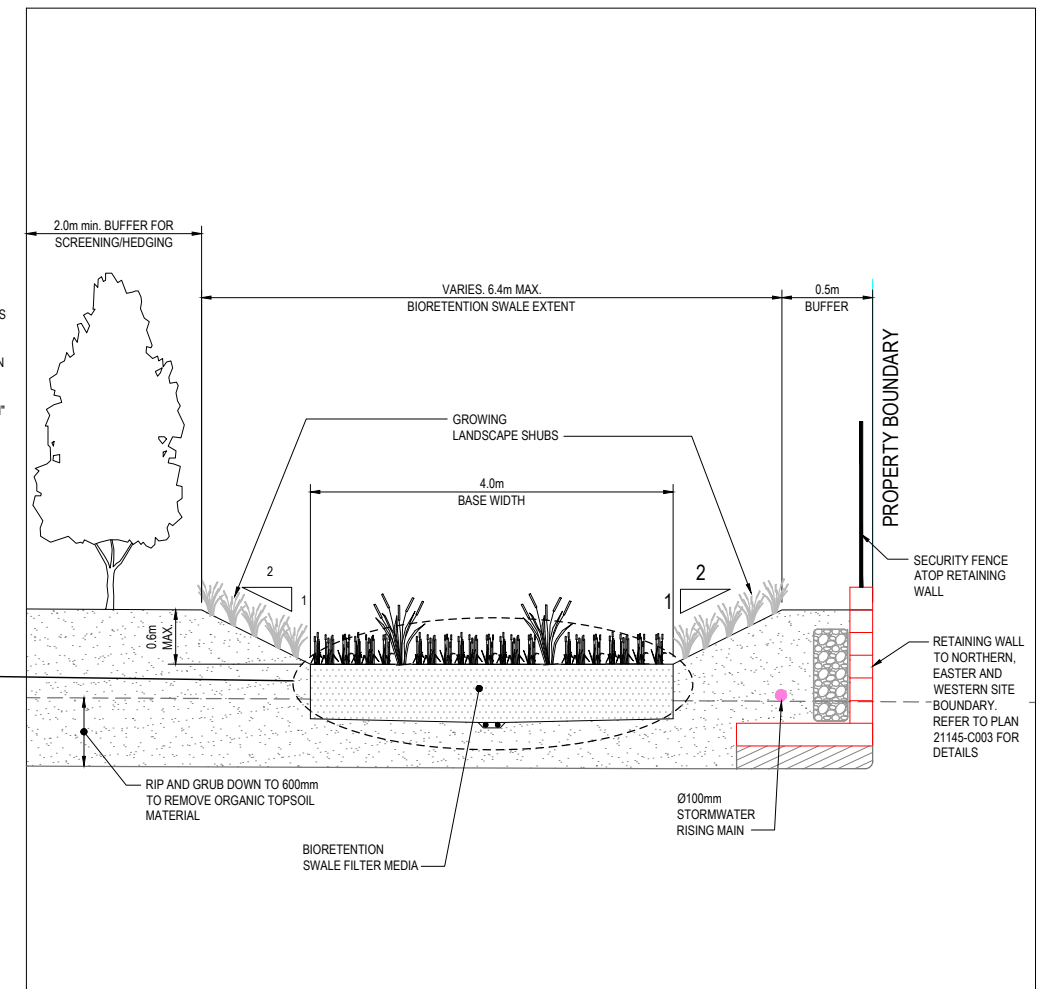
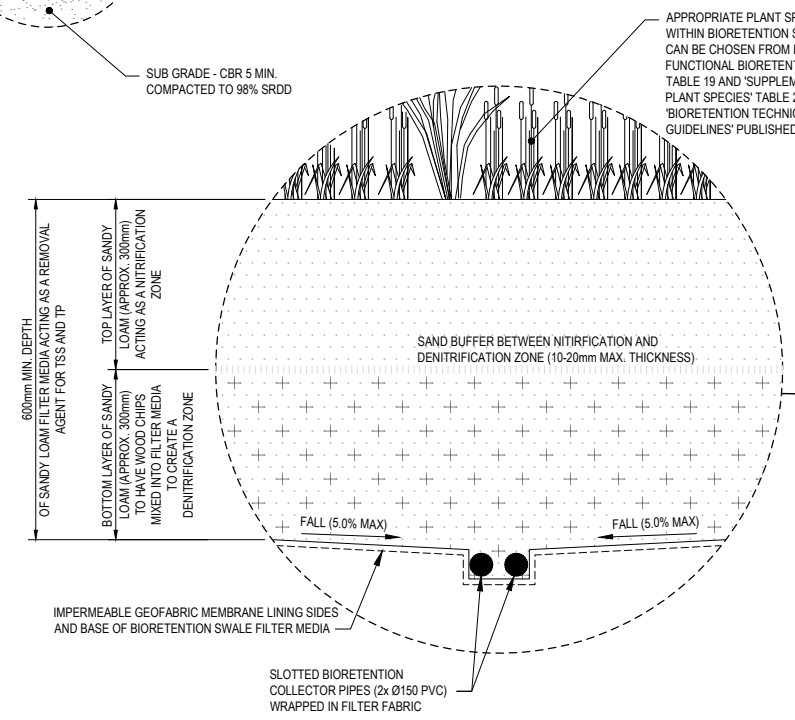


ALL EARTHWORKS TO BE COMPLETED IN ACCORDANCE WITH AS3798-2007

SECTION A
NTS C002

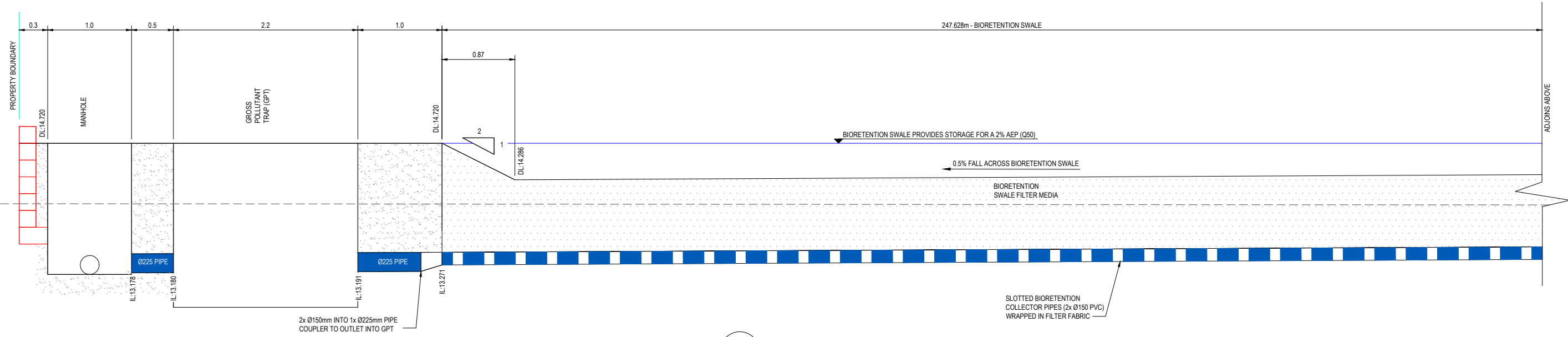
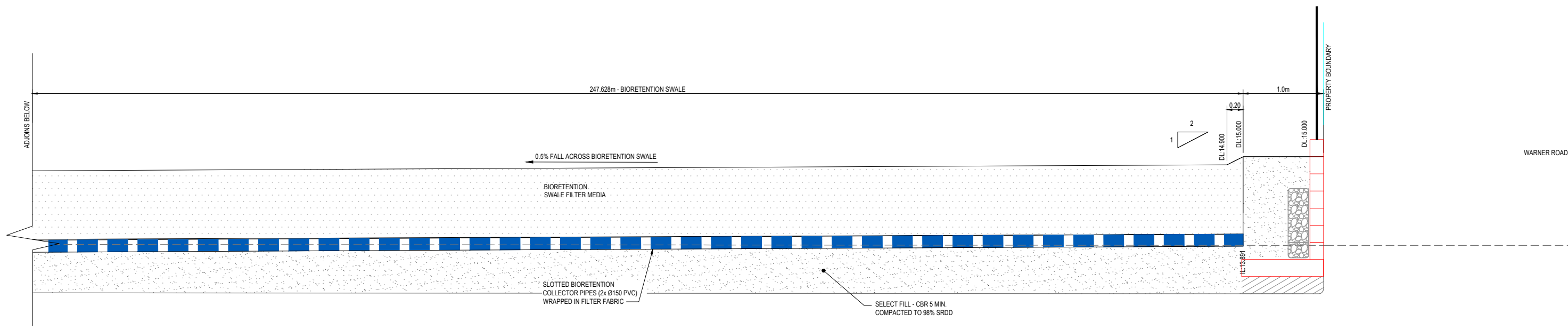


INSET X
NTS

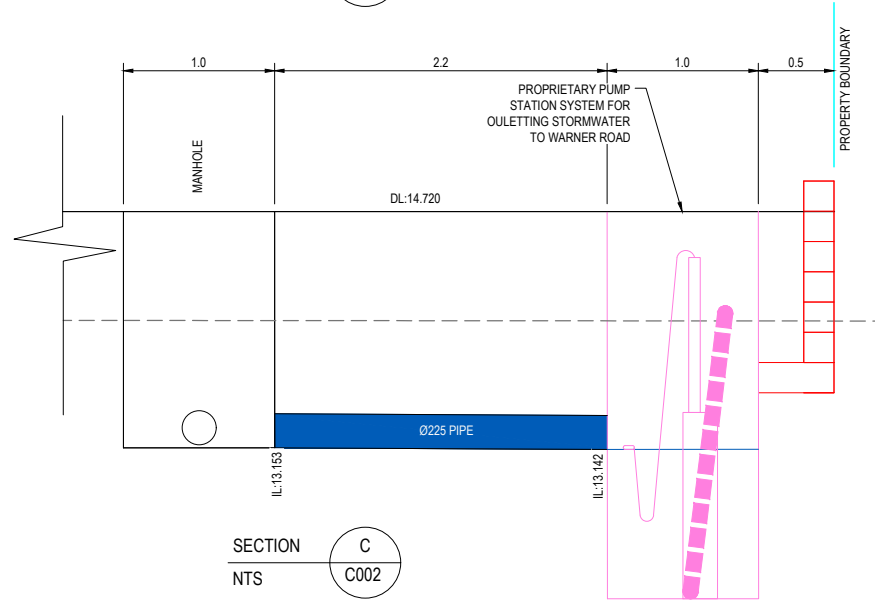


INSET Y
NTS

A 30.05.22 INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE EARTHWORKS SECTION AND DETAILS
				DRAWN DJM	DRAWING CHECK PDR
				DESIGNED DJM	DESIGN REVIEW PDR
				APPROVED DATE -	SCALE NOT TO SCALE
				DRAWING No 21145-C004	
				REV A	

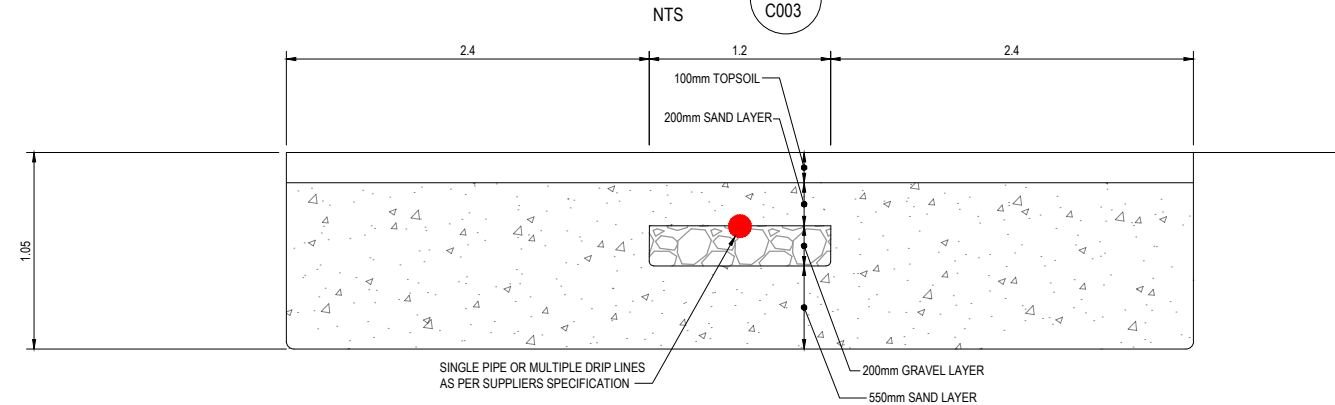
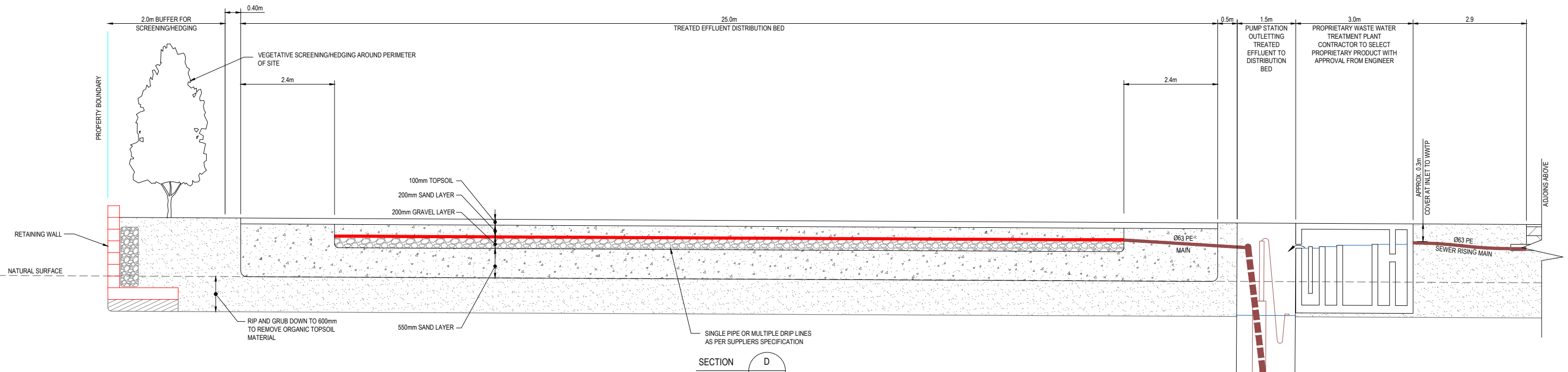
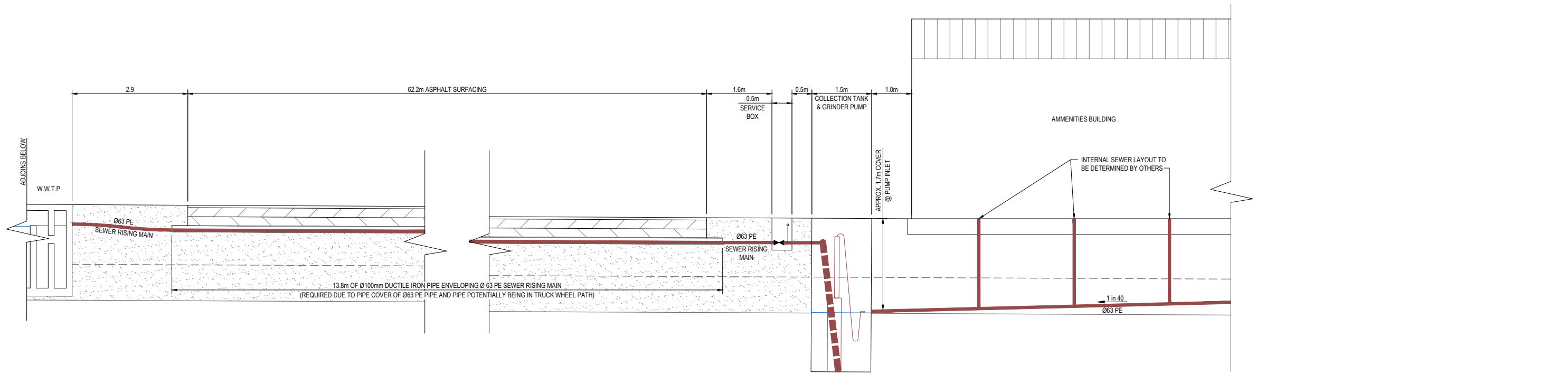


SECTION B
NTS C002



SECTION C
NTS C002

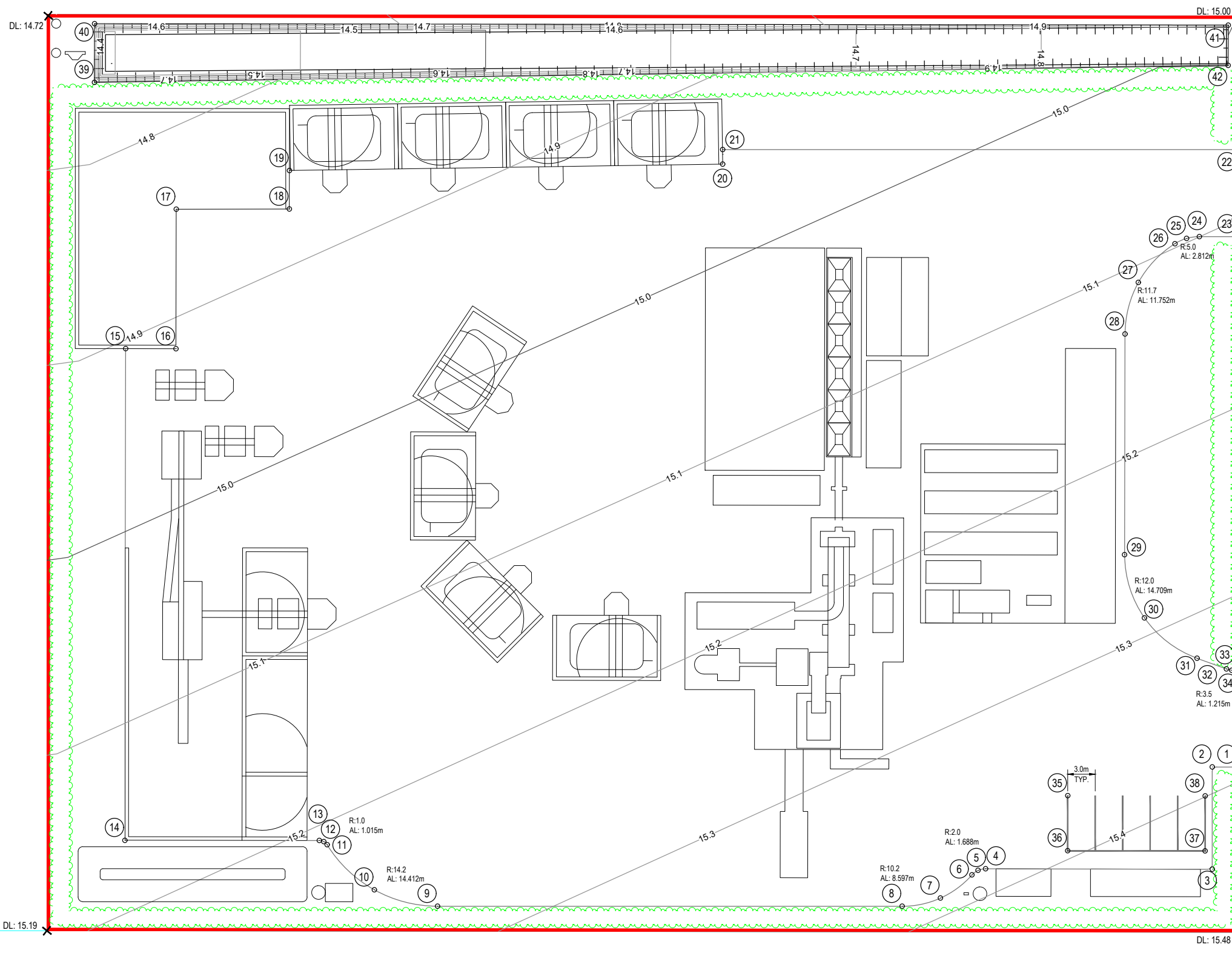
B 6.06.22 STORMWATER SCHEME AMENDED A 30.05.22 INITIAL ISSUE	DESIGNER OSE GROUP Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT KOPPEN CONSTRUCTION	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE		TITLE BIORETENTION SWALE SECTION & STORMWATER INVERT LEVELS	
			DRAWN DJM	DRAWING CHECK PDR	APPROVED DATE -	SCALE NOT TO SCALE



TREATED EFFLUENT DISTRIBUTION BED
TYPICAL SECTION
SECTION E
NTS
C003

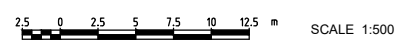
A 30.05.22 INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE ON SITE SEWER TREATMENT SECTIONS AND DETAILS
DRAWN DJM	DESIGN REVIEW DJM	DRAWING CHECK PDR	DESIGN REVIEW PDR	APPROVED DATE -	SCALE NOT TO SCALE
				DRAWING No 21145-C006	REV A

6/06/2022 12:37:33 PM File: C:\Users\darma\Desktop\21145 Koppens Ashalt Plant Warner Road\21145-DESIGN.dwg



POINT	EASTING	NORTHING	LEVEL
1	369940.814	8114312.587	15.393
2	369941.076	8114315.325	15.386
3	369929.973	8114316.385	15.440
4	369932.367	8114341.020	15.385
5	369932.271	8114341.852	15.384
6	369931.841	8114342.572	15.385
7	369929.655	8114346.235	15.390
8	369929.161	8114350.473	15.385
9	369933.982	8114400.983	15.272
10	369936.419	8114407.682	15.248
11	369941.804	8114412.353	15.212
12	369942.184	8114412.682	15.210
13	369942.355	8114413.154	15.208
14	369944.385	8114434.289	15.161
15	369997.803	8114429.107	14.905
16	369997.271	8114423.642	14.916
17	370012.425	8114422.162	14.844
18	370011.269	8114409.866	14.870
19	370015.449	8114409.339	14.850
20	370011.659	8114362.290	14.948
21	370013.238	8114362.163	14.941
22	370007.894	8114306.184	15.063
23	369998.437	8114307.086	15.090
24	369998.832	8114311.226	15.100
25	369998.768	8114312.626	15.098
26	369998.319	8114313.954	15.098
27	369994.490	8114318.329	15.109
28	369999.025	8114320.315	15.134
29	369995.050	8114322.651	15.251
30	369957.969	8114321.146	15.290
31	369953.041	8114315.842	15.324
32	369951.584	8114312.765	15.337
33	369951.373	8114312.197	15.339
34	369951.263	8114311.600	15.343
35	369939.455	8114331.329	15.366
36	369933.478	8114331.911	15.395
37	369932.022	8114316.967	15.429
38	369938.000	8114316.384	15.400
39	370027.060	8114429.735	14.758
40	370033.430	8114429.119	14.728
41	370021.513	8114305.890	14.995
42	370017.136	8114306.319	15.016

A 30.05.22 INITIAL ISSUE
 REV DATE REVISION NOTES



DESIGNER

Address: 35 ABBOTT ST, CAIRNS 4870
 Email: admin@osegroup.com.au

CLIENT

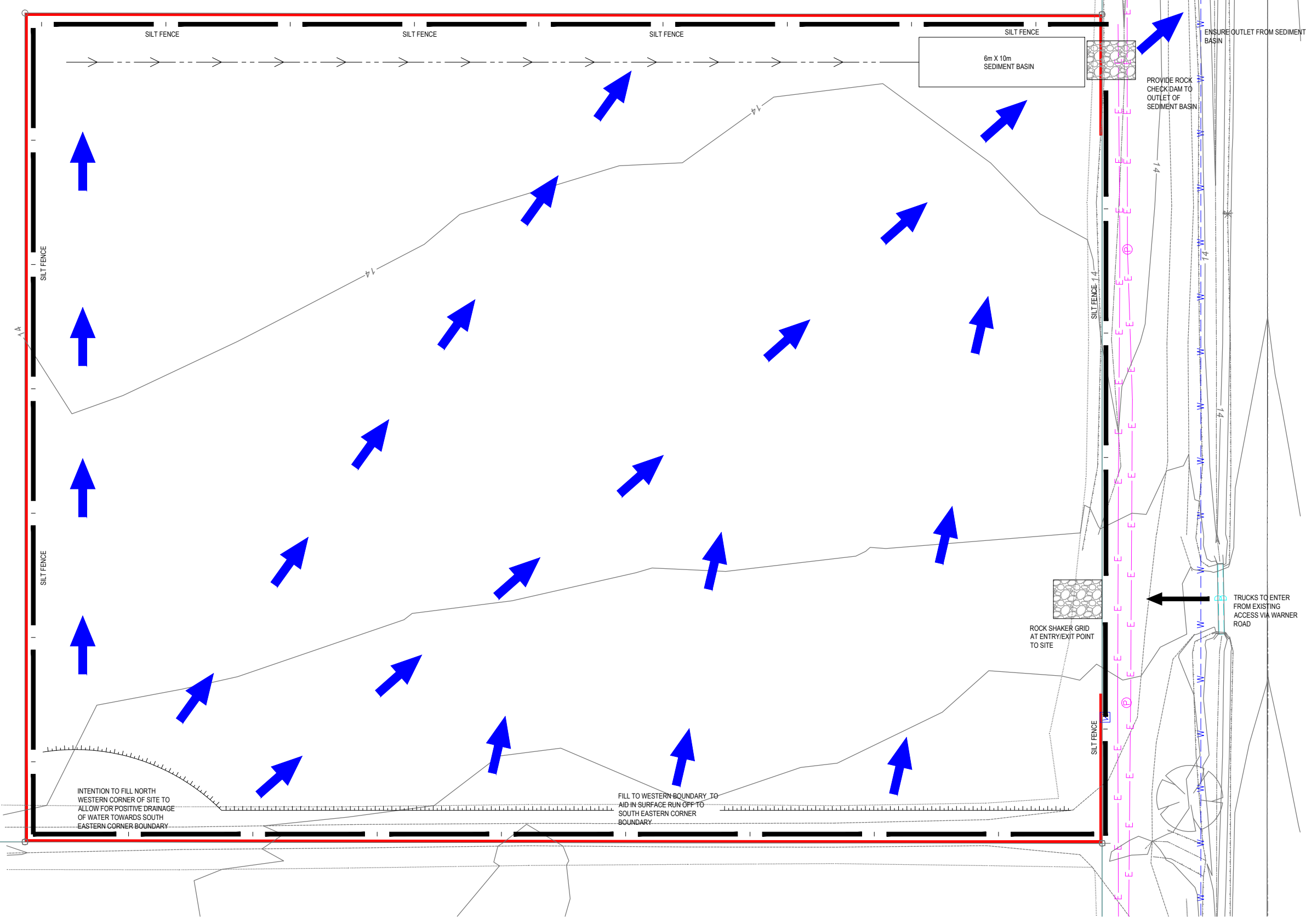
PROJECT ASPHALT & CONCRETE BATCHING PLANT
 WARNER ROAD - GORDONVALE

DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

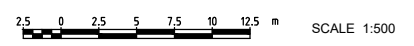
TITLE SITE CONTOUR PLAN
 AND SETOUT

SCALE 1:500	DRAWING No (A3)	21145-C007	REV A
----------------	--------------------	------------	----------

6/06/2022 12:37:34 PM File: C:\Users\darnal\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg



A 30.05.22 INITIAL ISSUE
 REV DATE REVISION NOTES



DESIGNER

Address: 35 ABBOTT ST, CAIRNS 4870
 Email: admin@osegroup.com.au

CLIENT

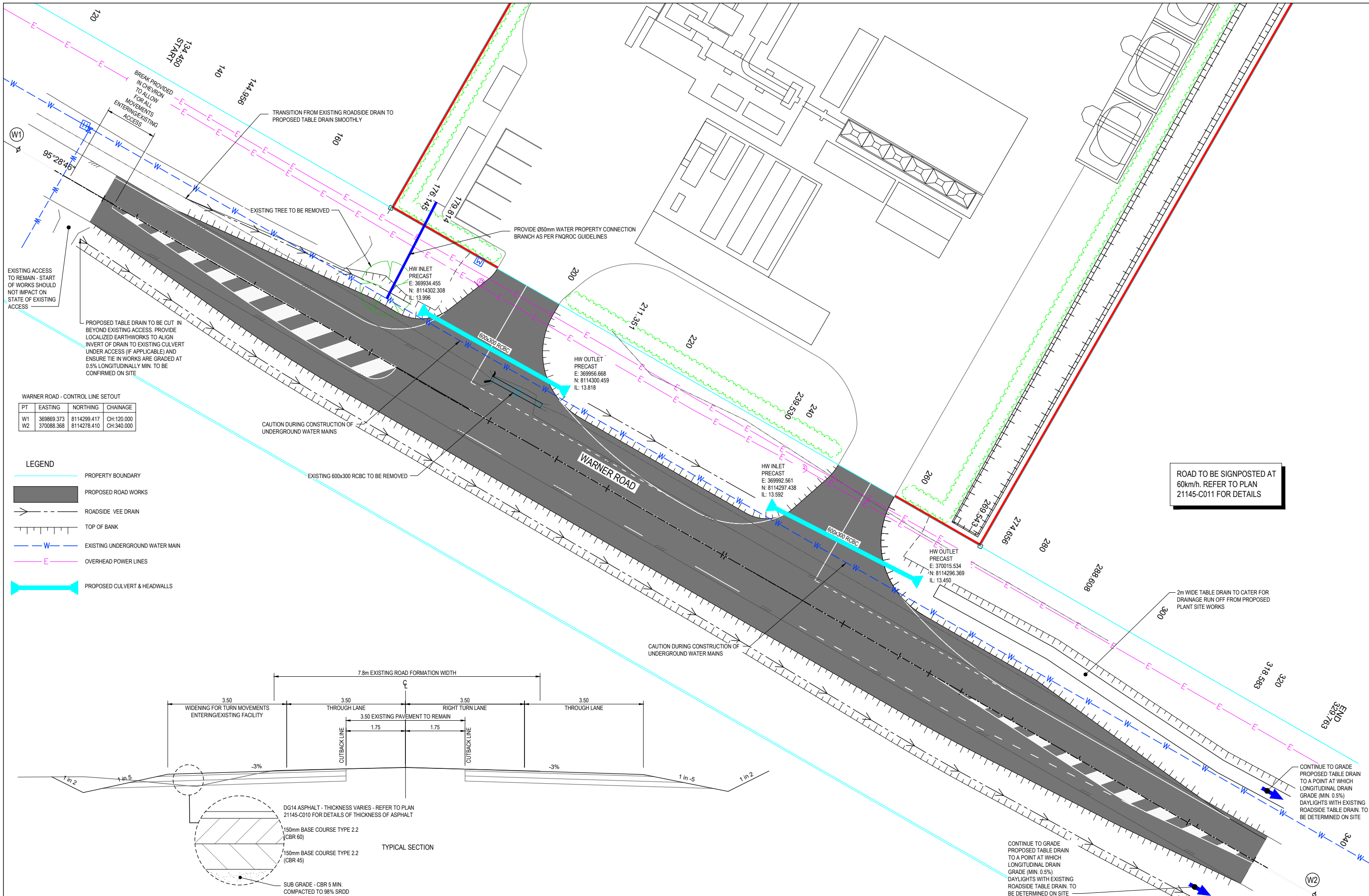
PROJECT ASPHALT & CONCRETE BATCHING PLANT
 WARNER ROAD - GORDONVALE

DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

TITLE EROSION AND SEDIMENT CONTROL STRATEGY
 DURING CONSTRUCTION

SCALE 1:500	DRAWING No (A3)	21145-C008	REV A
----------------	--------------------	------------	----------

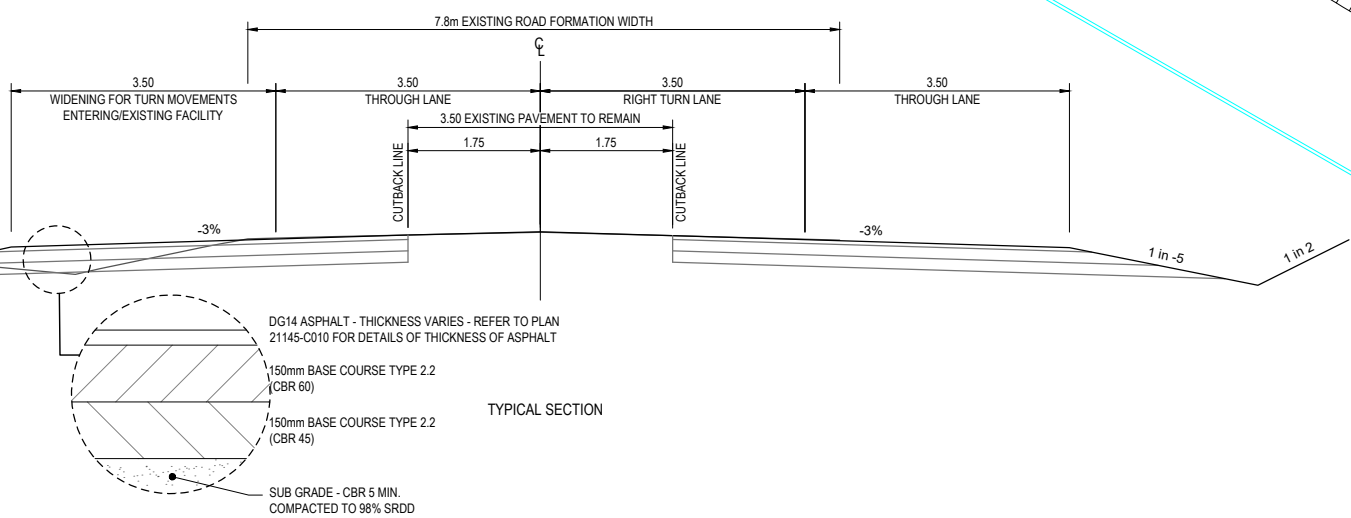
6/06/2022 12:37:34 PM File: C:\Users\darma\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg



WARNER ROAD - CONTROL LINE SETOUT

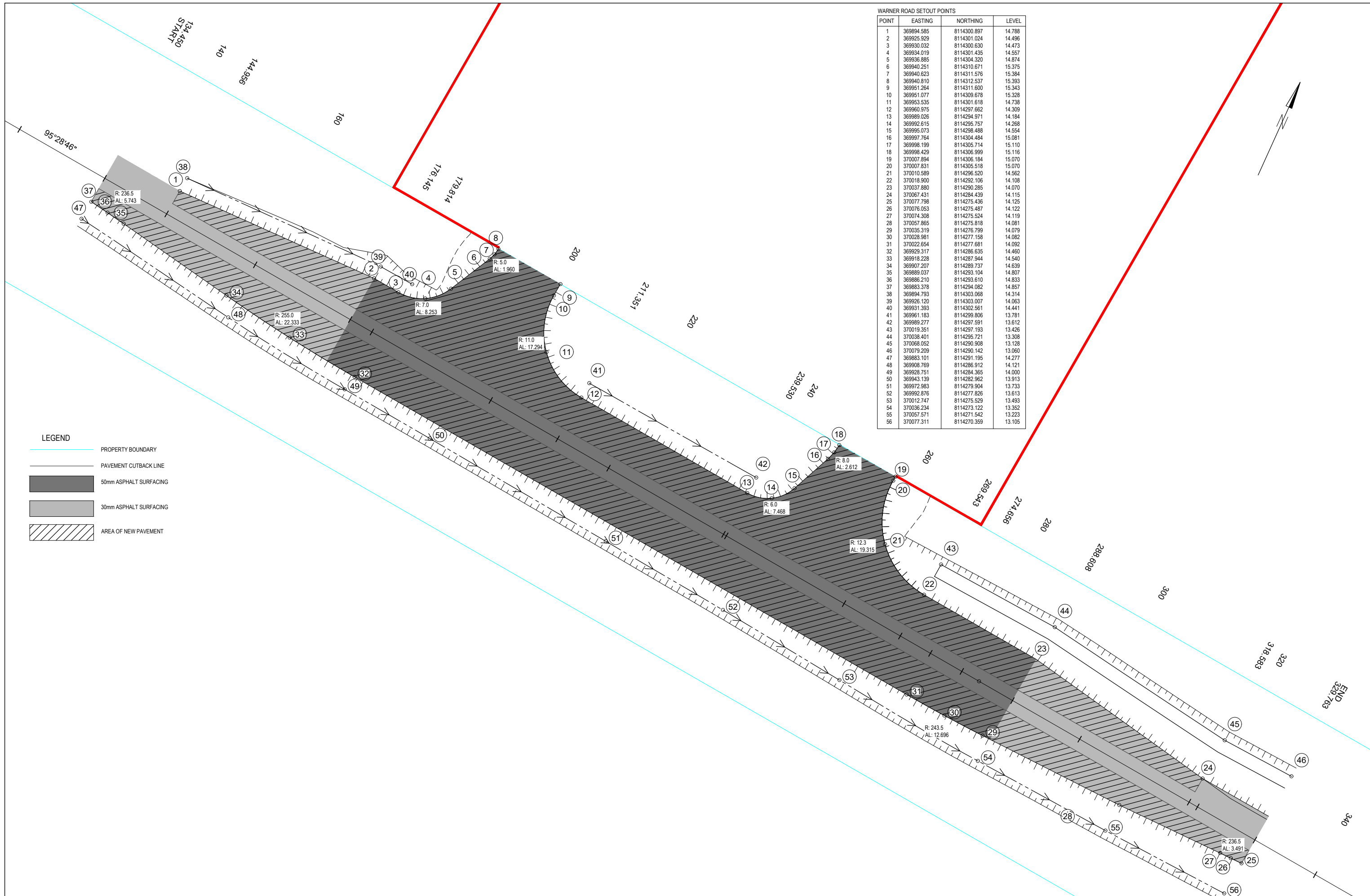
PT	EASTING	NORTHING	CHAINAGE
W1	369869.373	8114299.417	CH:120.000
W2	370088.368	8114278.410	CH:340.000

- LEGEND**
- PROPERTY BOUNDARY
 - PROPOSED ROAD WORKS
 - ROADSIDE VEE DRAIN
 - TOP OF BANK
 - EXISTING UNDERGROUND WATER MAIN
 - OVERHEAD POWER LINES
 - PROPOSED CULVERT & HEADWALLS



A 30.05.22 INITIAL ISSUE REV DATE REVISION NOTES	SCALE 1:500	DESIGNER Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE		TITLE EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE GENERAL ARRANGEMENT	
				DRAWN DJM	DRAWING CHECK PDR	APPROVED DATE -	SCALE 1:500 (A3)

06/06/2022 12:37:35 PM File: C:\Users\darnal\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg



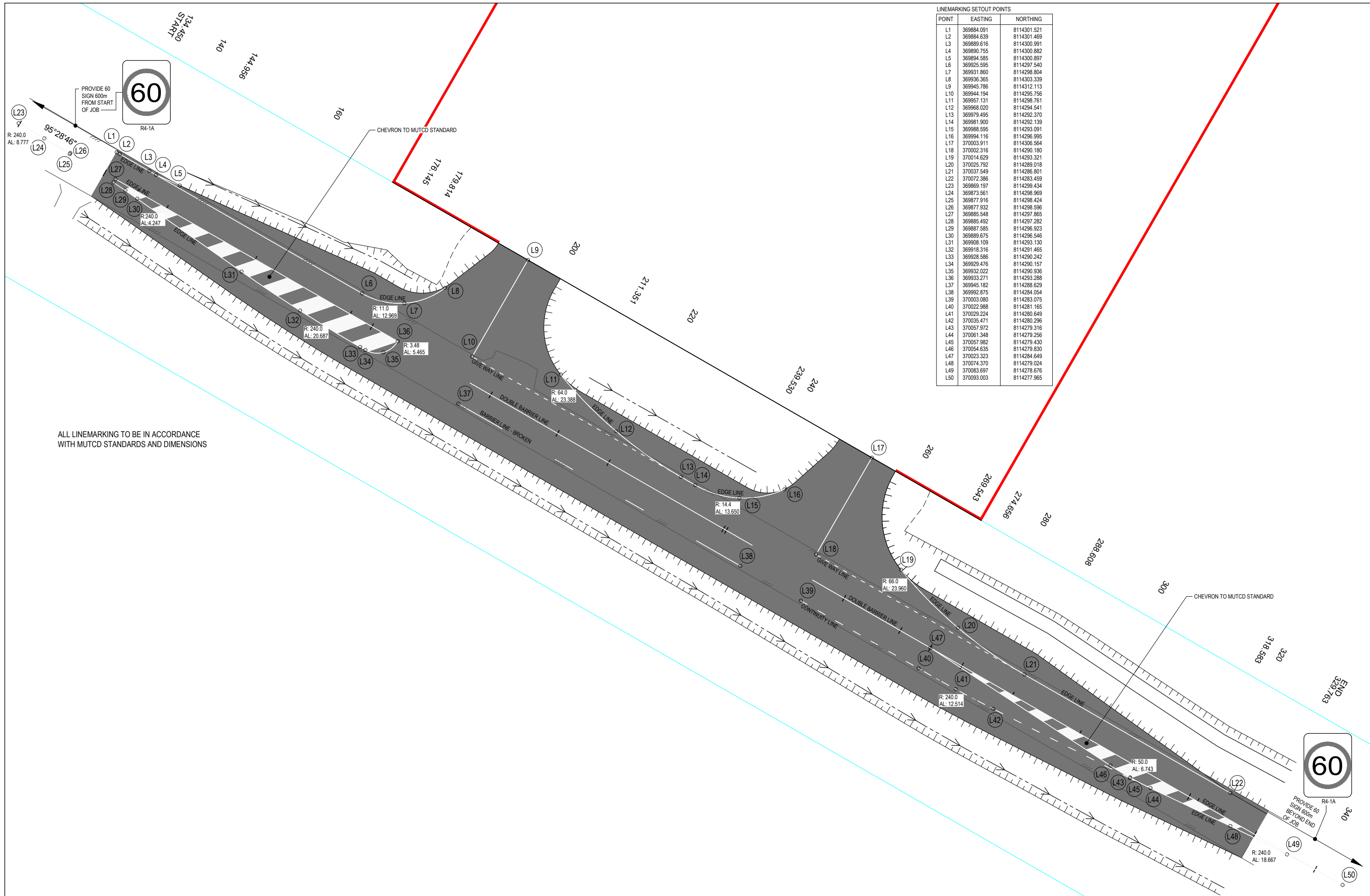
WARNER ROAD SETOUT POINTS

POINT	EASTING	NORTHING	LEVEL
1	369894.585	8114300.897	14.788
2	369925.929	8114301.024	14.496
3	369930.032	8114300.630	14.473
4	369934.019	8114301.435	14.557
5	369936.885	8114304.320	14.874
6	369940.251	8114310.571	15.375
7	369940.623	8114311.576	15.384
8	369940.810	8114312.537	15.393
9	369951.264	8114311.600	15.343
10	369951.077	8114309.678	15.328
11	369953.535	8114301.618	14.738
12	369960.975	8114297.662	14.309
13	369989.026	8114294.971	14.184
14	369992.615	8114295.757	14.268
15	369995.073	8114298.488	14.554
16	369997.764	8114304.484	15.081
17	369998.199	8114305.714	15.110
18	369998.429	8114306.999	15.116
19	370007.894	8114306.184	15.070
20	370007.831	8114305.518	15.070
21	370010.589	8114296.520	14.562
22	370018.900	8114292.106	14.108
23	370037.880	8114290.285	14.070
24	370067.431	8114284.439	14.115
25	370077.798	8114275.436	14.125
26	370076.053	8114275.487	14.122
27	370074.308	8114275.524	14.119
28	370057.865	8114275.818	14.081
29	370035.319	8114276.799	14.079
30	370028.981	8114277.158	14.082
31	370022.654	8114277.681	14.092
32	369929.317	8114286.535	14.460
33	369918.228	8114287.944	14.540
34	369907.207	8114289.737	14.639
35	369889.037	8114293.104	14.807
36	369886.210	8114293.610	14.833
37	369883.378	8114294.082	14.857
38	369894.793	8114303.068	14.314
39	369926.120	8114303.007	14.063
40	369931.393	8114302.561	14.441
41	369961.183	8114299.806	13.781
42	369989.277	8114297.591	13.612
43	370019.351	8114297.193	13.426
44	370038.401	8114295.721	13.308
45	370068.052	8114290.908	13.128
46	370079.209	8114290.142	13.060
47	369983.101	8114291.195	14.277
48	369908.769	8114288.912	14.121
49	369928.751	8114284.365	14.000
50	369943.139	8114282.962	13.913
51	369972.983	8114279.904	13.733
52	369992.876	8114277.826	13.613
53	370012.747	8114275.529	13.493
54	370036.234	8114273.122	13.352
55	370057.571	8114271.542	13.223
56	370077.311	8114270.359	13.105

- LEGEND**
- PROPERTY BOUNDARY
 - PAVEMENT CUTBACK LINE
 - 50mm ASPHALT SURFACING
 - 30mm ASPHALT SURFACING
 - AREA OF NEW PAVEMENT

<p>A 30.05.22 INITIAL ISSUE</p> <p>REV DATE REVISION NOTES</p>	<p>SCALE 1:500</p>	<p>DESIGNER</p> <p>Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au</p>	<p>CLIENT</p>	<p>PROJECT</p> <p>ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DRAWN DJM</td> <td>DRAWING CHECK PDR</td> <td>APPROVED</td> </tr> <tr> <td>DESIGNED DJM</td> <td>DESIGN REVIEW PDR</td> <td>DATE -</td> </tr> </table>	DRAWN DJM	DRAWING CHECK PDR	APPROVED	DESIGNED DJM	DESIGN REVIEW PDR	DATE -	<p>TITLE</p> <p>EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE PAVEMENT, SURFACING AND SETOUT PLAN</p> <p>SCALE 1:500 (A3)</p> <p>DRAWING No 21145-C010</p> <p>REV A</p>
DRAWN DJM	DRAWING CHECK PDR	APPROVED									
DESIGNED DJM	DESIGN REVIEW PDR	DATE -									

6/6/2022 12:37:36 PM File: C:\Users\darrel\Desktop\21145 Koppens Asphalt Plant Warner Road\21145-DESIGN.dwg

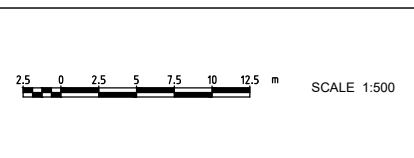


LINEMARKING SETOUT POINTS

POINT	EASTING	NORTHING
L1	369884.091	8114301.521
L2	369884.639	8114301.469
L3	369885.616	8114300.991
L4	369890.755	8114300.882
L5	369894.585	8114300.897
L6	369925.595	8114297.540
L7	369931.860	8114298.804
L8	369936.365	8114303.339
L9	369945.786	8114312.113
L10	369944.194	8114295.756
L11	369957.131	8114298.761
L12	369968.020	8114294.541
L13	369979.495	8114292.370
L14	369981.900	8114292.139
L15	369988.595	8114293.091
L16	369994.116	8114296.595
L17	370003.911	8114300.554
L18	370002.316	8114290.180
L19	370014.629	8114293.321
L20	370025.792	8114289.018
L21	370037.549	8114286.801
L22	370072.386	8114283.459
L23	369869.197	8114299.434
L24	369873.561	8114298.969
L25	369877.916	8114298.424
L26	369877.932	8114298.596
L27	369885.548	8114297.865
L28	369885.492	8114297.282
L29	369887.585	8114296.923
L30	369889.675	8114296.546
L31	369908.109	8114293.130
L32	369918.316	8114291.465
L33	369928.586	8114290.242
L34	369929.476	8114290.157
L35	369932.022	8114290.936
L36	369933.271	8114293.288
L37	369945.182	8114288.629
L38	369992.875	8114284.054
L39	370003.080	8114283.075
L40	370022.988	8114281.165
L41	370029.224	8114280.649
L42	370035.471	8114280.296
L43	370057.972	8114279.316
L44	370061.348	8114279.256
L45	370057.982	8114279.430
L46	370054.635	8114279.830
L47	370023.323	8114284.649
L48	370074.370	8114279.024
L49	370083.697	8114278.676
L50	370093.003	8114277.965

ALL LINEMARKING TO BE IN ACCORDANCE WITH MUTCD STANDARDS AND DIMENSIONS

A	30.05.22	INITIAL ISSUE
REV	DATE	REVISION NOTES



DESIGNER

Address: 35 ABBOTT ST, CAIRNS 4870
Email: admin@osegroup.com.au

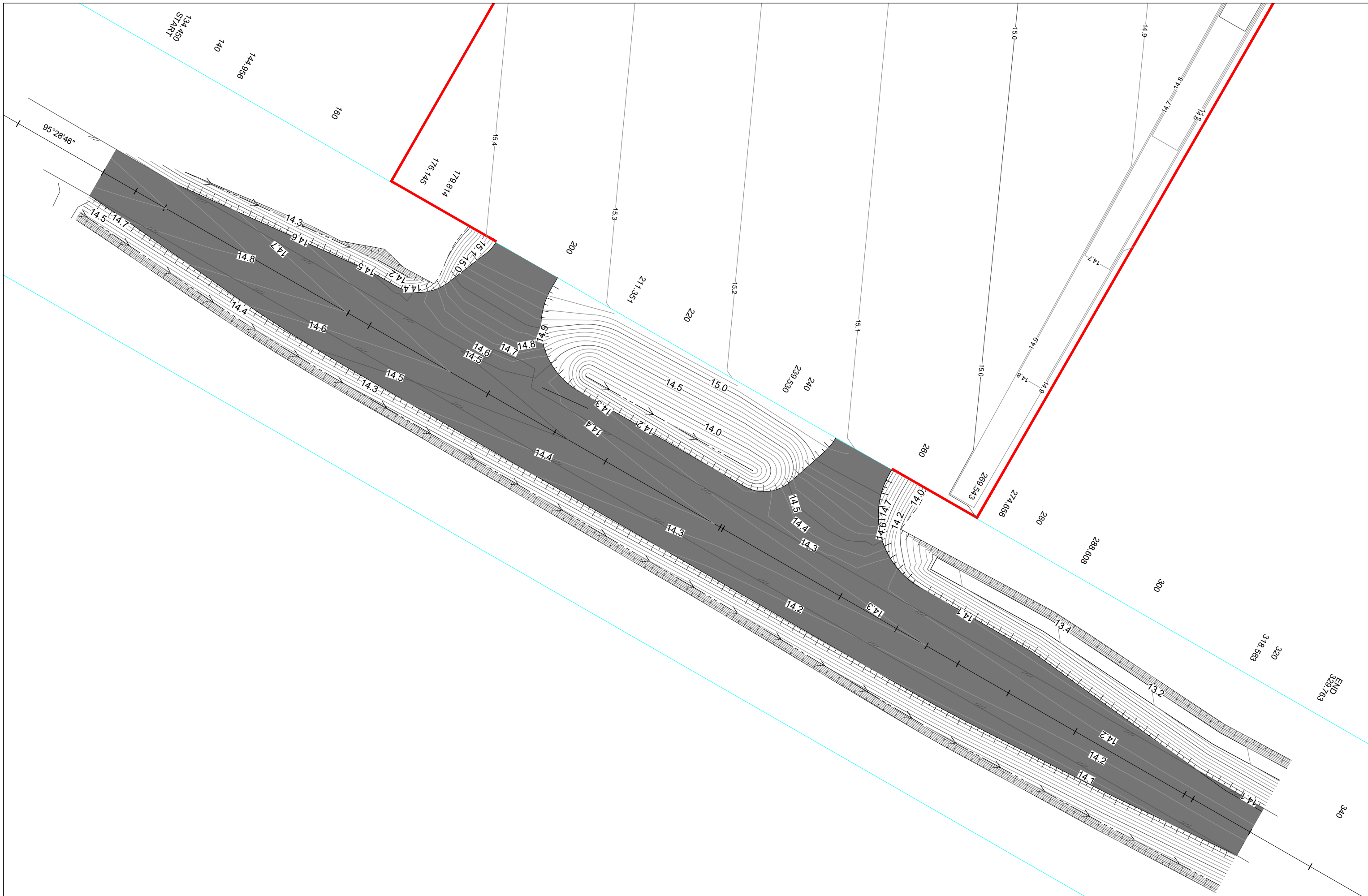
CLIENT

PROJECT: ASPHALT & CONCRETE BATCHING PLANT
WARNER ROAD - GORDONVALE

DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

TITLE: EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE
LINEMARKING SETOUT

SCALE 1:500 (A3)	DRAWING No 21145-C011	REV A
---------------------	--------------------------	----------



A	30.05.22	INITIAL ISSUE
REV	DATE	REVISION NOTES

2.5 0 2.5 5 7.5 10 12.5 m SCALE 1:500

DESIGNER



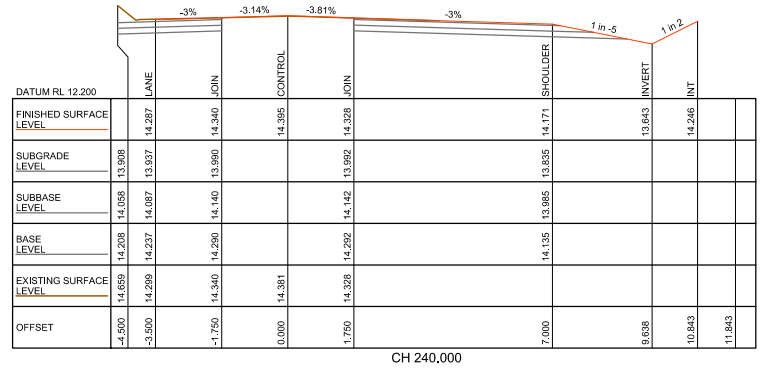
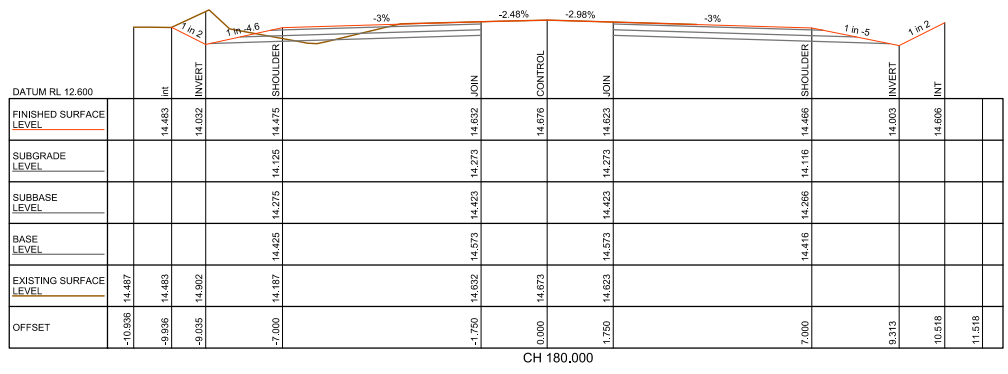
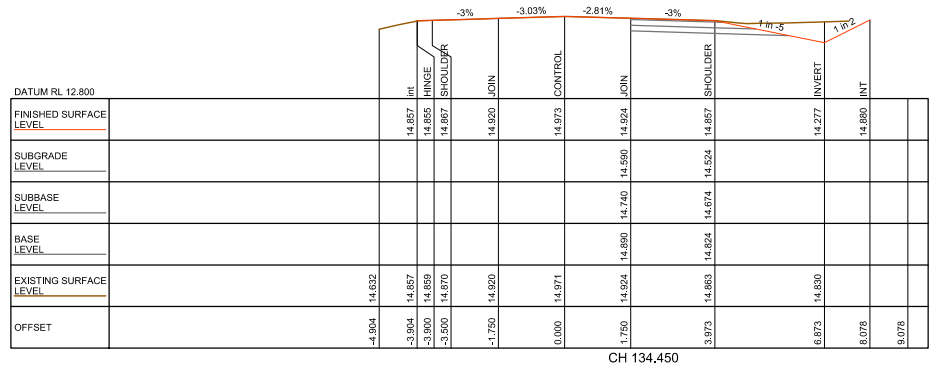
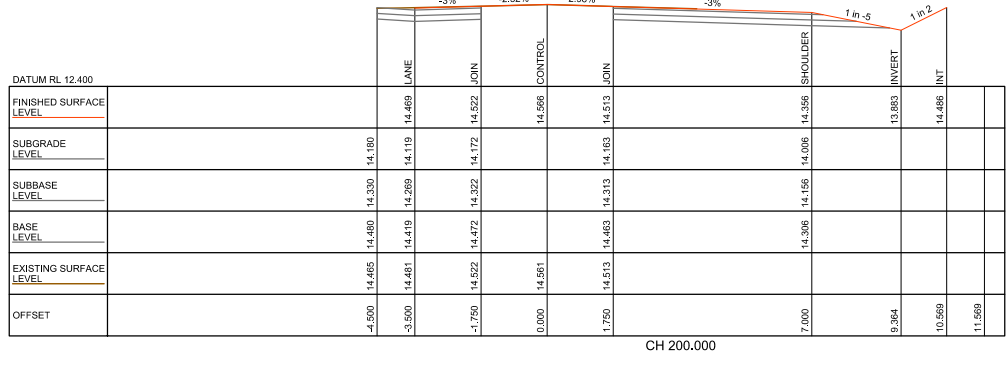
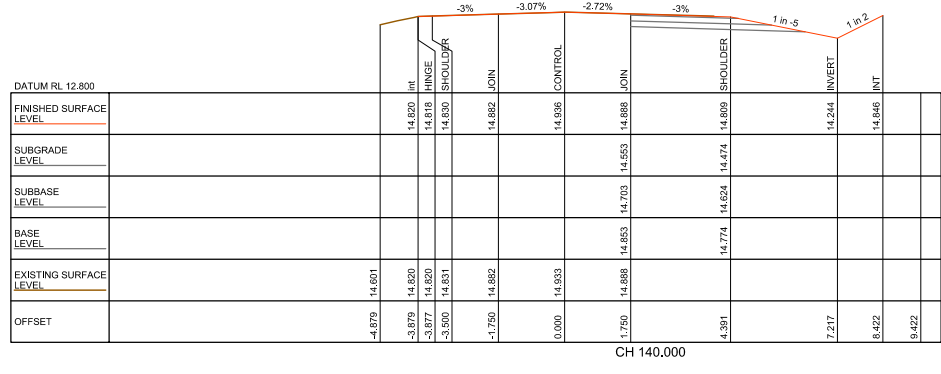
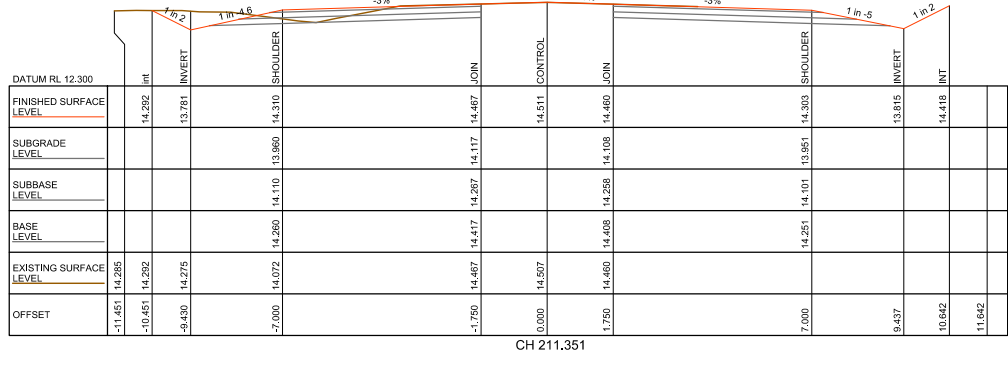
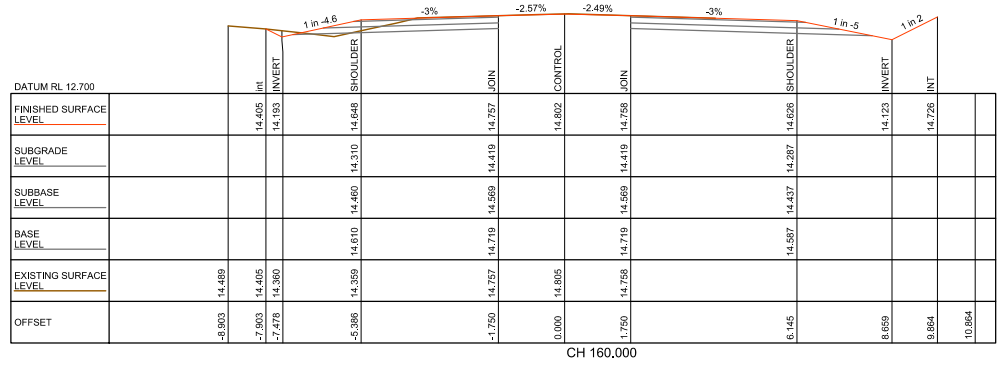
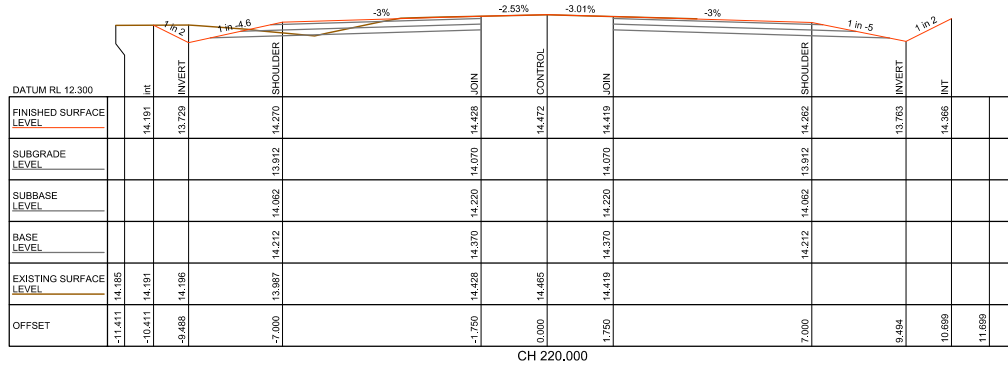
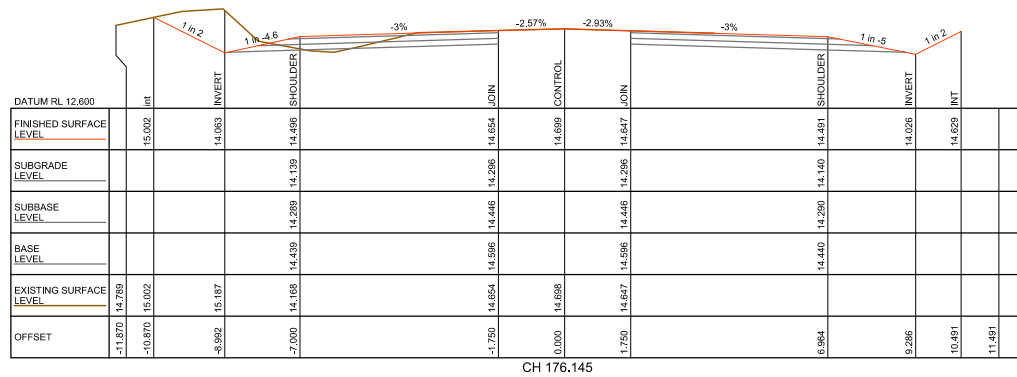
Address: 35 ABBOTT ST, CAIRNS 4870
Email: admin@osegroup.com.au

CLIENT

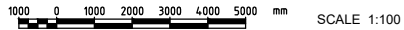


PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE		
DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

TITLE EXTERNAL SITE WORKS - WARNER ROAD WIDENING UPGRADE CONTOUR PLAN		
SCALE 1:500 (A3)	DRAWING No 21145-C012	REV A



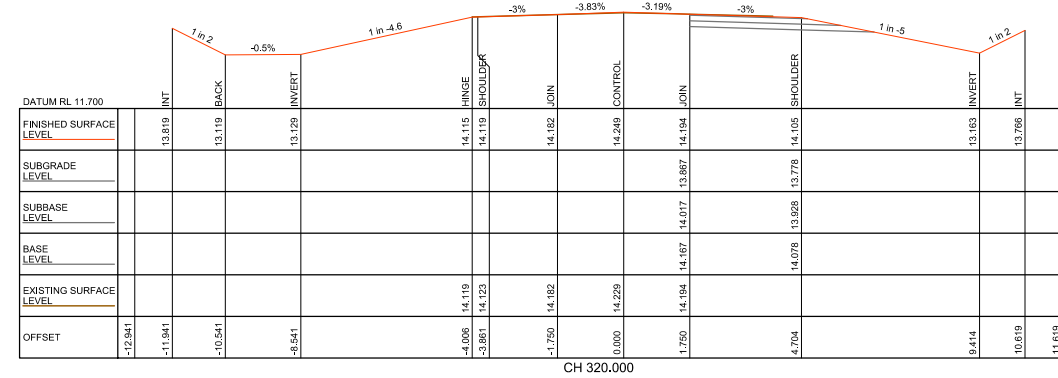
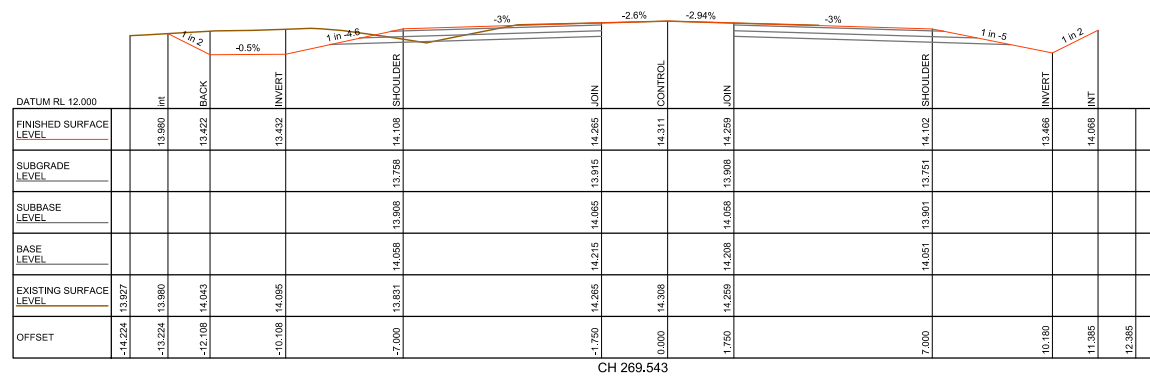
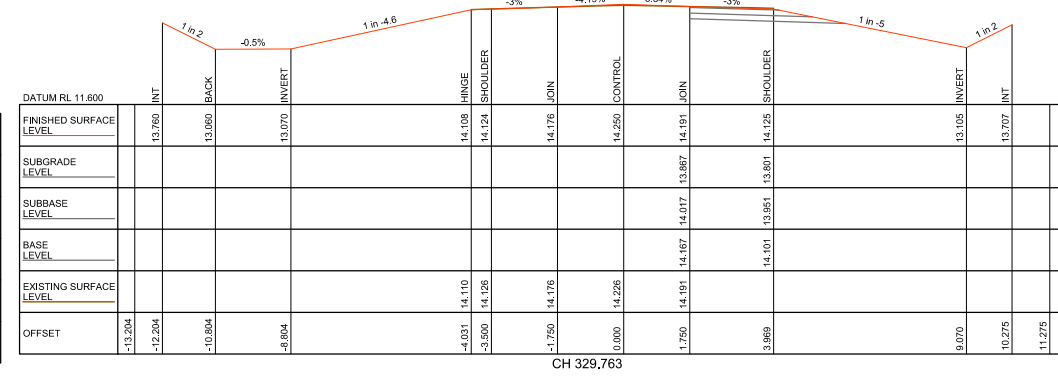
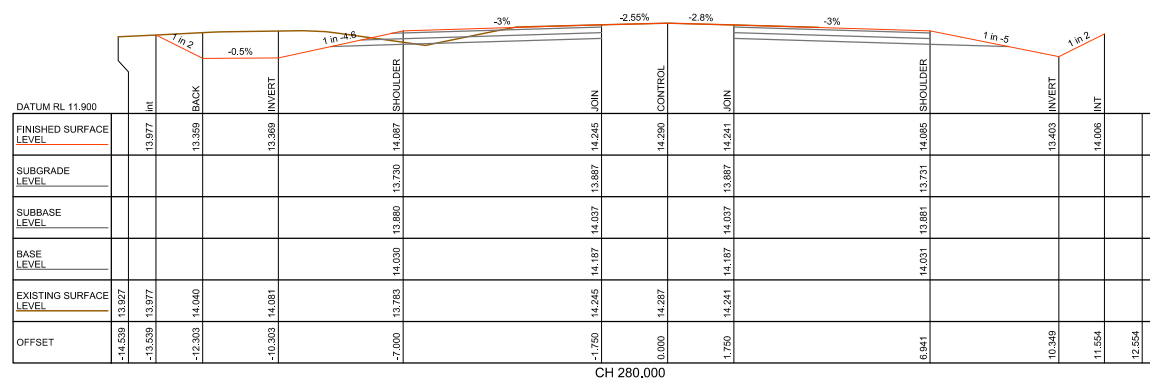
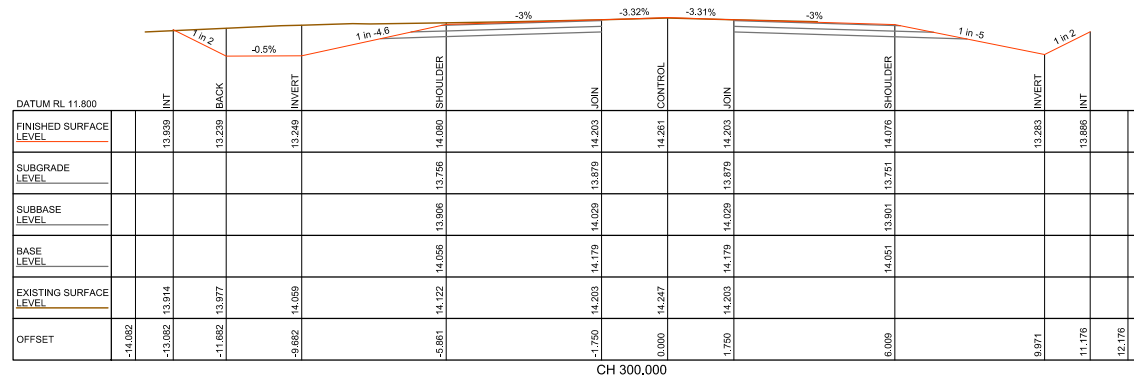
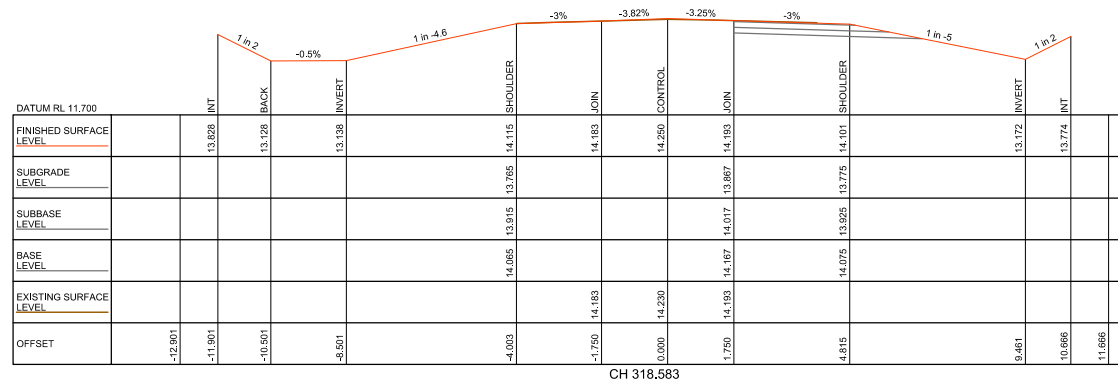
A 30.05.22 INITIAL ISSUE
REV DATE REVISION NOTES

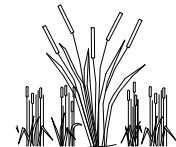
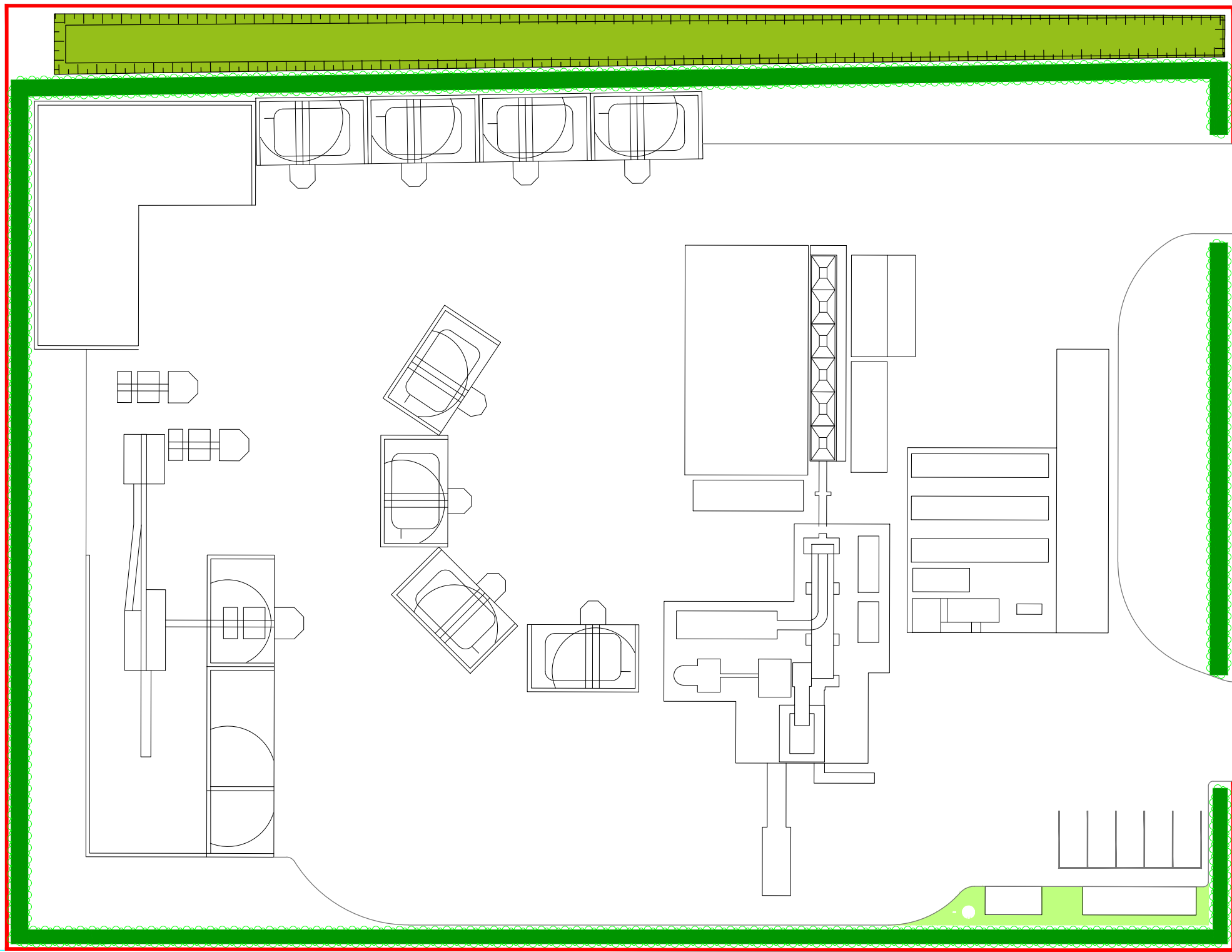


PROJECT	ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE
DRAWN	DJM
DESIGNED	DJM
DRAWING CHECK	PDR
DESIGN REVIEW	PDR
APPROVED	
DATE	-

TITLE	WARNER ROAD - ANNOTATED CROSS SECTIONS SHEET 1 OF 2
SCALE	1:100
DRAWING No	21145-C013
REV	A

6/06/2022 12:37:38 PM File: C:\Users\dama\Desktop\21145 Koppens Ashat Plant Warner Road\21145-DESIGN.dwg





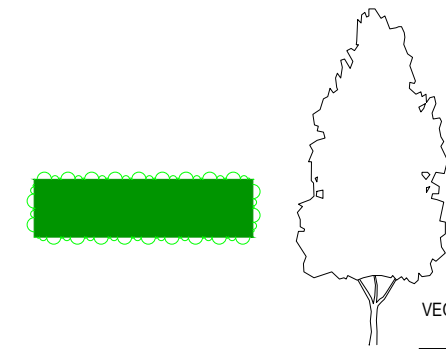
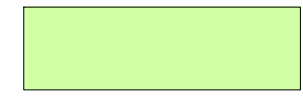
BIORETENTION SWALE PLANT TYPES
TYPE: NOTES

TYPE	NOTES
1. <i>Ficinia nodosa</i>	Mix of adjacent planted at 8 per square meter
2. <i>Gahnia aspera</i>	
3. <i>Carex appressa</i>	
4. <i>Imperata cylindrica</i>	
5. <i>Lomandra hystrix</i>	



GRASS AND GROUND COVER SPECIES
TYPE: NOTES

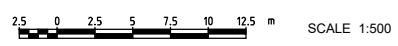
TYPE	NOTES
1. <i>Lomandra hystrix</i>	Mix of species planted at density 3/sq.m
2. <i>Phyllanthus multifolius</i>	
3. <i>Gardenia psidioides</i> "Glennie River"	



VEGETATIVE SCREENING/HEDGING PLANT TYPES
TYPE: NOTES

TYPE	NOTES
1. <i>Acmena smithii</i>	Mix of species, max 3 of same type in a row, planted at 800mm centres
2. <i>Leea indica</i>	
3. <i>Phyllanthus lamprophyllus</i>	
4. <i>Syzygium australe</i>	

REV	DATE	REVISION NOTES
-	-	INITIAL ISSUE



DESIGNER

Address: 35 ABBOTT ST, CAIRNS 4870
Email: admin@osegroup.com.au

CLIENT

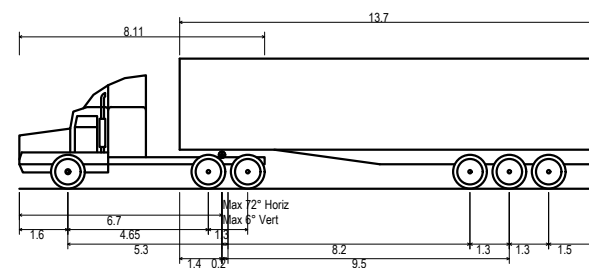
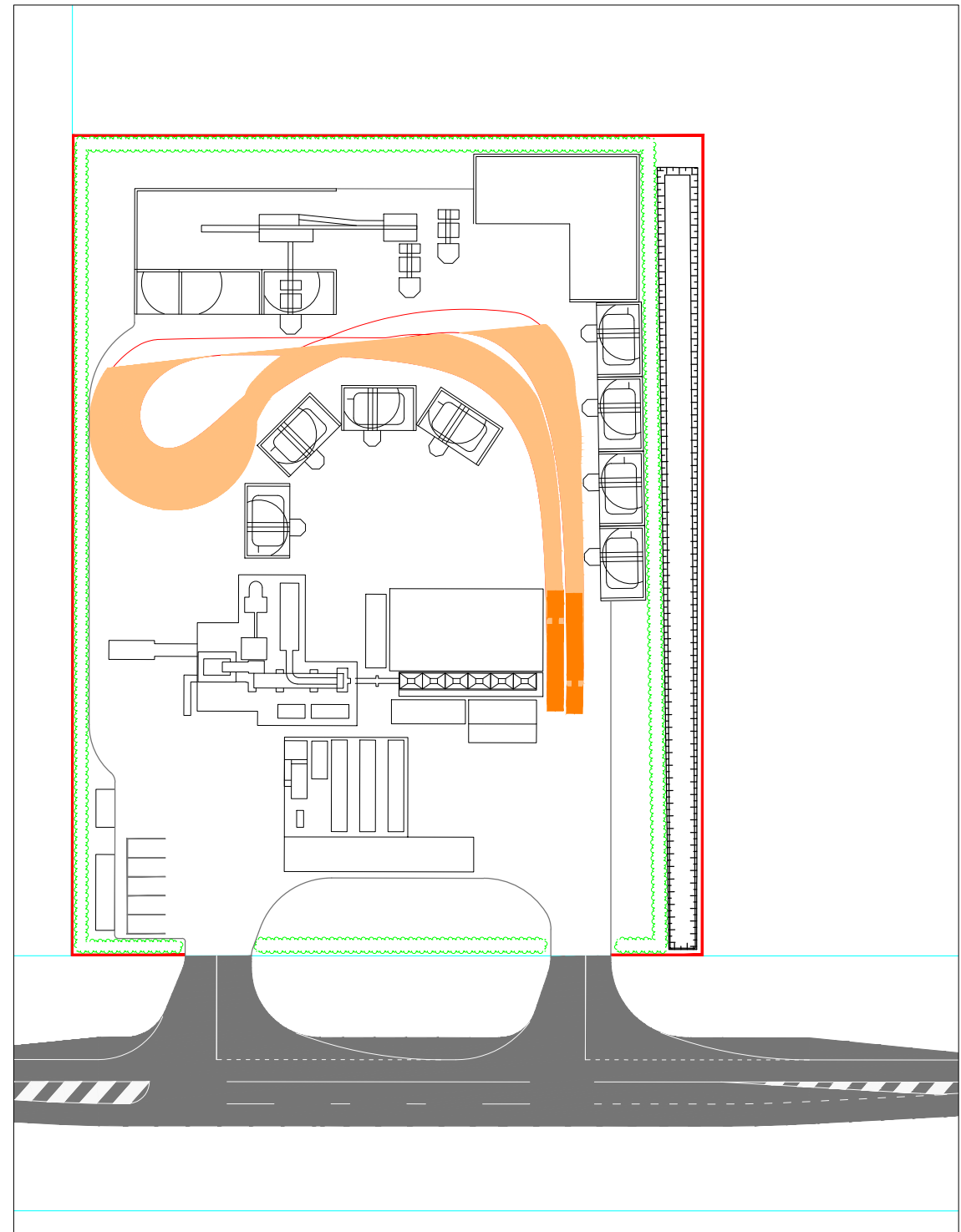
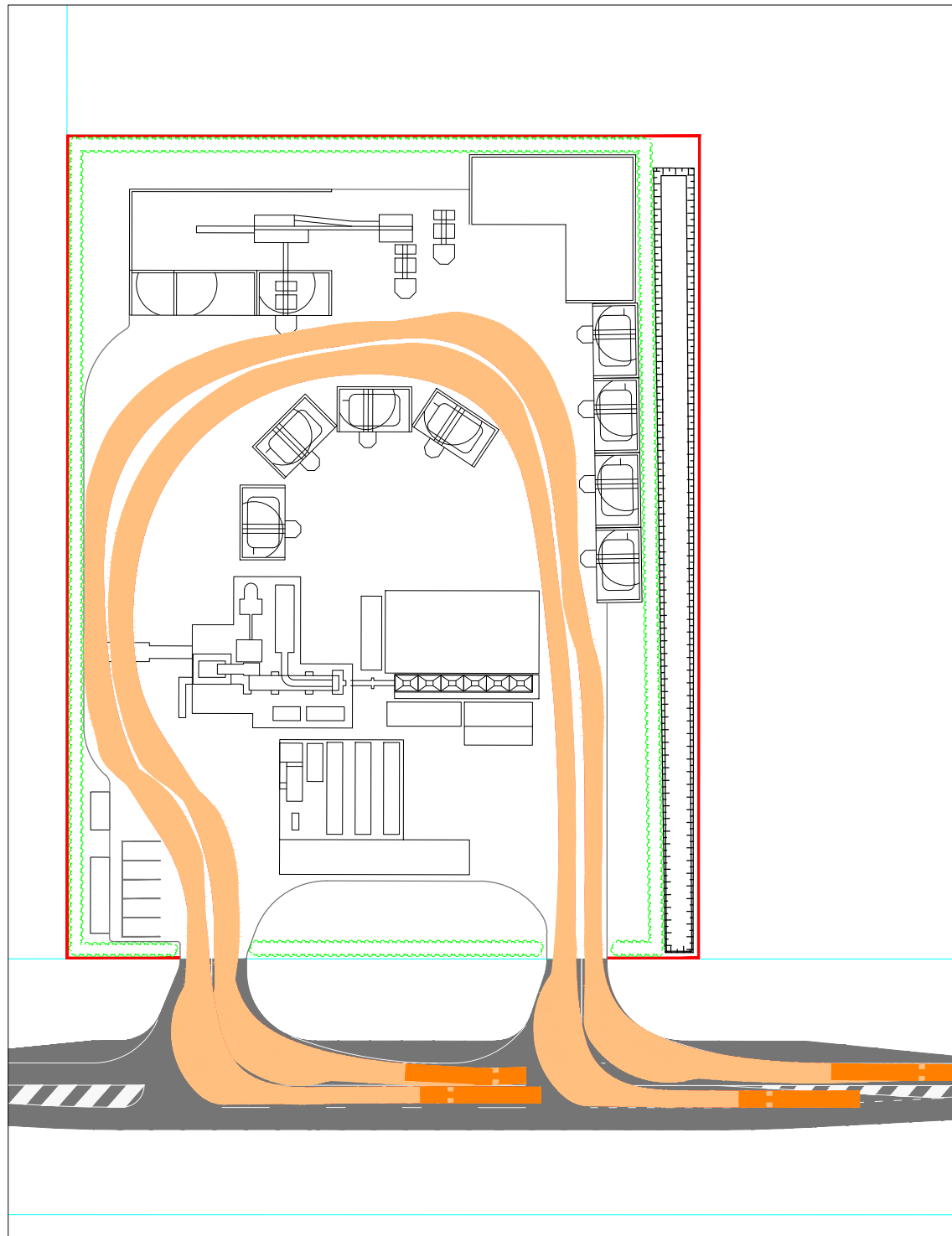
PROJECT ASPHALT & CONCRETE BATCHING PLANT
WARNER ROAD - GORDONVALE

DRAWN DJM	DRAWING CHECK PDR	APPROVED
DESIGNED DJM	DESIGN REVIEW PDR	DATE -

TITLE LANDSCAPING PLAN
AND PLANTING SCHEDULES

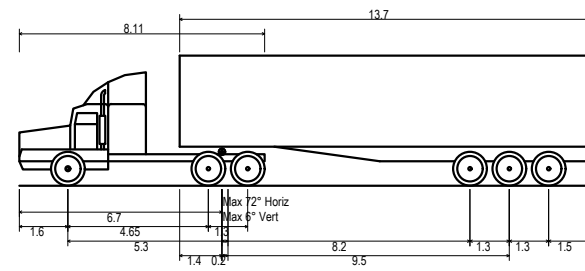
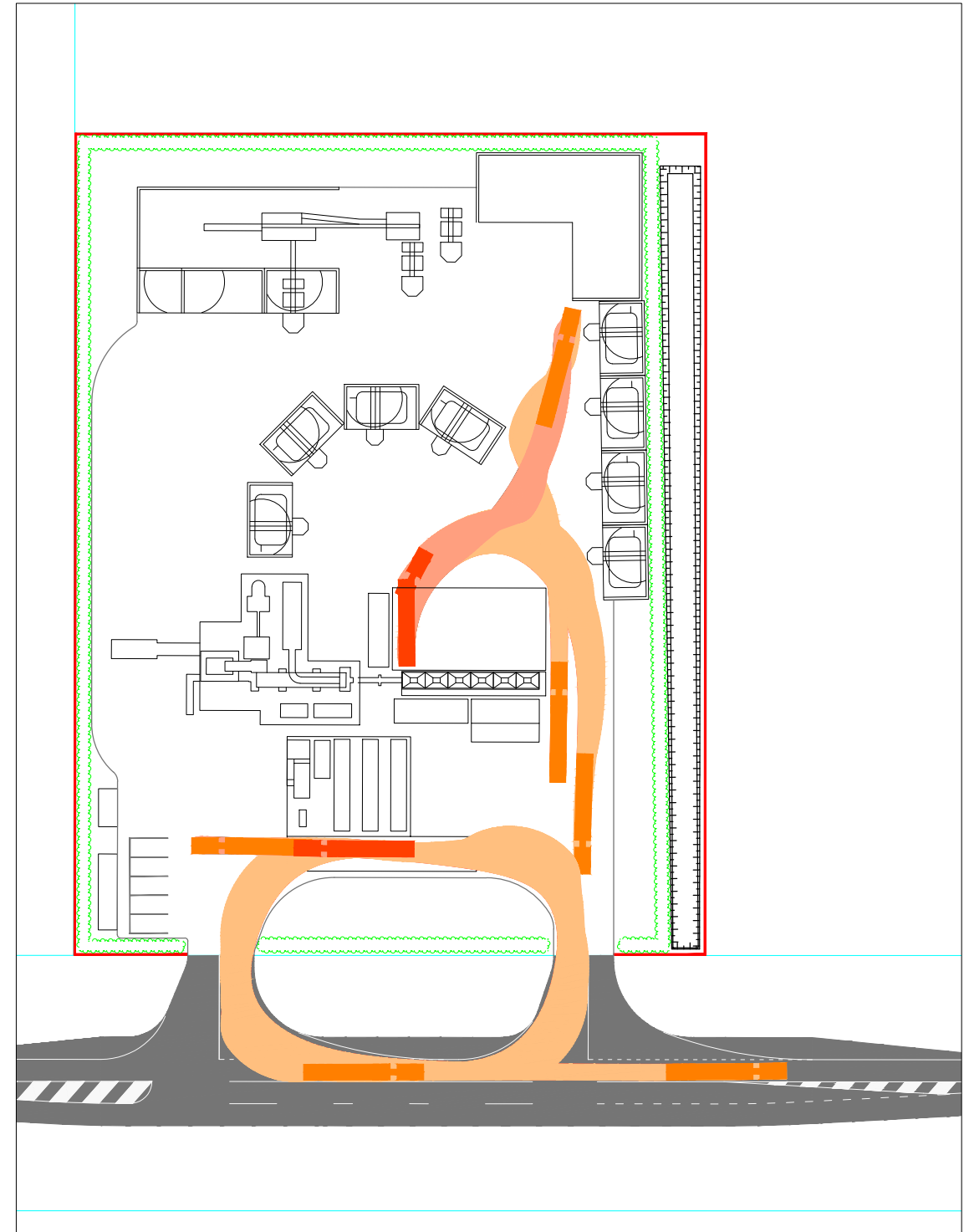
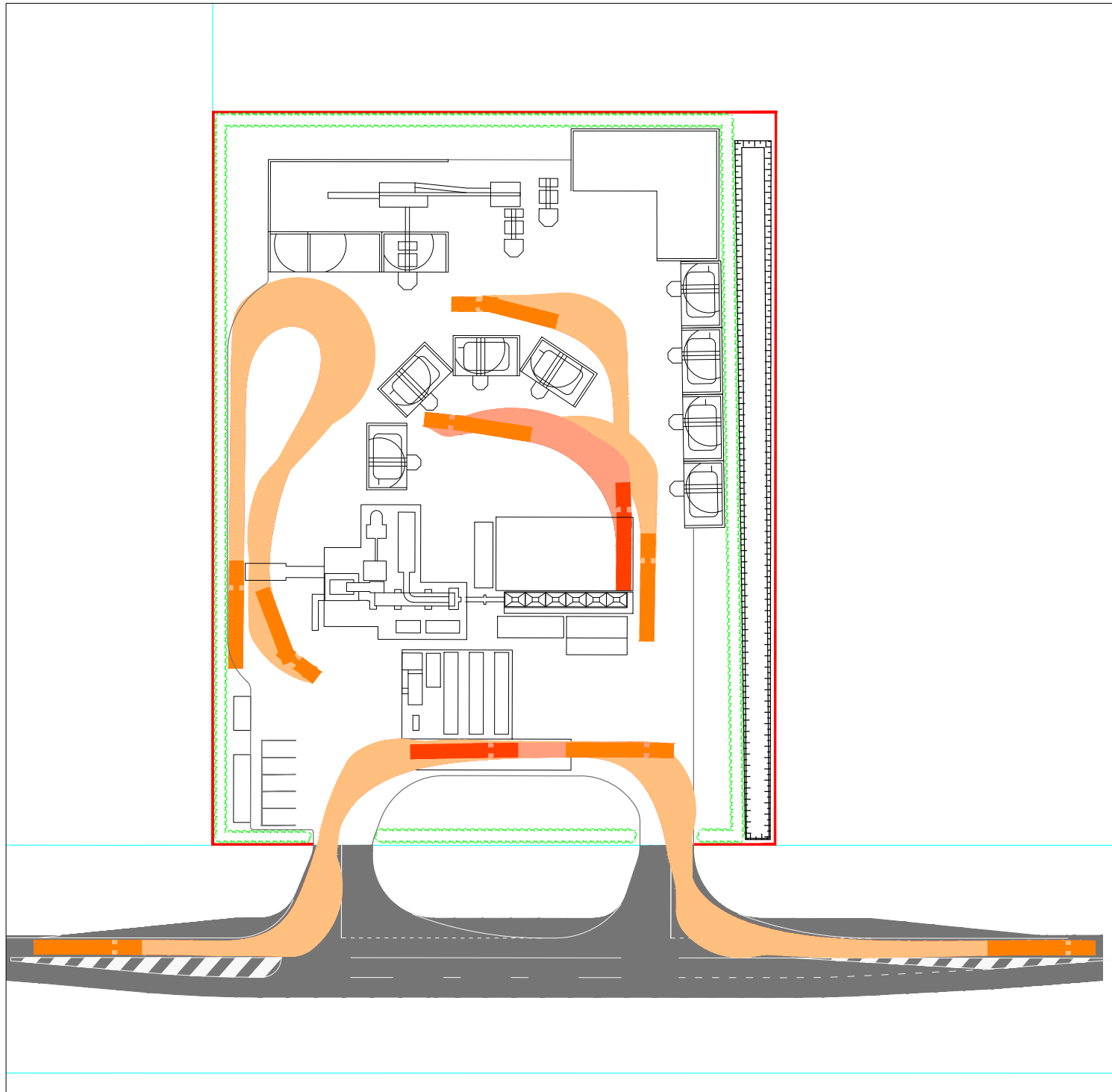
SCALE 1:500	(A3)	DRAWING No 21145-SK005	REV A
----------------	------	---------------------------	----------

Appendix B – Vehicular Turning Paths



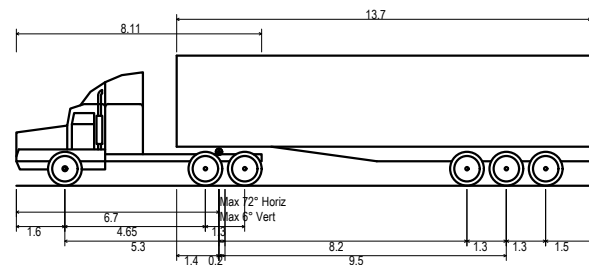
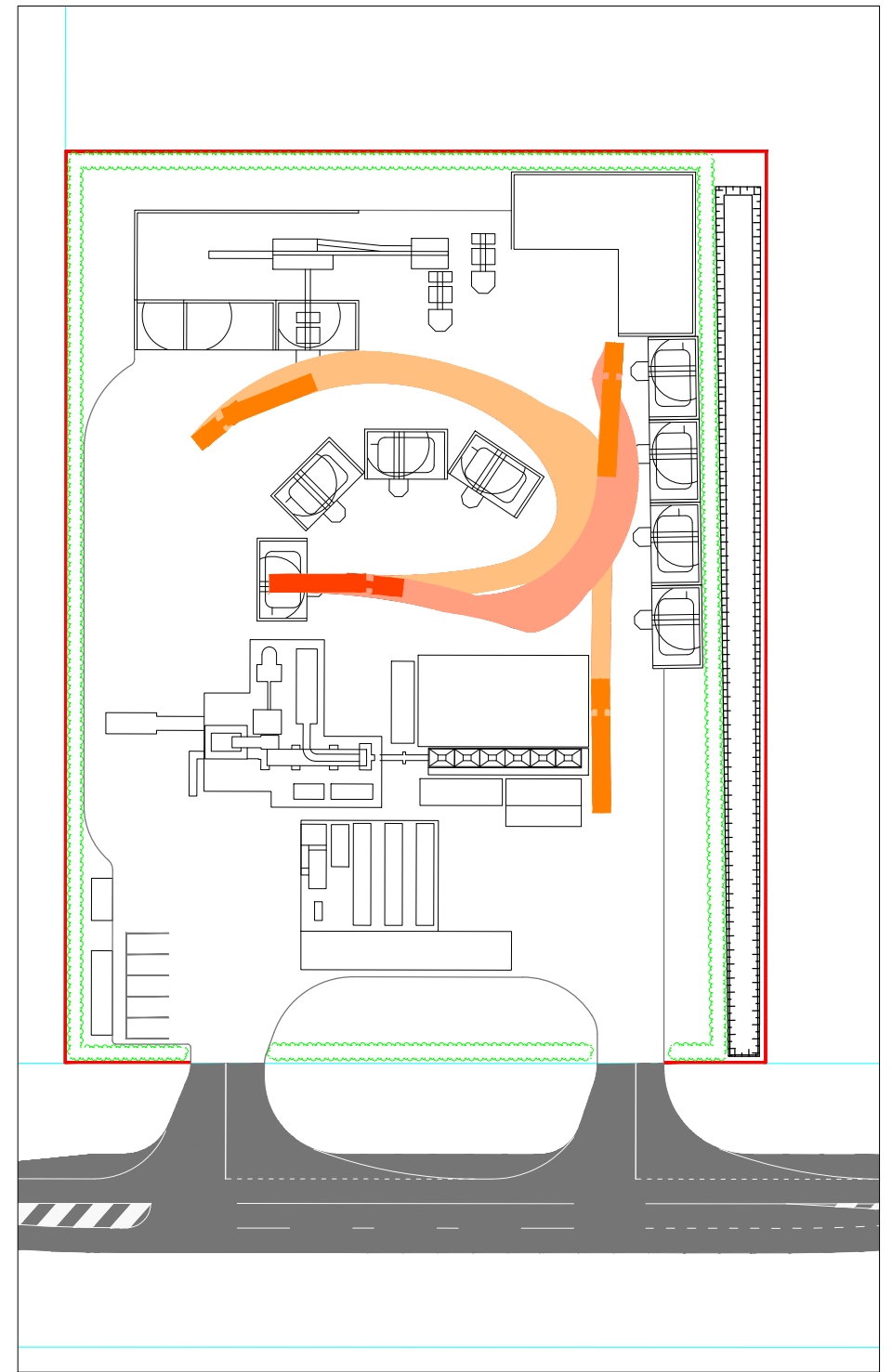
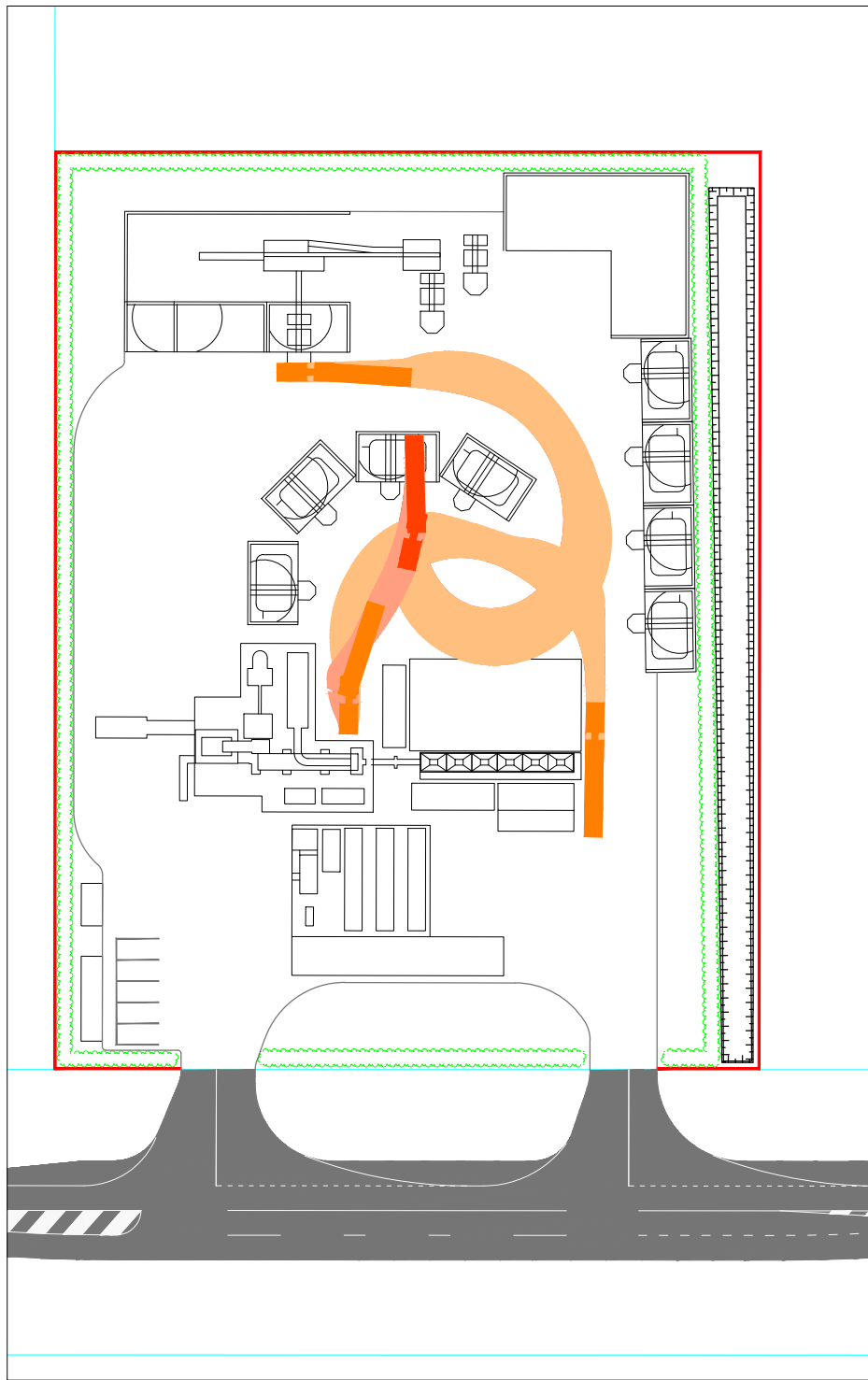
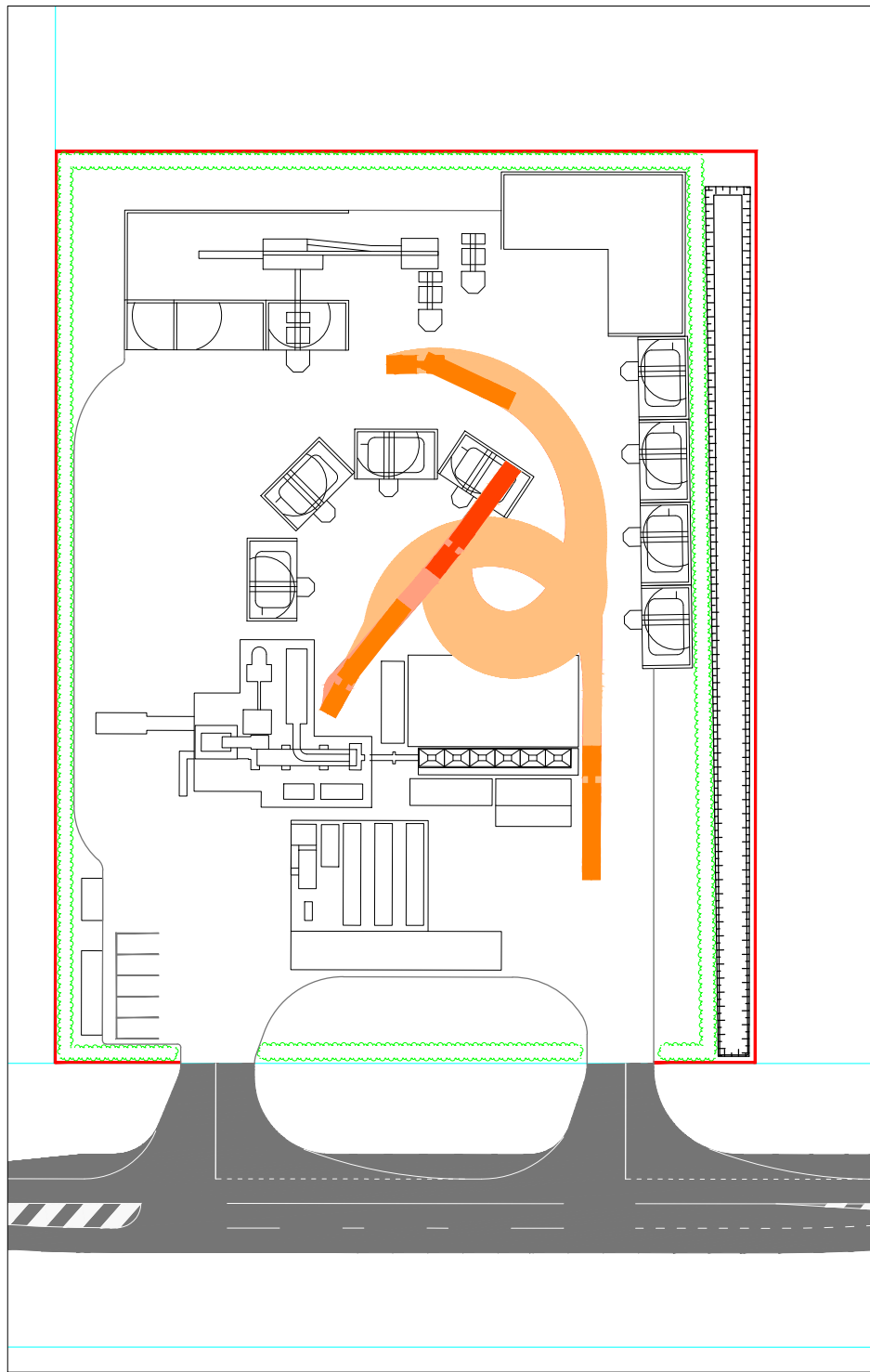
Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m

INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER  Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE SITE VEHICLE TURN MOVEMENT SKETCHES SKETCH 1 OF 4
				DRAWN DJM DESIGNED DJM	DRAWING CHECK PDR DESIGN REVIEW PDR
				APPROVED DATE -	SCALE NOT TO SCALE
					DRAWING No 21145-SK001
					REV A



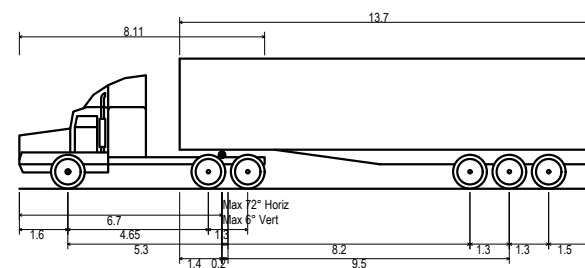
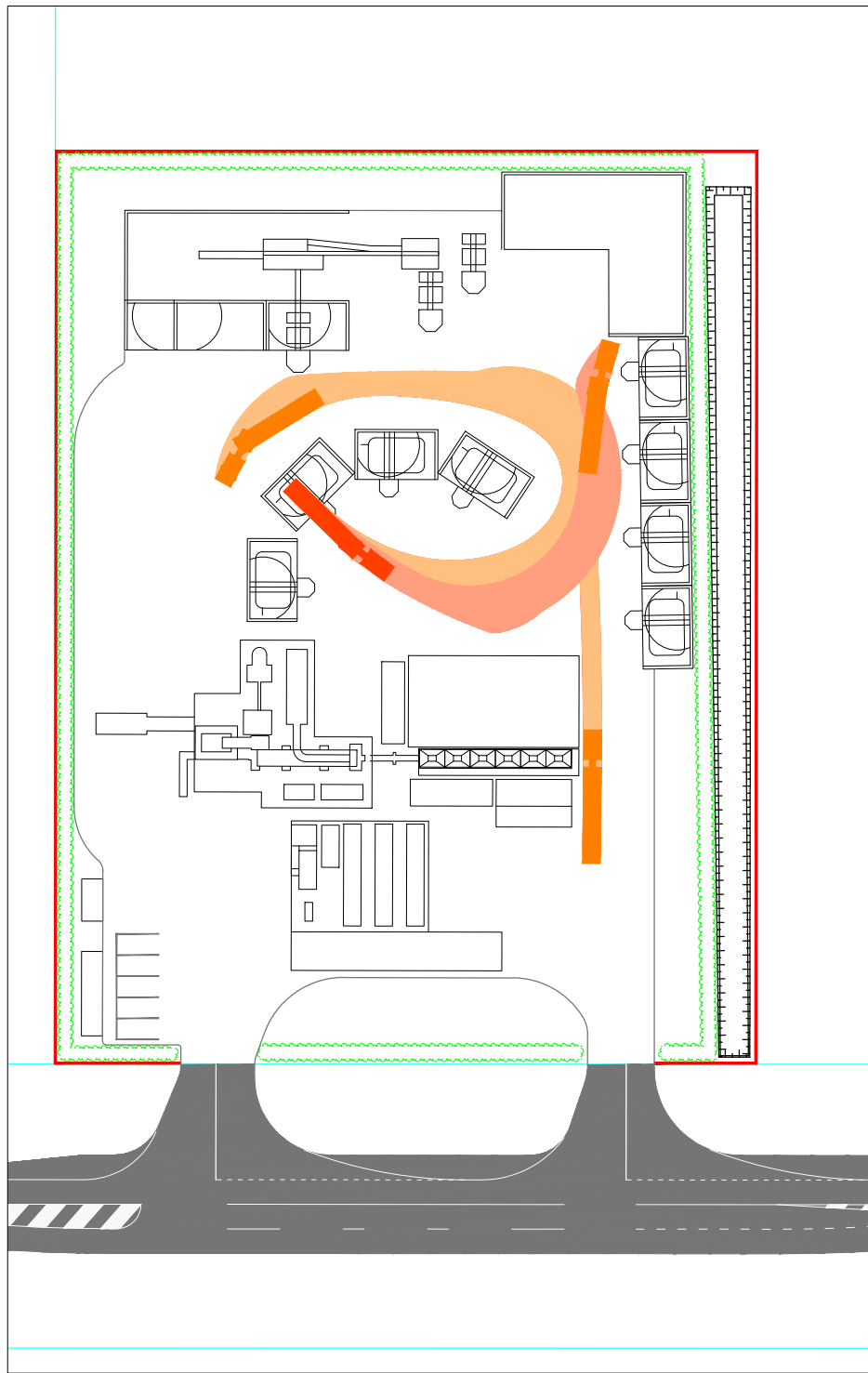
Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m

INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER  Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE SITE VEHICLE TURN MOVEMENT SKETCHES SKETCH 2 OF 4
				DRAWN DJM DESIGNED DJM	DRAWING CHECK PDR DESIGN REVIEW PDR
				APPROVED DATE -	SCALE NOT TO SCALE
					DRAWING No 21145-SK002
					REV A



Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m

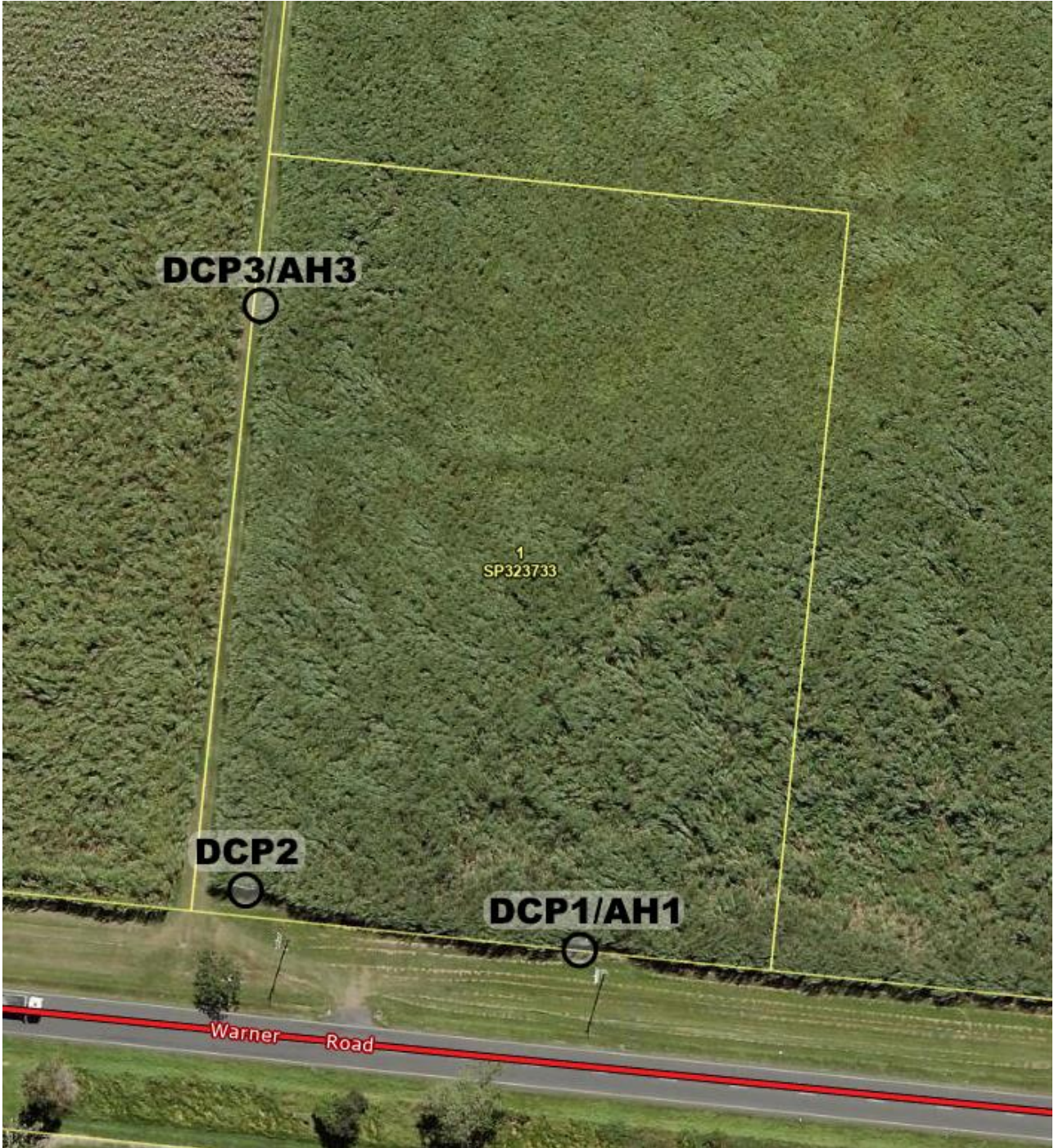
INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER  Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE SITE VEHICLE TURN MOVEMENT SKETCHES SKETCH 3 OF 4				
				DRAWN DJM DESIGNED DJM	DRAWING CHECK PDR DESIGN REVIEW PDR	APPROVED DATE -	SCALE NOT TO SCALE	DRAWING No 21145-SK003	REV A



Prime mover and semi-trailer (19 m)
 Overall Length 19.000m
 Overall Width 2.500m

INITIAL ISSUE REV DATE REVISION NOTES		DESIGNER  Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au	CLIENT 	PROJECT ASPHALT & CONCRETE BATCHING PLANT WARNER ROAD - GORDONVALE	TITLE SITE VEHICLE TURN MOVEMENT SKETCHES SKETCH 4 OF 4	
				DRAWN DJM	DRAWING CHECK PDR	APPROVED
				DESIGNED DJM	DESIGN REVIEW PDR	DATE -
				SCALE NOT TO SCALE	DRAWING No 21145-SK004	REV A


Appendix C – Geotechnical Investigation Results

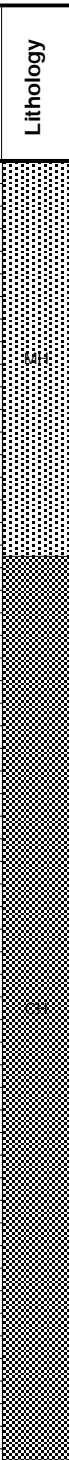


Client:	Koppen Developments	Technician:	AH
Project No.:	21145	Date:	19/04/2022
Project:	Warner Road Asphalt Plant	Location:	See attached plan

Depth from (m)	Depth to (m)	DCP1	DCP2	DCP3		
0	0.1	1	3	3		
0.1	0.2	1	4	7		
0.2	0.3	2	7	9		
0.3	0.4	4	7	6		
0.4	0.5	3	3	5		
0.5	0.6	3	3	4		
0.6	0.7	2	1	2		
0.7	0.8	2	2	1		
0.8	0.9	2	2	3		
0.9	1	3	2	1		
1	1.1	2	2	4		
1.1	1.2	3	2	3		
1.2	1.3	2	2	4		
1.3	1.4	3	2	5		
1.4	1.5	3	2	5		
1.5	1.6	5	3	7		
1.6	1.7	7	6	6		
1.7	1.8	9	8	4		
1.8	1.9	11	9	8		
1.9	2	13	8	7		
2	2.1	15	8	8		
2.1	2.2	15	9	8		
2.2	2.3	20	9	6		
2.3	2.4	17	12	7		
2.4	2.5	16	12	8		
2.5	2.6	19	14	10		
2.6	2.7	22	16	14		
2.7	2.8	17	15	14		
2.8	2.9	19	17	15		
2.9	3	21	19	15		
3	3.1					
3.1	3.2					
3.2	3.3					
3.3	3.4					

Key: T - Terminated at target depth R - Refusal (more than 30 blows/100mm) DB - Double bouncing (refusal) / - Depth within interval prior to refusal (mm)	Notes:
---	--------

Auger Hole:	AH1	Checked:	Checked	
Client:	Koppen Developments	GW (m):	Not Encountered	
Project:	Warner Road Asphalt Plant	Job No:	21145	
Logged by:	AH	Date:	19/04/22	
Machine:	Hand Auger	Location:	See attached plan	

Depth (m)	Lithology	Description/Comments	Sample	Density	Dynamic Cone Penetration (per 100mm)	Depth (m)
0.00		Clayey SILT, high liquid limit, dark brown, moist, contains rootlets.	0.45m	S	1	0.00
0.10		...0.1m Dark brown mottled pale brown, increased clay content and mottling with depth.			1	0.10
0.20					2	0.20
0.30					4	0.30
0.40		Silty CLAY, high plasticity, pale brown mottled orange, dry to moist.			3	0.40
0.50					3	0.50
0.60		...0.6m Pale brown mottled orange and red.			2	0.60
0.70					2	0.70
0.80		...0.8m Red mottled pale brown, some black ironstone nodules.			2	0.80
0.90					3	0.90
1.00					2	1.00
1.10					3	1.10
1.20		Auger hole terminated at 1.15m. Suction resulting in difficult auger extraction.			2	1.20
1.30					3	1.30
1.40					3	1.40

Client:	Koppen Construction	Technician:	AH
Project No.:	21145	Date:	19/04/2022
Project:	Warner Road Asphalt Plant	Auger Hole:	AH1

Depth of auger hole (cm):	50	Average radius of auger hole (cm):	6
Depth of water (cm):	26	Depth to any impermeable layer (cm):	N/A
Soil moisture condition:	Moist	Time elapsed between filling and test start:	2m:00s

Comments on site (vegetation, seasonal waterlogging, soil structure, biological pores etc.):

Grassed, next to cane, moist, no inflow, poorly defined structure.

Test #1			Results		
Time	Level	cm/min	Q (cm ³ /min)	Ksat (cm/min)	Ksat (m/d)
0:02:00	52.5				
0:04:00	51.2	0.65	41.4	0.019	0.270
0:06:00	49.3	0.95	60.4	0.027	0.395
0:10:00	46.2	0.775	49.3	0.022	0.322
0:20:00	39.5	0.67	42.6	0.019	0.278
0:30:00	33.1	0.64	40.7	0.018	0.266
0:40:00	26.9	0.62	39.4	0.018	0.258
0:50:00	20.8	0.61	38.8	0.018	0.254
1:00:00	15.3	0.55	35.0	0.016	0.229
1:10:00	9.5	0.58	36.9	0.017	0.241
1:20:00	2.9	0.66	42.0	0.019	0.274

Auger Hole:	AH3	Checked:	Checked
Client:	Koppen Developments	GW (m):	Not Encountered
Project:	Warner Road Asphalt Plant	Job No:	21145
Logged by:	AH	Date:	19/04/22
Machine:	Hand Auger	Location:	See attached plan



Depth (m)	Lithology	Description/Comments	Sample	Density	Dynamic Cone Penetration (per 100mm)	Depth (m)
0.00	[Cross-hatched pattern]	FILL, Clayey SILT, low liquid limit, brown, moist, contains glass (several colours) and one piece of PVC.		S	3	0.00
0.10					7	0.10
0.20					9	0.20
0.30	[Dotted pattern]	Clayey SILT, high liquid limit, dark brown mottled pale brown, moist.		S	6	0.30
0.40					5	0.40
0.50	[Cross-hatched pattern]	Silty CLAY, high plasticity, pale brown mottled orange, moist.		S	4	0.50
0.60		Auger hole terminated at 0.6m. Target depth.			2	0.60
0.70					1	0.70
0.80					3	0.80
0.90					1	0.90
1.00					4	1.00
1.10					3	1.10
1.20					4	1.20
1.30					5	1.30
1.40					5	1.40

Appendix H Environmental Assessment Report

ENVIRONMENTAL ASSESSMENT REPORT

Asphalt Plant



PR150263/R80853
Asphalt Plant Environmental
Assessment Report
2
3 May 22

REPORT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
0	Draft EAR	M.Davis	M. Davis	M. Davis	8 Nov. 21
1	Final EAR with 54	M. Davis	M. Davis	M. Davis	16 Mar. 22
2	Add site layout plan	M. Davis	M. Davis	M. Davis	3 May 22

Approval for issue

Megan Davis



3 May 2022

This report was prepared by RPS within the terms of RPS' engagement with its client and in direct response to a scope of services. This report is supplied for the sole and specific purpose for use by RPS' client. The report does not account for any changes relating to the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

Prepared by:

RPS

Megan Davis
NQ Environment Leader

Level 5/135 Abbott St
Cairns QLD 4870

T +61 7 4031 1336
E megan.davis@rpsgroup.com.au

Prepared for:

Koppen Construction Pty Ltd

Callum Koppen
General Manager

Suite 4 / 10 Grafton St
Cairns QLD 4870

T +61 7 4052 2600
E ckoppen@koppens.com.au

Contents

1	INTRODUCTION	4
1.1	Scope of works.....	4
2	EXISTING ENVIRONMENTAL VALUES.....	5
2.1	Site Description and Topography.....	5
2.2	Regional Climate.....	6
2.3	Air Quality.....	6
2.4	Noise.....	11
2.5	Surface Water and Groundwater	12
2.5.1	Watercourses.....	12
2.5.2	Groundwater.....	14
3	ENVIRONMENTAL VALUES RISK ASSESSMENT.....	16
3.1	Risk Assessment Synopsis.....	16
3.2	Potential Environmental Impacts.....	17
4	ENVIRONMENTAL OBJECTIVE ASSESSMENT.....	19
4.1	Air.....	19
4.2	Water.....	20
4.3	Wetlands.....	22
4.4	Groundwater.....	22
4.5	Noise.....	22
4.6	Waste.....	23
4.7	Land.....	24
5	RISK MITIGATION AND CONTROL MEASURES	25
6	CONCLUSION	26

Tables

Table 2.1:	Summary of Regional Climate Statistics	6
Table 3.1:	Definitions of Likelihood.....	16
Table 3.2:	Definitions of Consequences.....	16
Table 3.3:	Risk Assessment Matrix	16
Table 3.4:	Indicative Management Option for Risk Assessment Ratings	17
Table 3.5:	Identification of Potential Impacts from Extractive Industry on Environmental Values	17
Table 3.6:	Assessment of Environmental Impacts	18

Plates

Plate 1	9am Wind Rose (BOM data reference 031011, Cairns)	8
Plate 2	3pm Wind Rose (BOM data reference 031011, Cairns)	9

Figures

Figure 1	Site Topography	5
Figure 2	Sensitive Receptor Locations.....	7
Figure 3	Surface water and Groundwater mapping (Qld Globe, October 2021).....	13

Appendices

Appendix A Site Layout Plan

1 INTRODUCTION

Koppen Construction Pty Ltd (Koppens) propose to construct a new asphalt plant within the Cairns State Development Area (SDA) area zoned as High Impact Industry, refer to **Figure 1** for the site location and **Appendix A** for the proposed site layout.

The proposed Environmentally Relevant Activities to be undertaken on Lot 1 on RP717908 at 1010 Warner Road, Wrights Creek include:

- ERA 6 Asphalt manufacturing more than 1000t in a year.
- ERA 54 Mechanical Waste Reprocessing (1) operating a facility for mechanically reprocessing more than 5,000 tonne of inert, non-putrescible waste or green waste only in a year.

Koppens propose to reuse shredded tyres within the road asphalt and reuse road plannings or scrapings to recycle where feasible. Crumbing of tyres will occur on a separate site, however, road plannings or scrapings may need to be reprocessed through screening or sizing to be able to be reused within the operations. This is likely to trigger ERA 54.

1.1 Scope of works

RPS Australia East Pty Ltd (RPS) have been engaged by Koppens to prepare the Environmental Authority application and provide supporting documentation for the proposed asphalt plant.

Supporting information for the EA application includes an Environmental Assessment Report to meet the information requirements outlined in Section 125 of the *Environmental Protection Act 1994*. This report identifies the existing environmental values of the site and surrounding area and assesses the impact of the proposed ERA on the identified environmental values.

2 EXISTING ENVIRONMENTAL VALUES

The desktop assessment involved a review of relevant environmental documents, databases, scientific journals, books, technical reports, maps and legislation (Commonwealth, State and Local) to identify the environmental values that potentially occur within and surrounding the project area. This review included an assessment of the following information:

- Aerial Photograph Interpretation (API) to determine the broad categorisation of vegetation within and surrounding the site and to review the extent of historical clearing and land use, and any other significant environmental features such as watercourses and wetlands.
- Regional Ecosystem and Essential Habitat mapping.
- Wildlife Online database of flora and fauna.
- Protected Matters database of Matters of State and National Environmental Significance (MSES and MNES).
- Queensland Globe online mapping tool.
- Review of relevant legislation and associated plans and policies, including but not limited to the EP Act, NC Act, VM Act, EPBC Act and Water Act.
- Other existing reports and databases.

2.1 Site Description and Topography

The proposed asphalt plant will be located within Lot 1 on RP717908 at the southern end of the site, which is currently used for cane production, refer to **Figure 1**. The site is approximately 12mAHD.

The site is located within the Cairns SDA and is mapped as High Impact Industry, refer to **Appendix A** for the zoning plans and site layout.



Figure 1 Site Topography

2.2 Regional Climate

The site is within the Cairns Regional Council area and has a tropical climate. The region is subject to relatively warm temperatures throughout the year with a pronounced dry season of approximately six to seven months and a short-wet season with rainfall usually occurring December to April.

There is a Bureau of Meteorology Weather Station located at Mt Sheridan and The Cairns Racecourse. Review of the records confirms that approximately 67% of the annual rainfall falls between December and April.

The driest month is November and the annual mean rainfall is 1685.6mm. Mean monthly maximum temperatures are highest in February at 39.5 °C and lowest in June at 20.3 °C.

A summary of the regional climatic statistics is shown in **Table 2.1** below.

Table 2.1: Summary of Regional Climate Statistics

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall (mm)													
Mean	225.4	243.2	286.8	233.6	116.0	60.6	69.0	32.0	62.6	189.2	12.0	155.4	1685.6
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average Mean
Temperature (°C)													
Mean min	25.0	25.2	25.0	25.8	23.8	20.3	22.3	22.6	24.1	24.5	27.9	25.7	24.3
Mean max	37.4	39.5	36.8	32.4	31.5	30.7	28.7	30.6	32.3	33.4	33.6	38.8	34.6

Source: Bureau of Meteorology 2018, Mt Sheridan QWRC and Cairns Racecourse (Station No. 031063 and 031222).

2.3 Air Quality

The land surrounding the site comprises agriculture/rural uses being predominately cane farming and rural residential/lifestyle uses, however, the site is within the SDA for High Impact Industry.

Sensitive receptors are presented in **Figure 2** below. The closest building (Sensitive Receptor 1) is located on the Warner Road approximately 250 metres south west of the proposed asphalt plant. This is within the SDA area.

There are also residential buildings located approximately 350m the southeast (Sensitive Receptor 2) which are also within the SDA.

The closest sensitive receptor outside of the SDA area is located to the north east which is approximately 1km away (Sensitive Receptor 3).

A fourth sensitive receptor is located approximately 600m to the west, also adjoining Warner Road, also within the SDA.

Wind speed and direction data collected at Cairns Aero weather station (BOM reference 031011) is the closest wind direction data available for the site. Average 9am and 3pm wind roses indicate that the prevailing wind direction is south to south easterly, 10-20 km/h, refer to **Plate 1** and **Plate 2** below.



Figure 2 Sensitive Receptor Locations

Rose of Wind direction versus Wind speed in km/h (05 May 1941 to 31 Jul 2019)

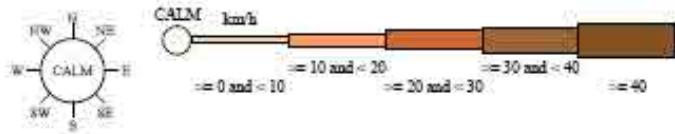
Custom times selected, refer to attached note for details

CAIRNS AERO

Site No: 031011 • Opened May 1941 • Still Open • Latitude: -16.8736° • Longitude: 145.7458° • Elevation 2.2m

An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am
28432 Total Observations

Calm 9%

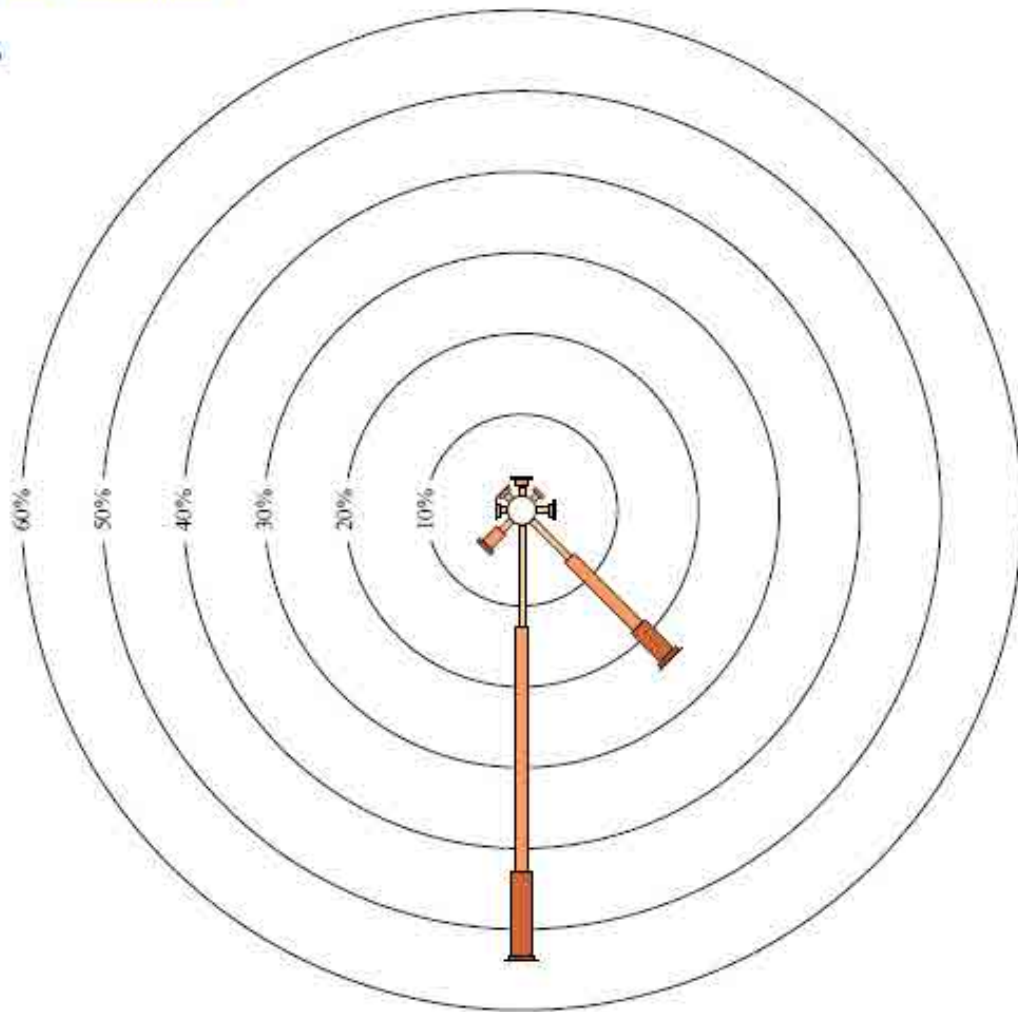


Plate 1 9am Wind Rose (BOM data reference 031011, Cairns)

Rose of Wind direction versus Wind speed in km/h (05 May 1941 to 31 Jul 2019)

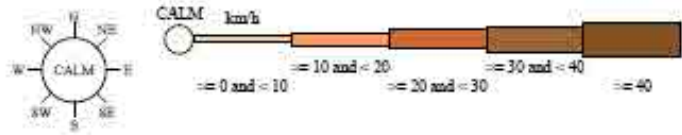
Custom times selected, refer to attached note for details

CAIRNS AERO

Site No: 031011 • Opened May 1941 • Still Open • Latitude: -16.8736° • Longitude: 145.7458° • Elevation 2.2m

An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm
28380 Total Observations

Calm 2%

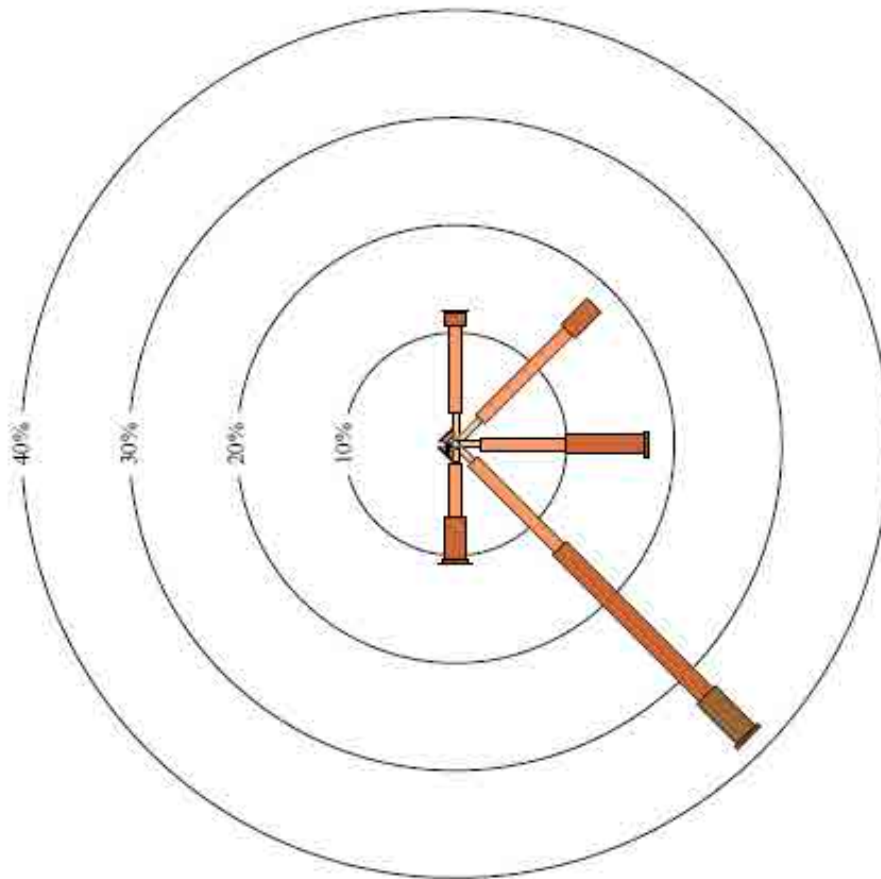


Plate 2 3pm Wind Rose (BOM data reference 031011, Cairns)

REPORT

Predicted air quality emissions based on publicly available measured data from similar operations is summarised in **Table 2.2** below.

Table 2.2 Stack Parameters and Emission Rates – Dryer Stack

Parameter	Data	Unit	Reference/Base
Temperature	90	°C	Newpave
Stack height	12	M	Manufacturer data
Exit velocity	19	m/s	Calculated based on a 120,000 m ³ /s exit flow rate scaled from flow rate data used in the Tomago Asphalt Plant AQIA (RCA Australia, 2015) and stack exit diameter
Stack diameter	1.5	M	Newpave
Odour emission rate	10,322	Ou/s	Scaled from emission rates presented in the Bushells Ridge Asphalt Plant AQIA (SLR Consulting Australia, 2016)
TSP emission rate	1.04	g/s	AP-42 emission factors for Batch Mix Asphalt Plants burning fuel oil
PM ₁₀ emission rate	0.41	g/s	
PN _{2.5} emission rate	0.41	g/s	
CO emission rate	16.67	g/s	
NO _x emission rate	5.00	g/s	
SO ₂ emission rate	3.67	g/s	
Benzene emission rate	0.012	g/s	
Toluene emission rate	0.042	g/s	
Xylene emission rate	0.113	g/s	
Ethylbenzene emission rate	0.092	g/s	

The stack has a dust collector which has a maximum emission rate of 20mg/Nm³.

2.4 Noise

The land surrounding the site comprises agriculture/rural uses, predominantly cane farming, n and rural residential/lifestyle uses.

Sensitive receptors are presented in **Figure 3**. The closest sensitive receptor outside of the SDA is over 1km away.

Wind speed and direction data collected at Cairns Aero weather station 031011 is the closest wind direction data available for the site. Average 9am and 3pm wind roses indicate that the prevailing wind direction is south to south easterly, 10-20 km/h.

Existing noise levels are considered to be representative of a rural area and are likely to be attributed to existing agricultural and extraction activities surrounding the site and traffic from the nearby Warner Road and Bruce Highway.

Indicative noise outputs from the proposed plant are provided in **Table 2.3** below.

Table 2.3 Indicative Noise Rates L_{AMAX}

Plant and equipment	Data source	Typical SWL L _{AMax}
Truck loading at asphalt plant	SLR Database	120 dBA
Cumulative Asphalt plant	SLR Database	114 dBA
Front End Loader	SLR Database	110 dBA
Generator	SLR Database	102 dBA
Bobcat	SLR Database	108 dBA

The surrounding noise for the operations is <80 dB with control room noise of <70 dB.

2.5 Surface Water and Groundwater

2.5.1 Watercourses

The site drains to the south to the stormwater drain running along Warner Road which travels to the east before discharging into a tributary of Mackey Creek. Mackey Creek travel to the north for 4.6km before discharging into Pine Creek which then discharges into Trinity Inlet in 2.5km, refer to **Figure 6** below.

The *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP (Water)) prescribes the environmental values that are to be protected or enhanced. The project area sits within basin 111 (Mulgrave River, including all waters of the Mulgrave River sub-basin, Trinity Inlet and adjacent coastal waters) and the EPP (Water) states that environmental values of these waters are provided in Mulgrave-Russell River Basin Environmental Values and Water Quality Objectives (DEHP 2014), published by the department in November 2014. The document identifies Mackey Creek as a moderately disturbed lowland freshwater creek with the following environmental values:

- Aquatic ecosystems
- Irrigation
- Farm supply
- Stock water
- Aquaculture
- Human consumption
- Primary recreation
- Secondary recreation
- Visual recreation
- Drinking water
- Industrial use
- Cultural and spiritual values.

DEHP (2014) presents water quality objectives/limits to protect these aquatic ecosystem and human use environmental values.



Figure 3 Surface water and Groundwater mapping (Qld Globe, October 2021)

2.5.2 Groundwater

The EPP (Water) prescribes the environmental values that are to be protected or enhanced. The project area sits within basin 111 (Mulgrave River, including all waters of the Mulgrave River sub-basin, Trinity Inlet and adjacent coastal waters) and the EPP (Water) states that environmental values of these waters are provided in Mulgrave-Russell River Basin Environmental Values and Water Quality Objectives (WQO) (DEHP 2014), published by the department in November 2014. The document identifies environmental values for Mulgrave River Basin groundwaters as:

- Aquatic ecosystems
- Irrigation
- Farm supply
- Stock water
- Drinking water
- Industrial use
- Cultural and spiritual values.

DEHP (2014) also maps the project area within the wet tropical alluvial (Na, Mg, HCO₃, low to very low salinity) groundwater chemistry zone 18 (Barron Mulgrave Johnstone metamorphics). Water quality objectives/limits to protect aquatic ecosystem environmental values for groundwater in this zone is presented in Table 2.3 below.

There are two registered groundwater bores to the south of the site, one to the south east, the other to the south west, refer to Figure 3 above.

Results from the past 5 years from these bores are shown in **Table 2.4** below. Water quality objectives for groundwater within the region are summarised in **Table 2.5** below

Table 2.4 Groundwater Height Results

Date Sampled	Bore 11100057	Bore 11100058
26 May 2021	-	15m
19 Dec 2020	-5.65m	
3 Mar 2020		15m
11 Dec 2019	-5.43m	
19 Sep 2018	-5.07m	
6 Mar 2018		15m
7 Dec 2017	-4.94m	
31 Mar 2017		20m
9 Mar 2016	-3.02m	
15 Feb 2016		15m
10 Dec 2015	-4.28m	

Table 2.5: Water Quality Objectives – Barron Mulgrave Johnstone Metamorphics (DEHP, 2014)

Mulgrave and Russell Rivers Basins including Trinity Inlet Environmental Values and Water Quality Objectives

Table 4.1 Water quality objectives to protect aquatic ecosystem EVs for Groundwater Chemistry Group (refer to Plan WQ1083) – Wet Tropical Alluvial – 18 Barron Mulgrave Johnstone metamorphics

Depth	Percentile	Na		Ca		Mg		HCO ₃		Cl		SO ₄		NO ₃		EC µS-cm ⁻¹	Hardness (mg-L ⁻¹)	pH	Alkalinity (mg-L ⁻¹)	SiO ₂ (mg-L ⁻¹)	F (mg-L ⁻¹)	Fe (mg-L ⁻¹)	Mn (mg-L ⁻¹)	Zn (mg-L ⁻¹)	Cu (mg-L ⁻¹)	SAR	RAH (meqL ⁻¹)	eH (mV)
		mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%	mg-L ⁻¹	%													
shallow	20th	8	45	2	12	1	11	23	41	5	19	-	-	-	-	66	8	6.4	19	12.0	0.003	0.000	0.000	0.000	0.00	0.80	0.10	-
	50th	10	59	4	24	2	13	32	68	7	25	-	-	2	2	105	18	6.7	26	18.0	0.100	0.010	0.020	0.015	0.01	0.90	0.22	-
	80th	13	75	9	35	3	21	55	75	19	44	2	3	7	13	144	34	7.1	45	36.0	0.119	1.026	0.401	0.030	0.01	1.59	0.32	-
moderate	20th	8	40	3	12	1	9	18	34	6	13	-	-	-	-	90	12	6.5	16	14.9	0.043	0.000	0.000	0.000	0.00	0.80	0.00	-
	50th	13	56	6	19	3	21	52	62	9	25	2	2	2	2	143	28	7.3	47	24.0	0.200	0.000	0.000	0.000	0.00	1.10	0.33	-
	80th	97	76	25	35	13	29	173	78	61	51	6	6	7	12	570	115	7.9	151	40.1	0.500	0.020	0.030	0.010	0.01	2.98	1.36	-
deep	20th	8	47	1	8	1	11	16	38	5	12	-	-	-	-	71	6	6.5	13	17.0	0.010	0.000	0.000	0.000	0.00	0.81	0.12	-
	50th	13	57	3	16	3	26	42	66	7	26	1	1	1	0	110	20	7.0	35	23.0	0.110	0.000	0.000	0.008	0.00	1.35	0.30	-
	80th	38	82	8	24	8	31	106	85	25	45	3	3	4	9	305	51	7.7	88	33.9	0.362	0.049	0.181	0.024	0.02	2.39	0.70	-
very deep	20th	15	77	2	8	1	9	22	38	11	25	0	0	0	0	98	9	6.4	18	22.0	0.524	0.000	0.000	0.000	0.00	2.20	0.10	-
	50th	17	80	2	10	1	10	35	57	12	32	1	4	5	4	119	10	7.2	29	22.5	0.620	0.015	0.000	0.000	0.00	2.25	0.33	-
	80th	20	84	8	12	4	11	50	63	17	34	4	9	15	22	166	37	7.8	41	24.8	0.695	0.700	0.063	0.000	0.00	2.40	0.40	-

3 ENVIRONMENTAL VALUES RISK ASSESSMENT

The following section describes risks to environmental values and likely magnitude of the impacts generated by the proposed development.

3.1 Risk Assessment Synopsis

The risk assessment adopted is a qualitative risk-based approach designed to assess risk based on the likelihood of an environmental impact or event occurring (refer to **Table 3.1** – Definitions of Likelihood), and the consequences of the occurrence on the surrounding environmental values (**Table 3.2** – Definitions of Consequence). The likelihood and consequences are scored between 1 and 5 for each potential impact or event. The risk assessment has been formulated considering potential for impact without control measures put in place to manage potential risk.

Table 3.1: Definitions of Likelihood

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some point in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

Table 3.2: Definitions of Consequences

Rating	Descriptor	Score
Negligible	Impacts not requiring any treatment or management action	1
Minor	Nuisance or insignificant environmental harm requiring minor management actions	2
Moderate	Serious environmental impacts, readily manageable at low cost	3
Major	Substantial environmental impacts, manageable but at considerable cost and some disruption	4
Catastrophic	Severe environmental impacts with major consequent disruption and heavy cost	5

Table 3.3: Risk Assessment Matrix

Likelihood of an Environmental Impact		Consequence of Said Impact				
		Negligible	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Almost Certain	5	5 Medium	10 High	15 High	20 Extreme	25 Extreme
Likely	4	4 Low	8 Medium	12 High	16 High	20 Extreme
Possible	3	3 Low	6 Medium	9 Medium	12 High	15 High
Unlikely	2	2 Low	4 Low	6 Medium	8 Medium	10 High
Rare	1	1 Low	2 Low	3 Low	4 Low	5 Medium

REPORT

The consequence and likelihood scores are then plotted on the risk assessment matrix, refer to **Table 3.3** above. The final risk level assigned is thus a product of the likelihood and consequence scores. The higher the risk score, the higher the priority is for management.

Table 3.4 describes the possible actions required for each risk assessment rating.

Table 3.4: Indicative Management Option for Risk Assessment Ratings

Risk Rating	Risk Rating Scores	Indicative Management Option
Extreme	16 - 25	Manage by implementing site management and emergency procedures, plant design controls and regular monitoring.
High	10 - 15	Manage by implementing site management procedures, specific monitoring, and may require some operation/plant design controls.
Medium	5 - 9	Manage by implementing specific monitoring or response procedures.
Low	1 - 4	Manage by routine procedures, unlikely to need specific application of resources.

3.2 Potential Environmental Impacts

Activities associated with the proposed development which have the potential to cause environmental harm and/or nuisance have been outlined in **Table 3.5**.

This risk assessment is limited to the potential for the activity to impact upon the existing environmental values and does not consider any pre-existing approved impacts taking place on the site.

Table 3.5: Identification of Potential Impacts from Extractive Industry on Environmental Values

Activity	Potential Impacts Environmental Values Impacted				
	Air	Water	Noise	Land	Waste
Feed raw aggregates	✓	✓	✓	✓	NA
Transfer of aggregates to drying drum	✓	✓	✓	NA	NA
Aggregates dried	✓	✓	✓	NA	NA
Aggregates screened	✓	✓	✓	NA	NA
Mixing with bitumen	✓	✓	✓	NA	NA
Storage of bitumen in tanks	✓	✓	✓	NA	NA

Activity	Potential Impacts Environmental Values Impacted				
	Air	Water	Noise	Land	Waste
Hot mix asphalt discharged to trucks or silos	✓	✓	✓	NA	NA
Waste storage	NA	✓	NA	✓	✓

Site activities have been tabulated against environmental values to determine the risk and likely magnitude of impacts and to provide a focus for management strategies, refer to **Table 3.6** below.

Table 3.6: Assessment of Environmental Impacts

Activity	Potential Impacts Environmental Values Impacted				
	Air	Water	Noise	Land	Waste
Feed raw aggregates	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	3 x 1 = 3	NA
Transfer of aggregates to drying drum	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	NA	NA
Aggregates dried	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	NA	NA
Aggregated screened	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	NA	NA
Mixing with bitumen	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	NA	NA
Storage of bitumen in tanks	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	3 x 1 = 3	NA
Hot mix asphalt discharged to trucks or silos	3 x 2 = 6	3 x 1 = 3	2 x 3 = 6	3 x 1 = 3	NA
Waste storage	NA	3 x 1 = 3	NA	3 x 1 = 3	4 x 2 = 8

The identification of potential environmental impacts and associated risk matrix above has informed the control measures set out in the Site Based Management Plan (**Appendix D**).

Where impacts are identified on an environmental value, mitigation measures have been implemented to reduce the potential impacts.

4 ENVIRONMENTAL OBJECTIVE ASSESSMENT

The following section assesses the proposed activity against the environmental objectives and performance outcomes for Air, Water, Wetlands, Groundwater, Noise, Waste and Land environmental values as per Schedule 8, Part 3 of the *Environmental Protection Regulation 2019* (EP Reg).

4.1 Air

The Environmental Objective for Air detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity will be operated in a way that protects the environmental values of air.”

Performance outcomes for Air as detailed in the EP Reg include:

1. There is no discharge to air of contaminants that may cause an adverse effect on the environment from the operation of the activity.
2. All of the following:
 - a. Fugitive emissions of contaminants from storage, handling and processing of materials and transporting materials within the site are prevented or minimised;
 - b. Contingency measures will prevent or minimise adverse effects on the environment from unplanned emissions and shut down and start up emissions of contaminants to air;
 - c. Releases of contaminants to the atmosphere for dispersion will be managed to prevent or minimise adverse effects on environmental values.

The *Environmental Protection (Air) Policy 2019* (EPP (Air)) prescribes the environmental values that are to be protected or enhanced, which are:

- a. The qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems;
- b. The qualities of the air environment that are conducive to human health and wellbeing;
- c. The qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and
- d. The qualities of the air environment that are conducive to protecting agricultural use of the environment.

No measurement or monitoring of the background air quality has been carried out at sensitive receptors for the purpose of this application. However, it is expected that air quality at sensitive receptors would be typical of the pre-existing agricultural activities and adjacent land uses (e.g. rural, residential, and agricultural).

Sources of air emissions from the proposed asphalt plant include stack emissions and fugitive dust emissions from transporting aggregate and loading into the feed bins. There is a low potential for exhaust emissions from heavy machinery and light vehicles to release contaminants and all vehicles are maintained to ensure they are working as efficiently as possible.

Stack emissions and fugitive dust emissions created from the proposed asphalt activity will result in discharge to air of contaminants that may cause an adverse effect on the environment as a result of the operation of the activity. As a result, it is proposed that the environmental objective for air will be met via Performance Outcome 2.

REPORT

Manufacturer specifications state that chimney bag filters will ensure the following air quality emissions: Dust < 20 mg/Nm³.

As a result, it is likely that the plant can meet the conditioned limits as detailed below.

A2	Contaminants must only be released to air from the point source in accordance with <i>Table – Point source air release limits</i> and the associated requirements.					
	Table – Point source air release limits					
	Release point	Minimum release height (m)	Minimum velocity (m/sec)	Contaminant release	Maximum release limit (at 15% O ₂)	Monitoring Frequency
	Asphalt Plant Stack	10	15	Carbon Monoxide (CO)	400mg/Nm ³ (dry)	Stack must be monitored for the contaminants within three months of commissioning of the plant and annually thereafter
				Total Solid Particles (TSP)	50mg/Nm ³ (dry)	
				Volatile Organic Compounds (VOC)	40mg/Nm ³ (dry) Expressed as n-propane	
				Hydrogen Sulfide (H ₂ S)	5mg/Nm ³ (dry)	
				Oxides of Nitrogen (NO _x)	350mg/Nm ³ (dry)	
Total Heavy Metals (see Note 1)				1mg/ Nm ³ (dry)		
<p>Note 1: Total heavy metals includes the elements of antimony, arsenic, cadmium, lead, beryllium, chromium, cobalt, manganese, nickel, selenium, tin, vanadium, mercury and any compound containing one or more of those elements.</p> <p>Associated requirements</p> <p>1. The release of contaminants from a point source must be directed vertically upwards without any impedance or hindrance.</p>						

The site will be sealed to prevent emissions from transport within the site.

Fugitive emissions from storage, handling, processing, and transporting of material within the site will be prevented or minimised.

4.2 Water

The Environmental Objective for Water detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity will be operated in a way that protects environmental values of waters”.

Performance Outcomes for Water as detailed in the EP Reg include:

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 or minimise releases to the environment from spillage or leaks;
 - b. Contingency measures will prevent or minimise adverse effects on the environment due to unplanned releases or discharges of contaminants 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 minimise 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 impacts during operation and after the environmental authority has been surrendered;
 - f. Any discharge to water or a 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 a watercourse or 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 waste;
 - h. The activity will be managed so that adverse effects on environmental values are prevented or minimised.

The environmental objective for water is proposed to be met via Performance Outcome 2. Stormwater will be managed through a detention basin to capture and treat contaminants prior to discharge or reuse within the site.

As there is no acid sulphate soil or potential acid sulphate soil present on site and no acid producing rock, no mitigation measures have been proposed to manage the potential for adverse effects on environmental values from these.

4.3 Wetlands

The Environmental Objective for Wetlands detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity will be operated in a way that protects the environmental values of wetlands”.

Performance Outcomes for Wetlands as detailed in the EP Reg include:

1. There will be no potential or actual adverse effect on a wetland as part of carrying out the activity.
2. The activity will be managed in a way that prevents or minimises adverse effects on wetlands.

The *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP (Water)) defines wetland as an area shown as a wetland on the ‘Map of Queensland wetland environmental values’, published on the department’s website. The ‘Map of Queensland wetland environmental values’ is a state-wide statutory map under the EPP (Water) which identifies wetlands of high ecological significance (HES) and general ecological significance (GES) across the state. HES wetlands are identified as MSES under the Planning and Environmental Offsets legislation.

There are no HES wetlands within the receiving environment, therefore the application will achieve the environmental objective for water through Performance Outcome 1.

4.4 Groundwater

The Environmental Objective for Groundwater detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.”

Performance Outcomes for Groundwater as detailed in the EP Reg include:

1. Both of the following apply:
 - a. There will be no direct or indirect release of contaminants to groundwater from the operation of the activity;
 - b. There will be no actual or potential adverse effect on groundwater from the operation of the activity.
2. The activity will be managed to prevent or minimise adverse effects on groundwater or any associated surface ecological systems.¹

The application will achieve the environmental objective for groundwater through Performance Outcome 1 as there will be no direct or indirect release of contaminants to groundwater.

4.5 Noise

The Environmental Objective for Noise detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity will be operated in a way that protects the environmental values of the acoustic environment”.

¹ Note: Some activities involving direct releases to groundwater are prohibited under section 41 of the EP Regs.

Performance Outcomes for Noise as detailed in the EP Reg include:

1. Sound from the activity is not audible at a sensitive receptor.
2. The release of sound to the environment from the activity is managed so that adverse effects on environmental values, including health and wellbeing and sensitive ecosystems, are prevented or minimised.

The *Environmental Protection (Noise) Policy 2019* (EPP (Noise)) prescribes the environmental values that are to be protected or enhanced, which are:

- a. The qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems;
- b. The qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following:
 - i. Sleep;
 - ii. Study or learn; or
 - iii. Be involved in recreation, including relaxation and conversation; and
- c. The qualities of the acoustic environment that are conducive to protecting the amenity of the community.

Sources of noise from the proposed expansion include feeding aggregates into the cold storage bins, transfer of aggregates and screening within the plant and loading hot mix asphalt.

Existing noise levels are considered to be representative of a rural area and are likely to be attributed to existing agricultural and extraction activities surrounding the site and traffic from the nearby Warner Road and Bruce Highway. Sensitive receptors are presented in **Figure 2**.

The Environmental Objective for noise is proposed to be met via Performance Outcome 2. It is proposed that the release of sound to the environment from the activity is managed so that adverse effects on environmental values are prevented or minimised. Specific measures to prevent or minimise impacts to the acoustic environment include maintaining equipment in good working order, installing noise suppressors on equipment where required, limiting operational hours to approved hours of 6am until 6pm, Monday - Saturday, and operating machinery with squawkers rather than reversing beepers.

4.6 Waste

The Environmental Objective for Waste detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values”.

Performance Outcomes for Waste as detailed in the EP Reg include:

1. Both of the following apply:
 - a. Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy in the *Waste Reduction and Recycling Act 2011* (WRRRA); and
 - b. If waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.

The Environmental Objective for waste is proposed to be met via Performance Outcome 1. It is proposed that any waste likely to be generated, transported, or received as a result of the proposed expansion will be managed in accordance with the waste and resource management hierarchy.

4.7 Land

The Environmental Objective for Land detailed within Schedule 8, Part 3, Division 1 of the EP Reg states:

“The activity is operated in a way that protects the environmental values of land, including soils, subsoils, landforms and associated flora and fauna”.

Performance Outcomes for Land as detailed in the EP Reg include:

1. There is no actual or potential disturbance or adverse effect to the environmental values of land as part of carrying out the activity.
2. All of the following apply:
 - a. Activities that disturb land, soils, subsoils, landforms and associated flora and fauna will be managed in a way that prevents or minimises adverse effects on the environmental values of land;
 - b. Areas disturbed will be rehabilitated or restored to achieve sites:
 - i. That are safe and stable;
 - ii. Where no environmental harm is being caused by anything on or in the land; and
 - iii. That are able to sustain an appropriate land use after rehabilitation or restoration;
 - c. The activity will be managed to prevent or minimise adverse effects on the environmental values of land due to unplanned releases or discharges, including spills and leaks of contaminants; and
 - d. The application of water or waste to the land is sustainable and is managed to prevent or minimise adverse effects on the composition or structure of soils and subsoils.

The Environmental Objective for land is proposed to be met via Performance Outcome 2. The proposed asphalt plant is unlikely to further disturb the land that is currently being used for cane production.

A Site Based Management Plan will be prepared for the operation of the site which will detail the emergency response procedure for unexpected releases (spill response), flooding and stormwater management, fire management and cyclone management. It will also detail the management actions, routine monitoring programs and nominates persons responsible for delivering on land and rehabilitation management objectives for the site. As there is no acid sulphate soil or potential acid sulphate soil present on site and no acid producing rock, no mitigation measures have been proposed to manage the potential for adverse effects on environmental values from these.

5 RISK MITIGATION AND CONTROL MEASURES

Koppens have prepared a comprehensive Site Based Management Plan.

The SBMP details:

- Description of activities including pre and post extraction
- Environmental Commitments
- Roles and Responsibilities of all involved
- Management of Environmental Values including air, water, noise, waste and land
- Inductions and training
- Emergency Response
- Complaints
- Incident Management.

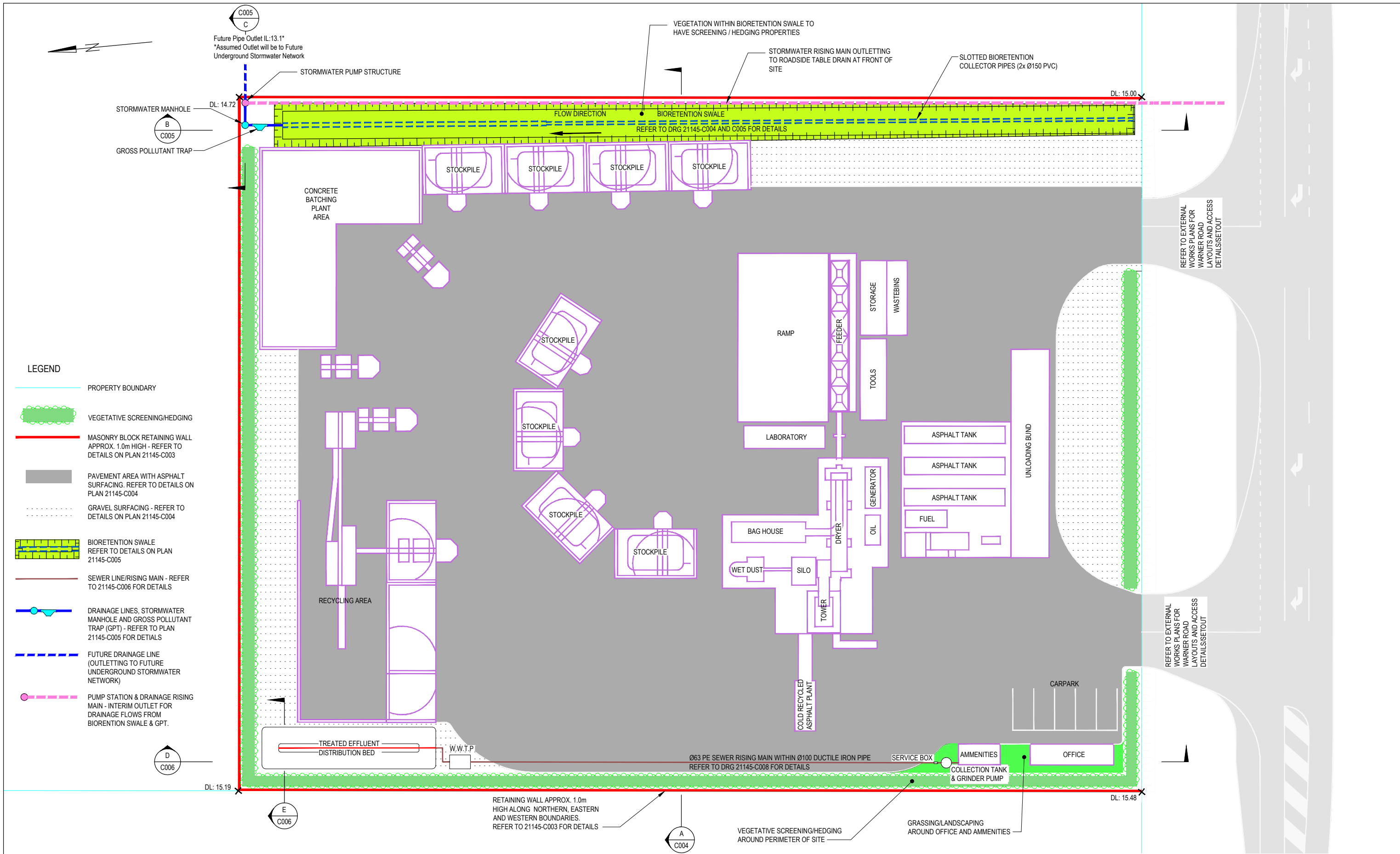
6 CONCLUSION

Koppen Construction Pty Ltd propose to construct a new asphalt plant within the Cairns State Development Area (SDA) area zoned as High Impact Industry, within Lot 1 on RP717908 at 1010 Warner Road, Wrights Creek include the following ERAs:

- ERA 6 Asphalt manufacturing > 1000t per year.
- ERA 54 Mechanical Waste Reprocessing (1) more than 5000 tonne of inert material

The risk assessment has determined that the potential environmental risks resulting from the proposed asphalt plant will be effectively regulated through the effective implementation of environmental monitoring and management practices to avoid potential environmental impacts.

Appendix A Site Layout Plan



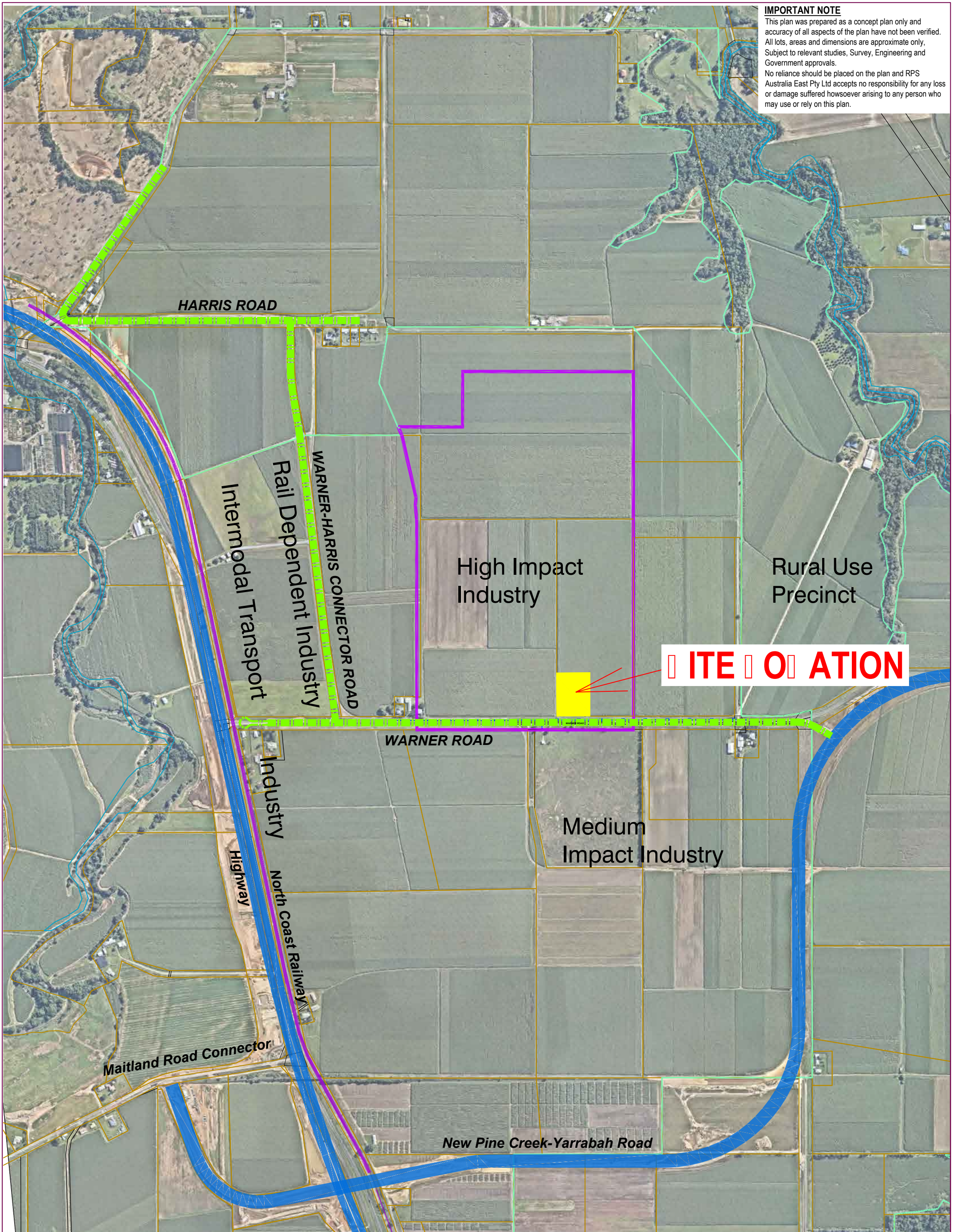
LEGEND

- PROPERTY BOUNDARY
- VEGETATIVE SCREENING/HEDGING
- MASONRY BLOCK RETAINING WALL APPROX. 1.0m HIGH - REFER TO DETAILS ON PLAN 21145-C003
- PAVEMENT AREA WITH ASPHALT SURFACING. REFER TO DETAILS ON PLAN 21145-C004
- GRAVEL SURFACING - REFER TO DETAILS ON PLAN 21145-C004
- BIORETENTION SWALE REFER TO DETAILS ON PLAN 21145-C005
- SEWER LINE/RISING MAIN - REFER TO 21145-C006 FOR DETAILS
- DRAINAGE LINES, STORMWATER MANHOLE AND GROSS POLLUTANT TRAP (GPT) - REFER TO PLAN 21145-C005 FOR DETAILS
- FUTURE DRAINAGE LINE (OUTLETING TO FUTURE UNDERGROUND STORMWATER NETWORK)
- PUMP STATION & DRAINAGE RISING MAIN - INTERIM OUTLET FOR DRAINAGE FLOWS FROM BIORETENTION SWALE & GPT.

<p>NOT ISSUED</p> <p>REV DATE REVISION NOTES</p>	<p>DESIGNER</p> <p style="text-align: center;">OSE GROUP</p> <p style="font-size: 8px;">Address: 35 ABBOTT ST, CAIRNS 4870 Email: admin@osegroup.com.au</p>	<p>CLIENT</p> <p style="text-align: center;">KOPPEN CONSTRUCTION</p>	<p>PROJECT</p> <p style="text-align: center;">ASPHALT PLANT - WARNER ROAD</p>	<p>TITLE</p> <p style="text-align: center;">INTERNAL SITE LAYOUT - GENERAL ARRANGEMENT PLAN</p>							
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">DRAWN DJM</td> <td style="width: 33%;">DRAWING CHECK PDR</td> <td style="width: 33%;">APPROVED</td> </tr> <tr> <td>DESIGNED DJM</td> <td>DESIGN REVIEW PDR</td> <td>DATE -</td> </tr> </table>		DRAWN DJM	DRAWING CHECK PDR	APPROVED	DESIGNED DJM	DESIGN REVIEW PDR	DATE -	<p>SCALE 1:500 (A3)</p> <p>DRAWING No 21145-C002</p>	<p>REV A</p>
DRAWN DJM	DRAWING CHECK PDR	APPROVED									
DESIGNED DJM	DESIGN REVIEW PDR	DATE -									

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only. Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.



SITE LOCATION



**Proposed Asphalt Plant
Locality Plan**



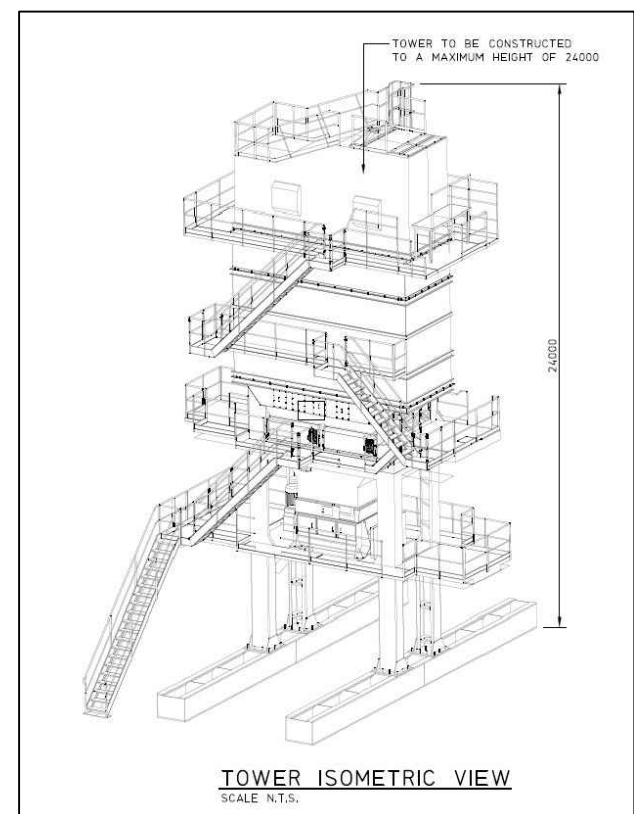
RPS Australia East Pty Ltd
ACN 140 292 762
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
T +61 7 4031 1336
F +61 7 4031 2942
W rpsgroup.com



Appendix I Typical images

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

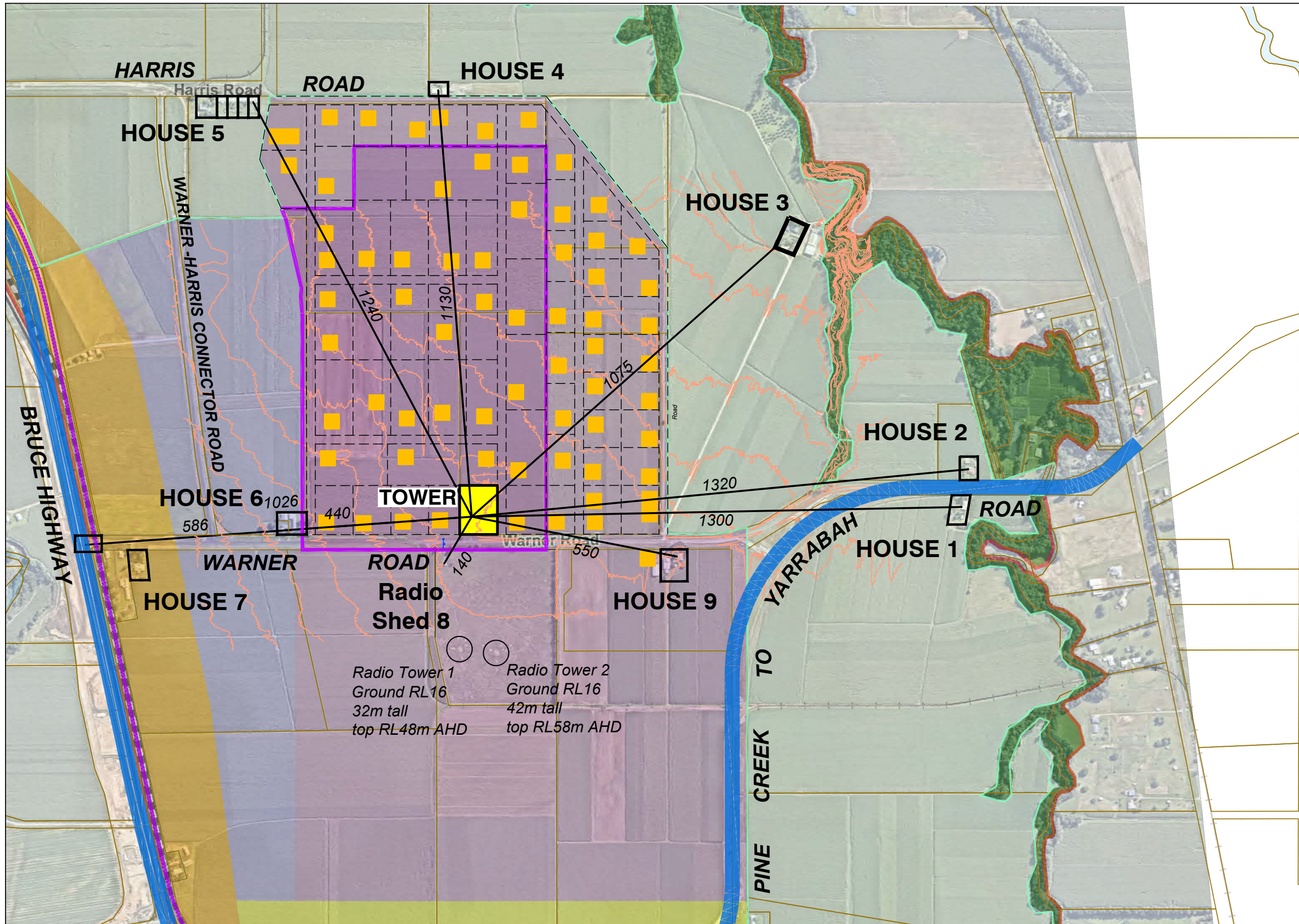


**Proposed Asphalt Plant - Typical Images
Muswellbrook Plant**

RPS Australia East Pty Ltd
ACN 140 292 762
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
T +61 7 4031 1336
F +61 7 4031 2942
W rpsgroup.com



Appendix J Visual Analysis Combined Plan and Sections



IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only. Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

□ Sensitive Land Use

140 Distance to Site

□ Potential Street layout

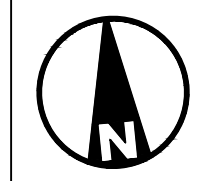
□ Indicative Building 15m high

Cairns South State Development Area Development Precinct Map
 March 2020

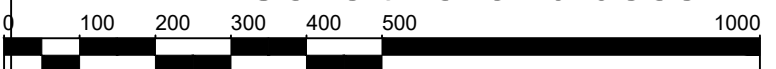
Legend

- Cairns South State Development Area
- Intermodal Transport Precinct
- Rail Dependent Industry Precinct
- High Impact Industry Precinct
- Medium Impact Industry Precinct
- Mulgrave Mill Industry Precinct
- Transport and Support Services Precinct
- Infrastructure Corridors Precinct
- Sugar Research Precinct
- Rural Use Precinct
- Environmental Management Precinct
- Property boundary
- Waterways/waterbodies
- Bruce Highway
- North Coast Line
- Cane railway network
- Localities

DNRM LIDAR
 The contours shown on this plan have been derived from LIDAR data Captured 2010 © State of Queensland (Department of Resources) [2022]
 Contour Interval: 1.0m

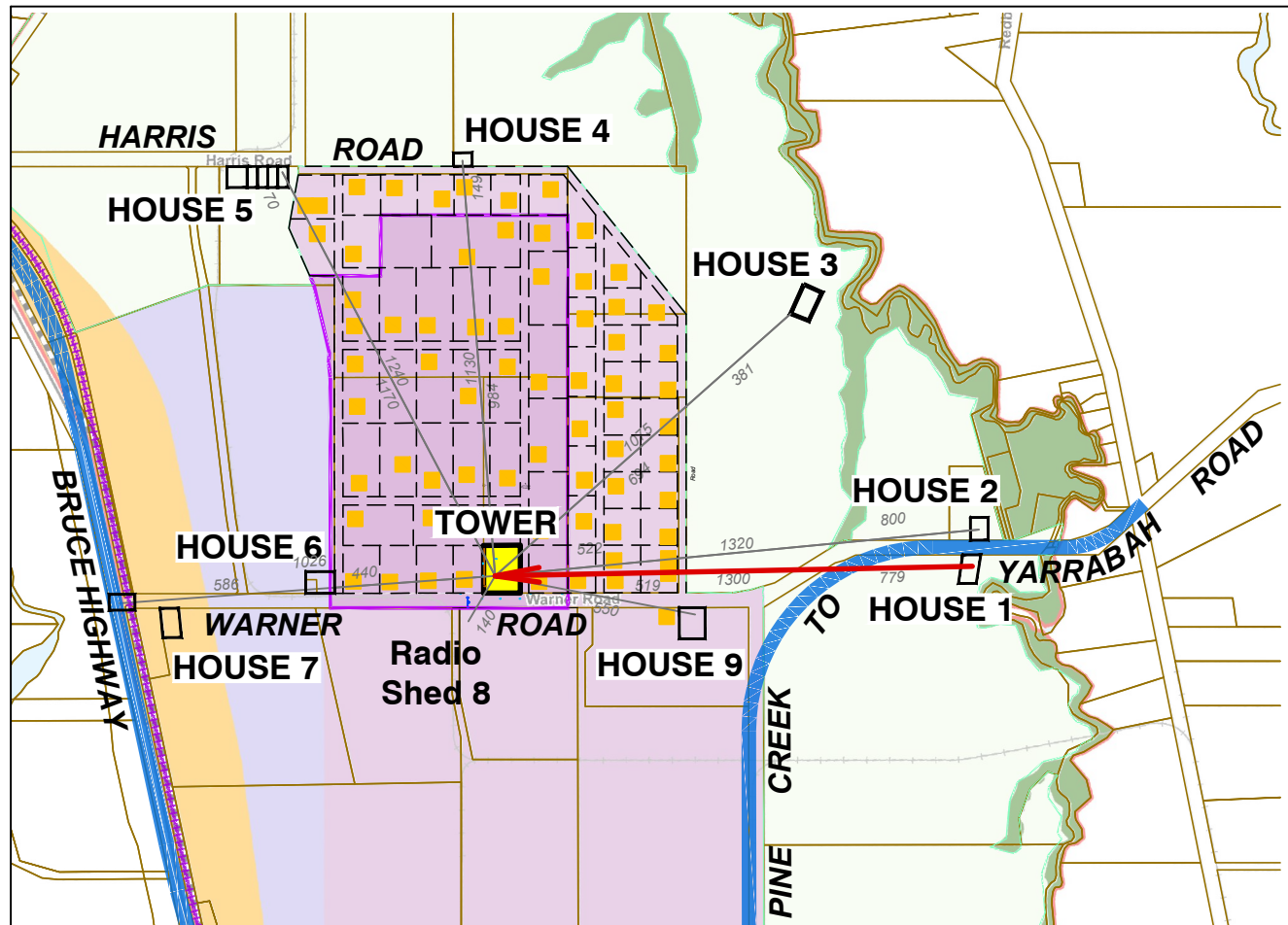


Proposed Asphalt Plant
 Visual Analysis - Sheet 1
 Sensitive land uses in the Rural Use Precinct and publicly accessible viewpoints



RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



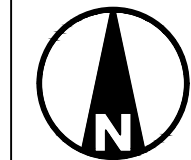
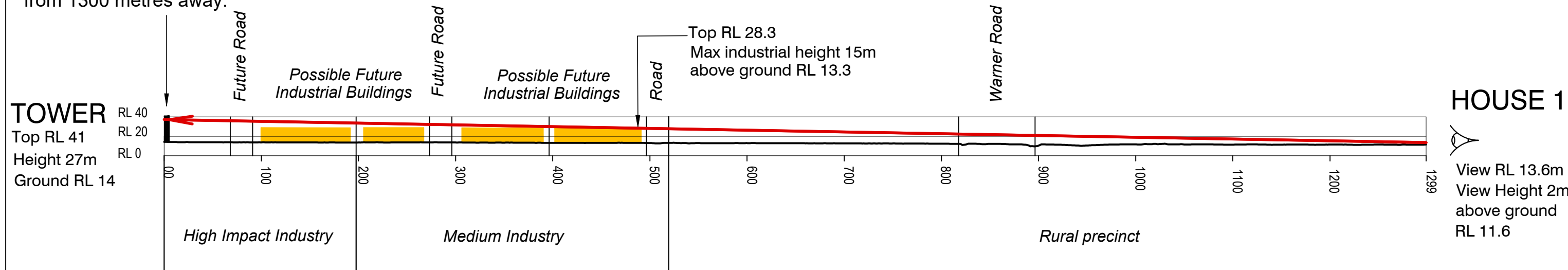


View from East of House 1 towards site

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high

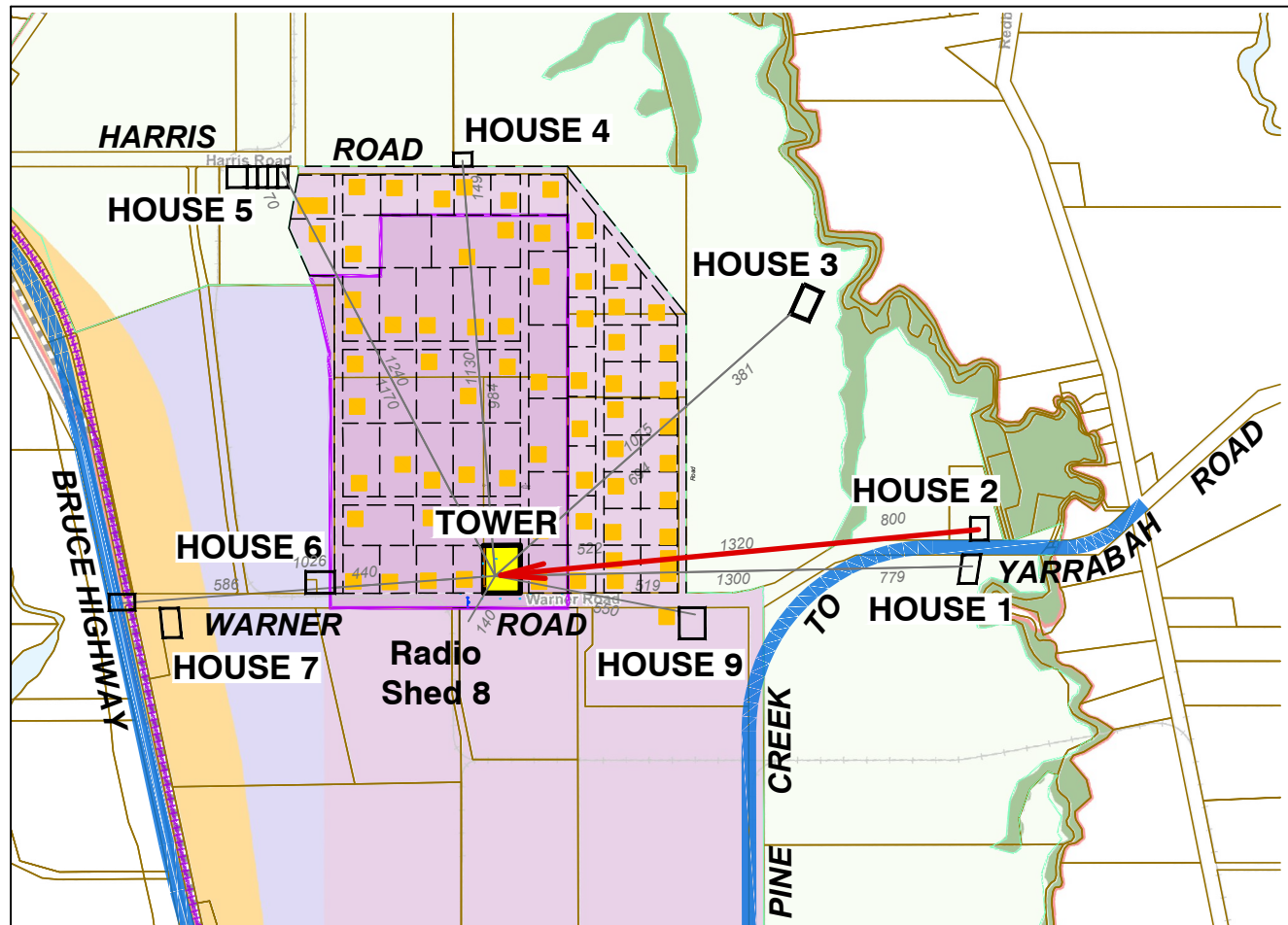
View from House 1 sees top 4m of tower - albeit from 1300 metres away.



Visual Analysis - Sheet 2
Section from Tower to House 1

RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



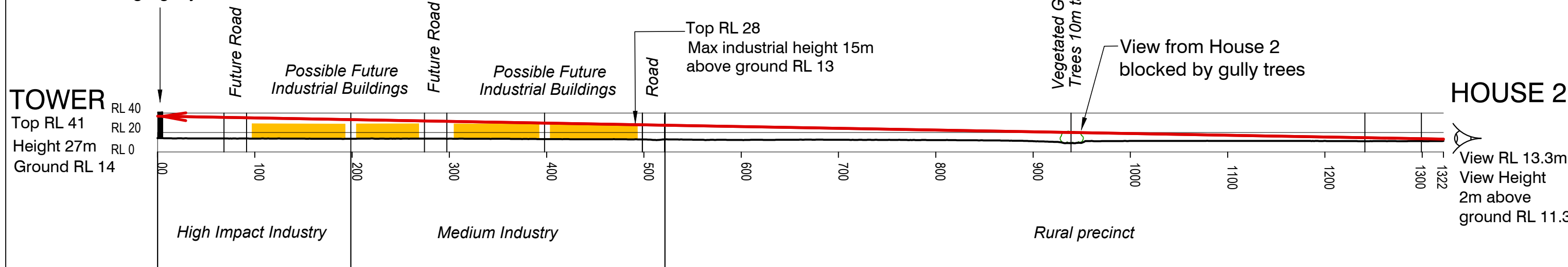


View from East of House 2 towards site

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high

View from House 2 sees top 8m of tower - albeit from 1300 metres away and through gully trees.

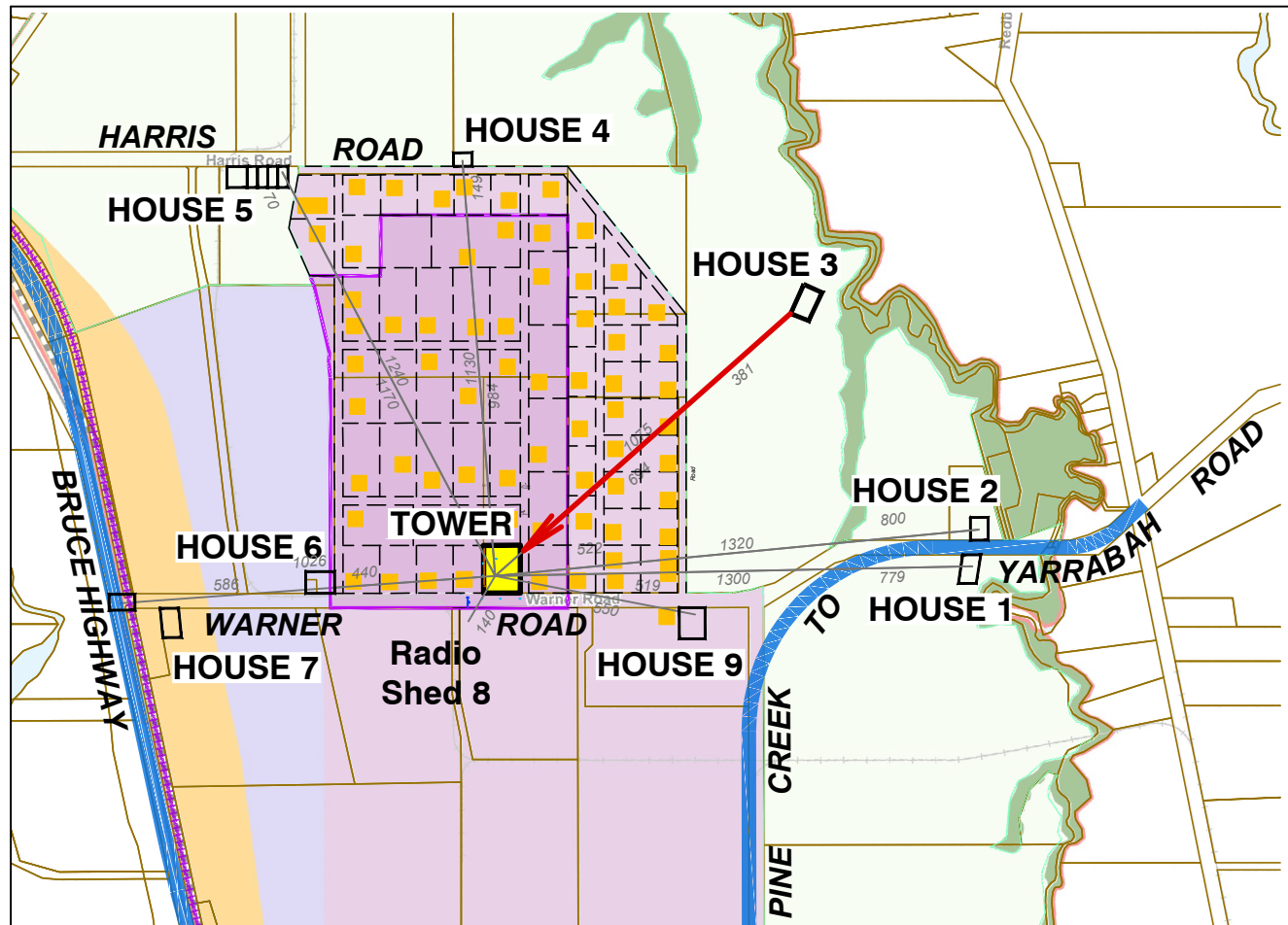


Visual Analysis - Sheet 3
Section from Tower to House 2



RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com





IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high

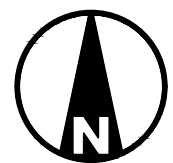
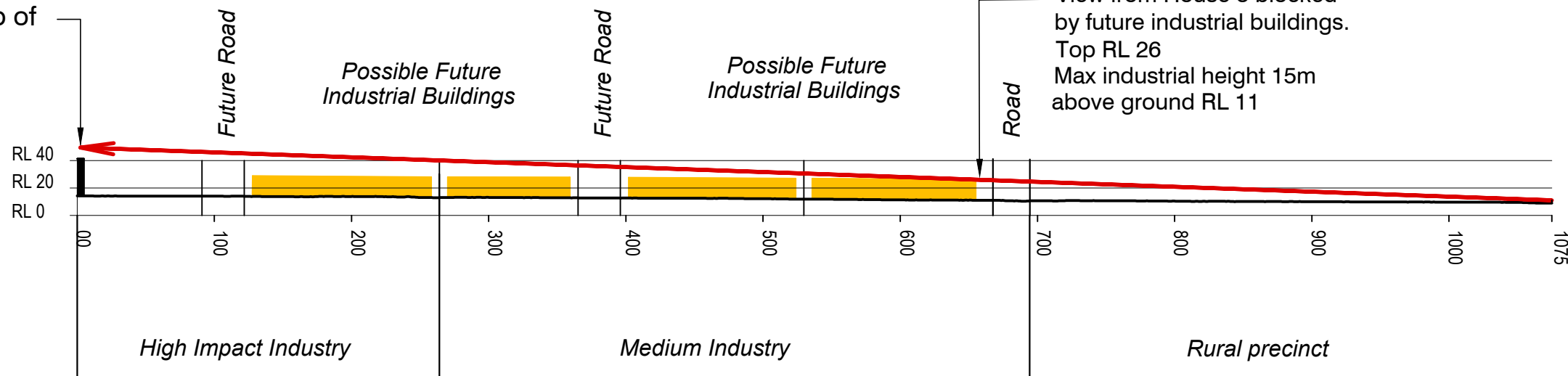
Photo not available

View from House 3 overshoots top of tower by 8m

View from House 3 blocked by future industrial buildings. Top RL 26 Max industrial height 15m above ground RL 11

TOWER
 Top RL 41
 Height 27m
 Ground RL 14

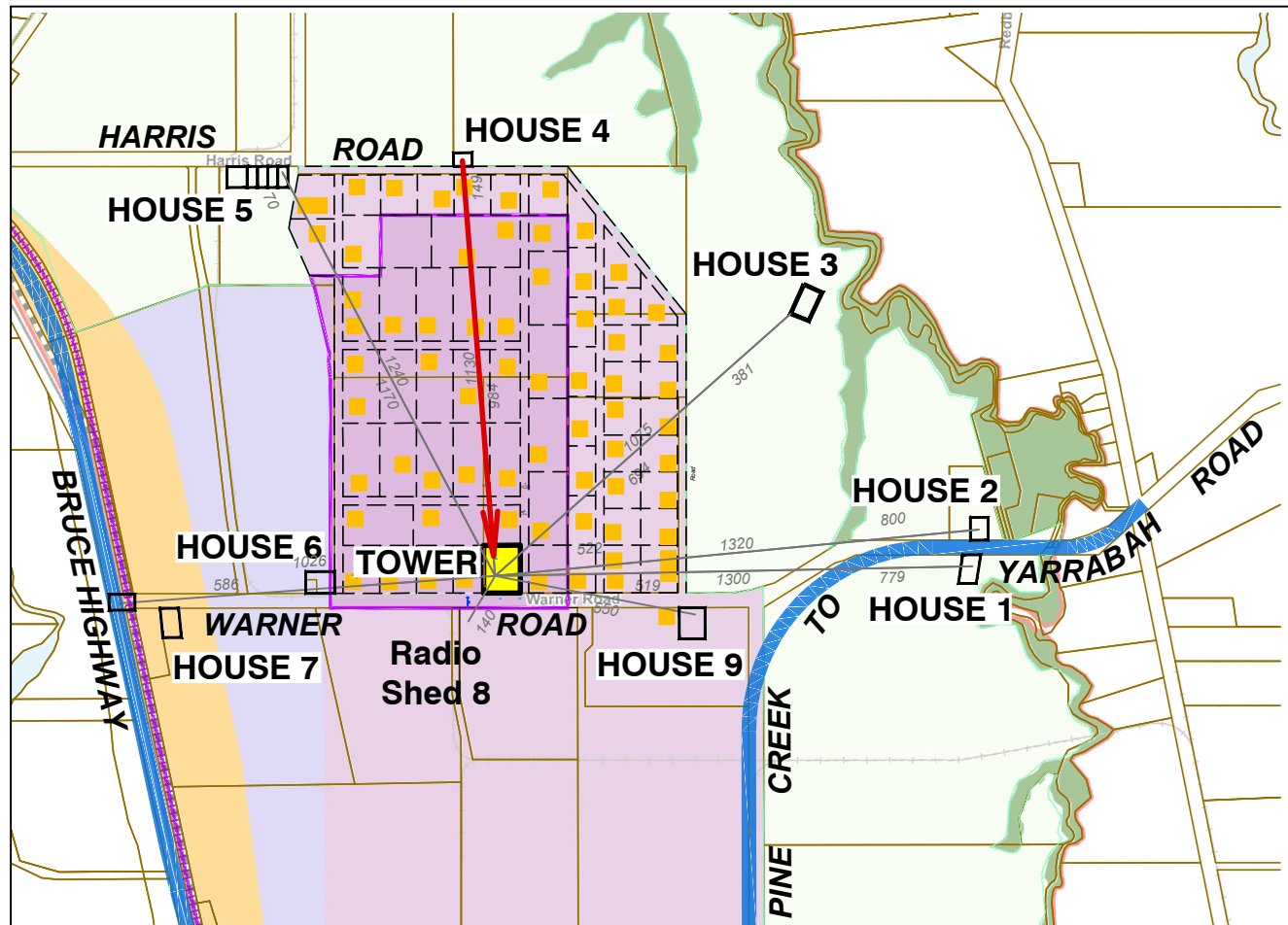
HOUSE 3
 View RL 11m
 View Height 2m above ground RL 9



Visual Analysis - Sheet 4
Section from Tower to House 3

RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com

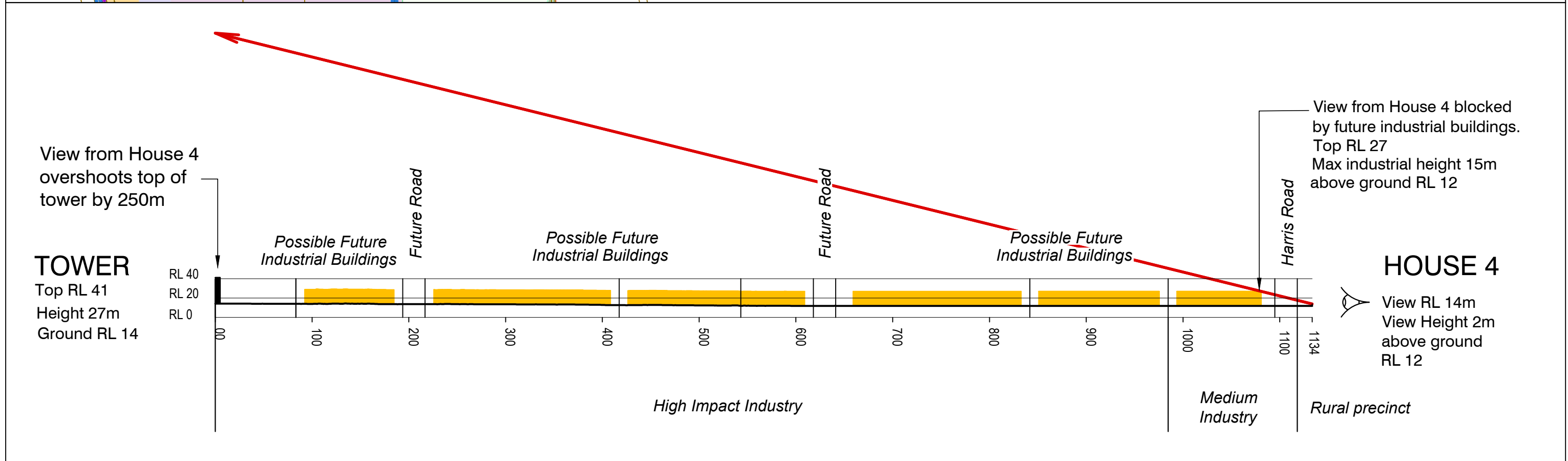




View from House 4 towards site

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only. Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

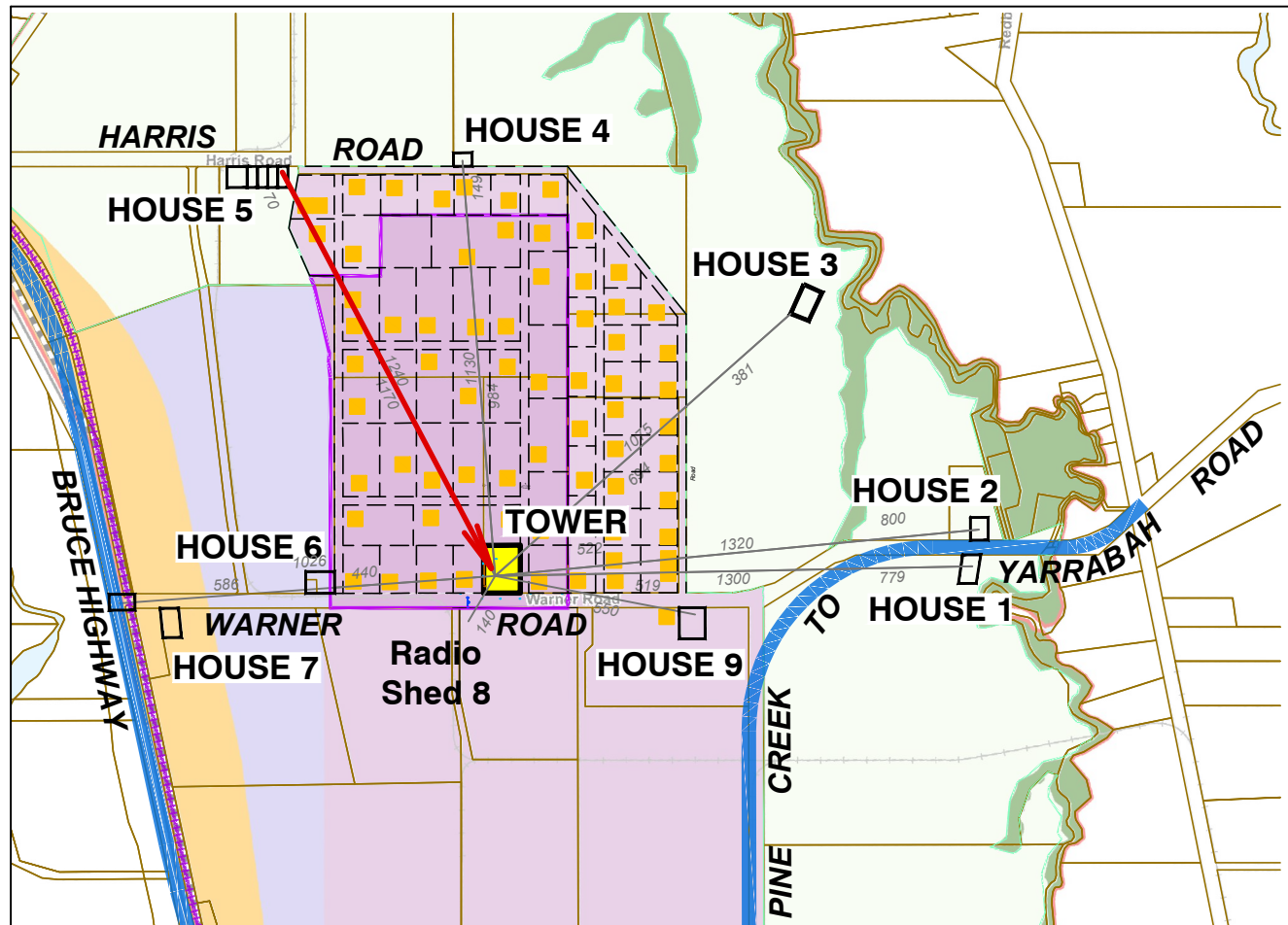
- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high



Visual Analysis - Sheet 5
Section from Tower to House 4



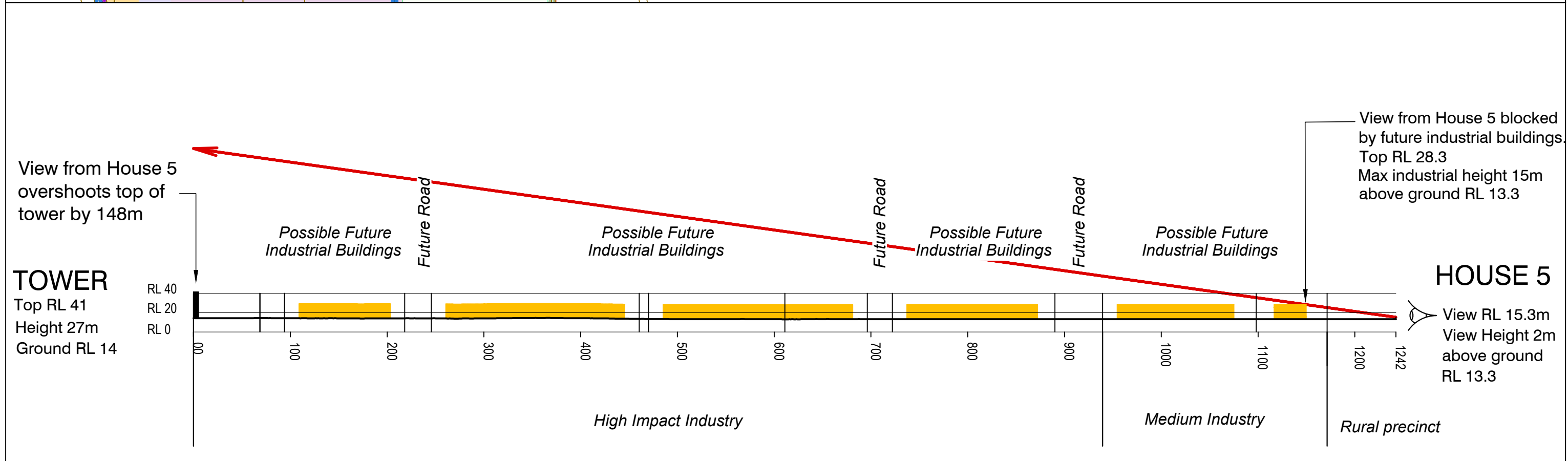
RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



View from House 5 towards site

IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

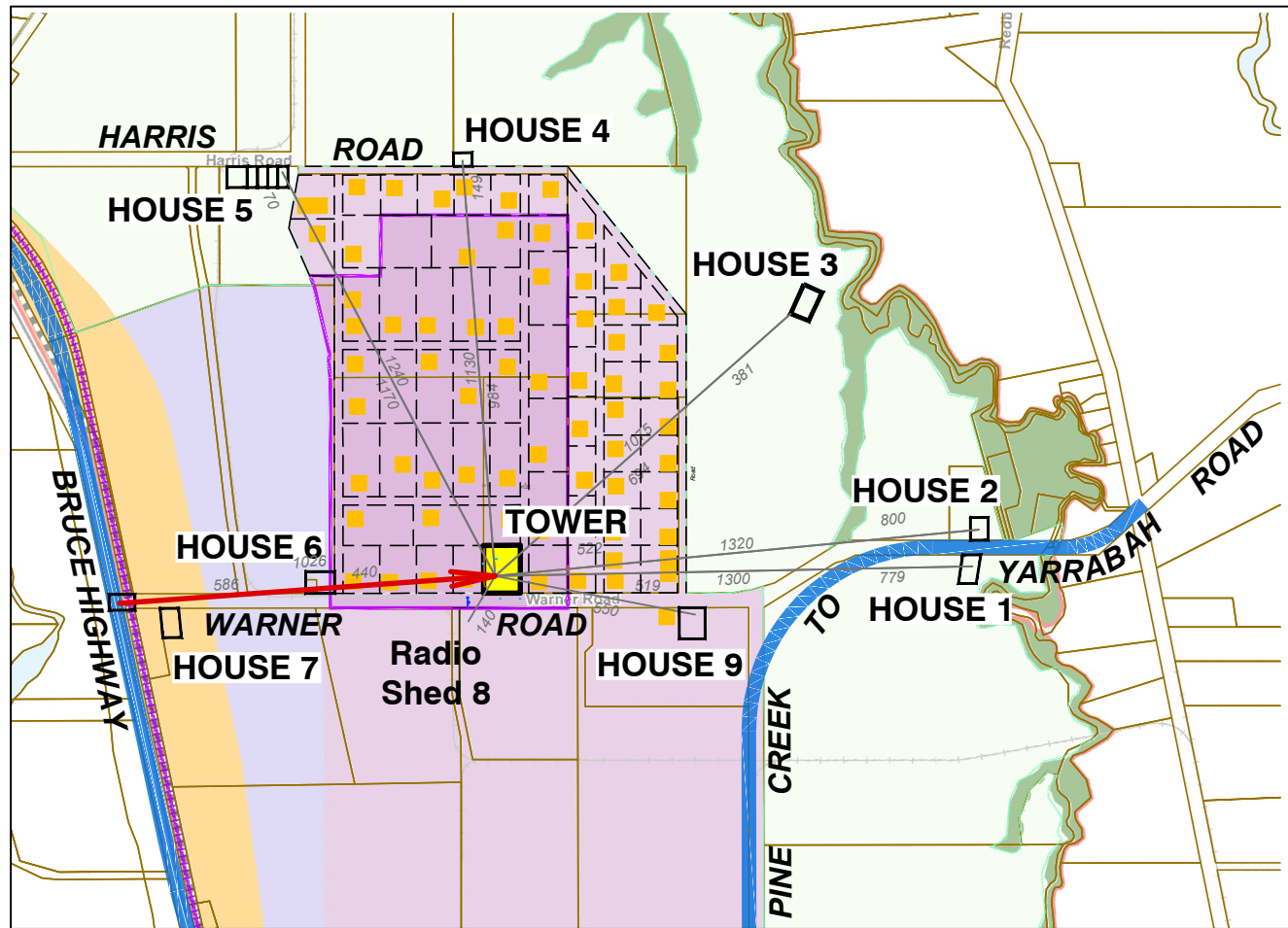
- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high



Visual Analysis - Sheet 6
Section from Tower to House 5



RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com

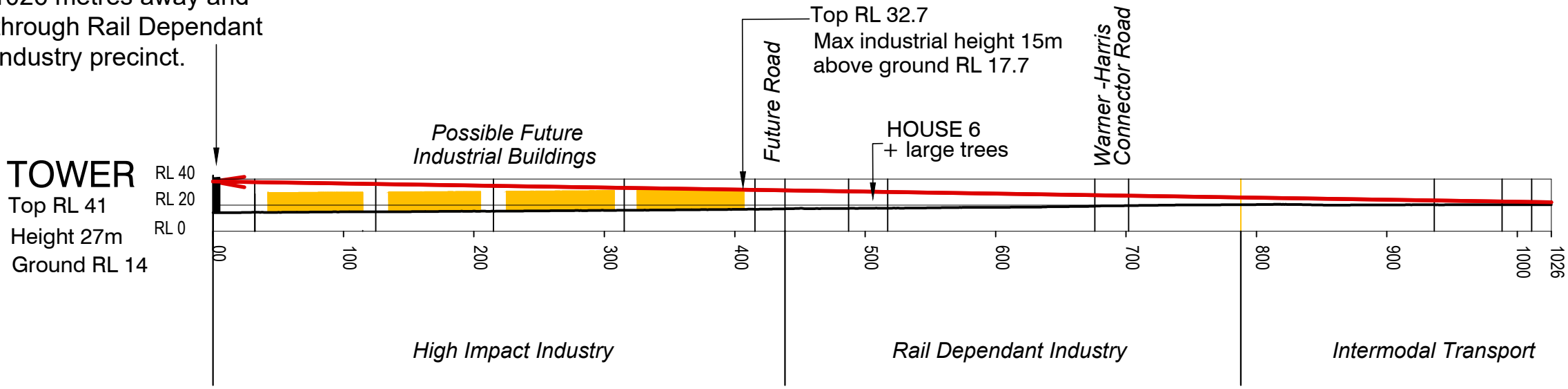


View down Warner Road from Bruce Highway intersection towards site

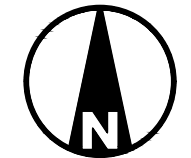
IMPORTANT NOTE
 This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals. No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

- Sensitive Land Use
- Distance to Site
- Potential Street layout
- Indicative Building 15m high

View from Highway intersection sees top 3m of tower - albeit from 1026 metres away and through Rail Dependant Industry precinct.



HIGHWAY
 Existing Warner Road Intersection
 View RL 22.3m
 View Height 2m above ground
 RL 20.3



Visual Analysis - Sheet 6
Section from Tower to House 5



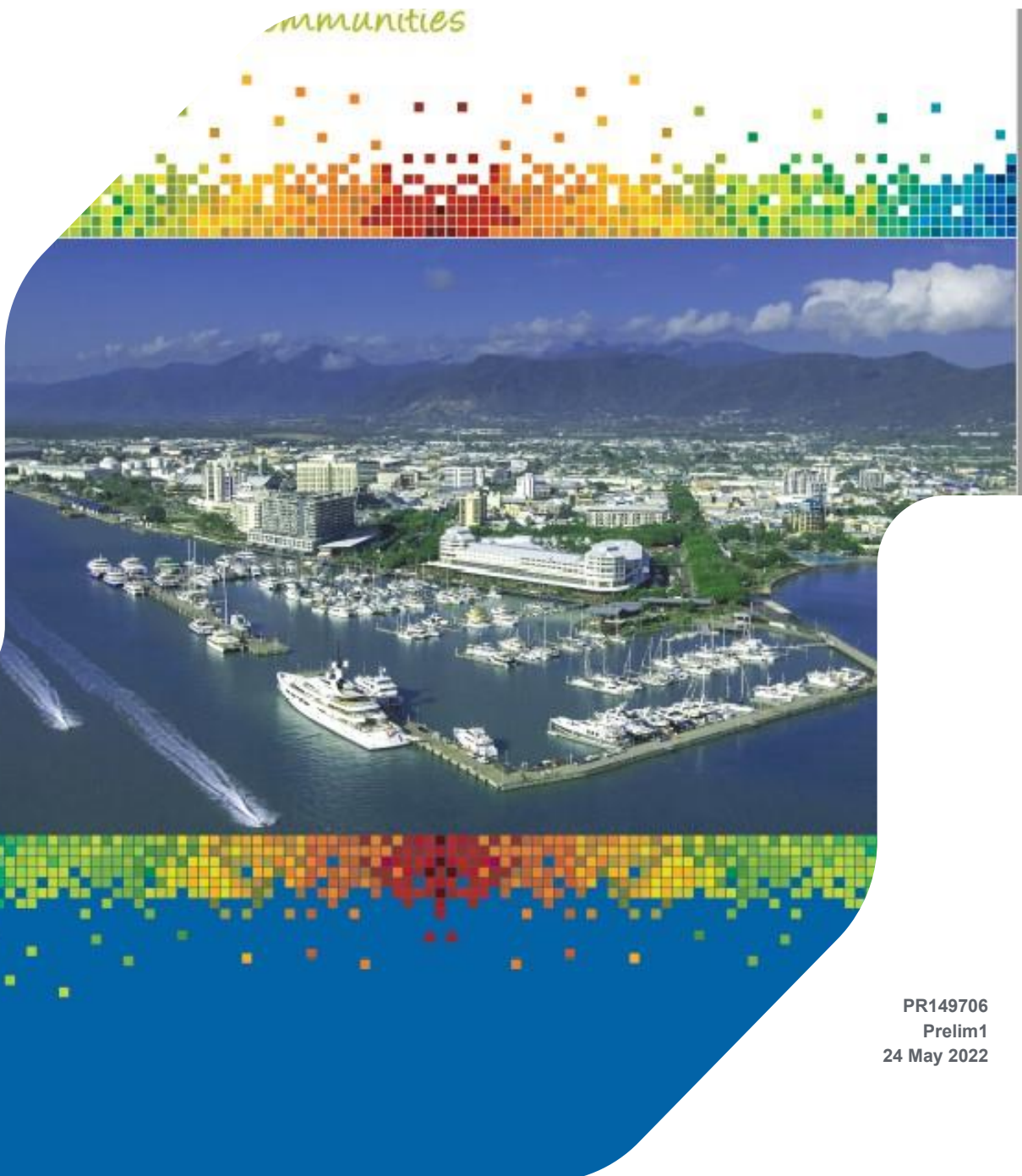
RPS Australia East Pty Ltd
 ACN 140 292 762
 135 Abbott St
 PO Box 1949
 CAIRNS QLD 4870
 T +61 7 4031 1336
 F +61 7 4031 2942
 W rpsgroup.com



Appendix K Assessment against relevant Cairns Regional Council Codes

ASPHALT PLANT - ASSESSMENT AGAINST VARIOUS CAIRNS REGIONAL COUNCIL CODES

Communities



PR149706
Prelim1
24 May 2022

REPORT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	Application	Ian Doust	ID	ID	24 May 2022

Approval for issue

Ian Doust



24 May 2022

This report was prepared by RPS within the terms of RPS' engagement with its client and in direct response to a scope of services. This report is supplied for the sole and specific purpose for use by RPS' client. The report does not account for any changes relating the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to or arising out of any use or reliance on the report.

Prepared by:

RPS

Ian Doust
Principal

135 Abbott Street
Cairns QLD 4870

T +61 7 4031 1336
E ian.doust@rpsgroup.com.au

Prepared for:

Koppen Construction Pty Ltd

Callum Koppen
General Manager

Suite 4/10 Grafton St
Cairns QLD 4870

T +61 7 4052 2600
E ckoppen@koppens.com.au

Contents

1	HIGH IMPACT INDUSTRY ZONE CODE.....	182
2	ACID SULFATE SOILS OVERLAY CODE	185
4	AIRPORT ENVIRONS OVERLAY CODE.....	188
5	FLOOD AND INUNDATION HAZARDS OVERLAY CODE.....	312
6	LANDSCAPE VALUES OVERLAY CODE.....	323
7	ENVIRONMENTAL PERFORMANCE CODE	324
8	EXCAVATION AND FILLING CODE.....	338
9	INDUSTRY DESIGN CODE	523
10	LANDSCAPING CODE.....	595
11	PARKING AND ACCESS CODE.....	594
12	CODES THAT ARE NOT APPLICABLE.....	183
12.1	Building height overlay code	183
12.2	Bushfire hazard overlay - Not Applicable	183
12.3	Coastal processes overlay Not Applicable.....	183
12.4	Extractive resources overlay Not Applicable.....	183
12.5	Hazardous-Explosive facilities overlay Not Applicable	183
12.6	Hillslopes overlay Not Applicable	183
12.7	Natural areas overlay Not Applicable.....	183
12.8	Neighbourhood character overlay Not Applicable.....	184
12.9	Places of Significance overlay Not Applicable	184
12.10	Potential Landslip overlay Not Applicable.....	184
12.11	Transport Network overlay Not Applicable.....	184

1 HIGH IMPACT INDUSTRY ZONE CODE

6.2.6 High impact industry zone code

6.2.6.1 Application

- (1) This code applies to assessing development in the High impact industry zone.
- (2) When using this code, reference should be made to Part 5.

Note – Development within 150 metres of Strategic Port Land, as identified on the maps contained within Schedule 2, may be referred to Ports North for third party advice.

6.2.6.2 Purpose

- (1) The purpose of the High impact industry zone is to provide for—
 - (a) high impact industry; and
 - (b) other uses and activities that—
 - (i) support industry activities; and
 - (ii) do not compromise the future use of premises for industry activities.
- (2) The local government purpose of the code is to provide land for high impact industry where such land use activity may not be compatible with medium impact industry working environments. The quantity of land zoned high impact industry in the region is very limited and restricts the intrusion of other land uses that may compromise the establishment of heavier forms of industry.
- (3) The purpose of the code will be achieved through the following overall outcomes:
 - (a) a range of high impact industry uses that satisfy the purpose of the zone are facilitated;
 - (b) accommodation activities or other development that would compromise the on-going use of the zone for high impact industry are not established within the zone;
 - (c) lot sizes are of sufficient size to cater for a range of high impact industries;
 - (d) development reflects and responds to the natural features and constraints of the land;
 - (e) development does not compromise the hierarchy of centres, whether as a result of the impacts from an individual development or the cumulative impacts of multiple developments;
 - (f) development does not affect the operational aspects of the Port of Cairns.

Note – For Impact assessable development, the role and function of the hierarchy of centres is described 3.3.2 Element – Centres and centre activities within Part 3 Strategic framework in addition to Schedule 6.

6.2.6.3 Assessment benchmarks and requirements

Table 6.2.6.3.a – High impact industry zone code– assessment benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
Height		
<p>PO1 The height of buildings and structures is compatible with the character of the area and does not adversely affect the amenity of the area.</p> <p>Note – A visual impact assessment may be required where a proposed development exceeds the height stated in AO1.1. Planning scheme policy – Landscape values provides guidance on undertaking a visual impact assessment.</p> <p>Note – The site coverage stated within AO1.1 and the setbacks stated in AO2.1 of the Industry design code correspond with the height stated in AO1.1 of this code. Where a proposed development exceeds the height stated in AO1.1 of this code, the proposed development will also be assessed against PO1 and PO2 of the Industry design code.</p>	<p>AO1.1 Buildings and structures are not more than 15 metres in height.</p> <p>Note – Height is inclusive of the roof height.</p>	<p>The height of the asphalt tower is 27metres above ground level. All other Buildings and structures are not more than 15 metres in height.</p> <p>The surrounding area is used for cane farms, although these farms have now been placed within the High Impact Industry precinct of the SDA.</p> <p>The asphalt plant project is centrally located in the High Impact Industry precinct of the SDA.</p> <p>The surrounding areas are expected to be developed in accordance with the SDA zonings and as such the asphalt and industrial components are compatible with the future character and amenity of the area.</p>

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
Uses and other development		
<p>PO2 Development is consistent with the purpose and overall outcomes sought for the zone.</p>	<p>AO2.1 No acceptable outcomes are provided.</p>	<p>Complies - (1) The purpose of the CRC High impact industry zone is to provide for— (a) high impact industry;</p>
<p>PO3 Non-industry activities compatible with the High impact industry zone include those that: (a) do not compromise the operations of high impact industry uses; (b) do not compromise the hierarchy of centres in the region; (c) avoid attracting a significant number of people into the zone; (d) are not sensitive to and are able to tolerate heavy industrial activity within the zone.</p> <p>Note – For Impact assessable development, the role and function of the hierarchy of centres is described 3.3.2 Element – Centres and centre activities within Part 3 Strategic framework in addition to Schedule 6.</p>	<p>AO3.1 No acceptable outcomes are provided.</p>	<p>NA</p>
Site constraints		
<p>PO4 Development is located, designed, operated and managed to respond to the characteristics, features and constraints of the site and its surrounds.</p> <p>Note – Planning scheme policy – Site assessments provides guidance on identifying the characteristics, features and constraints of a site and its surrounds.</p>	<p>AO4.1 No acceptable outcomes are provided.</p>	<p>Complies</p>

2 ACID SULFATE SOILS OVERLAY CODE



LEGEND

- Land at or below 5m AHD
- Land above 5m but below 20m AHD

8.2.1.1 Application

This code applies to assessing development within the Acid sulfate soils overlay as

shown on the Acid sulfate soils overlay maps contained in Schedule 2. When using this code, reference should be made to Part 5.

8.2.1.2 Purpose

- (1) The purpose of the Acid sulfate soils overlay code is to ensure that development which occurs on a site containing or potentially containing acid sulfate soils is undertaken so that the potential risks to the natural and built environment or human health associated with disturbing acid sulfate soils are identified and addressed through avoidance or mitigation.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) the disturbance of acid sulfate soils is avoided;
 - (b) where the disturbance of acid sulfate soils is reasonably necessary, the generation or release of acid and metal contaminants from acid sulfate soils or potential acid sulfate soils does not have adverse impacts on the natural and built environment and human health.

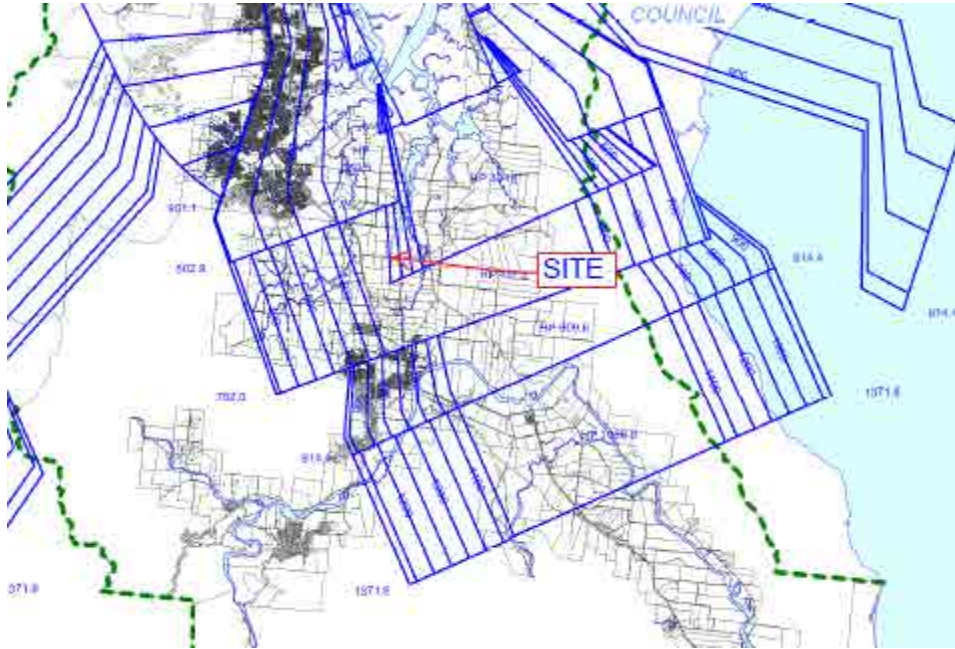
8.2.1.3 Assessment benchmarks and requirements

Table 8.2.1.3.a – Acid sulfate soils overlay code – assessment benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
Identification and management of acid sulfate soils		
<p>PO1 The extent and location of acid sulfate soils likely to be disturbed is accurately identified.</p>	<p>AO1.1 No excavation or filling occurs on the site.</p> <p>or</p> <p>AO1.2 An acid sulfate soils investigation is undertaken.</p> <p>Note – Planning scheme policy - Acid sulfate soils provides guidance on preparing an acid sulfate soils investigation.</p>	<p>No Excavation is to occur, apart from minor service trenches.</p> <p>The site ground level varies from RL13.8 to RL14.6AHD.</p> <p>The general level of the lot is between RL 13.8-RL14.6m AHD so any excavations are unlikely to impact on acid sulphate soils.</p> <p>Sil tests for Acid Sulphate Soils will be carried out prior to Filling.</p>
<p>PO2 Development avoids disturbing acid sulfate soils or is managed to prevent the release of acid and metal contaminants.</p>	<p>AO2.1 The disturbance of acid sulfate soils is avoided by:</p> <ul style="list-style-type: none"> (a) not excavating or otherwise removing soil or sediment identified as containing acid sulfate soils; (b) not permanently or temporarily extracting groundwater that results in the oxygenation of previously saturated acid sulfate soils; (c) not undertaking filling that results in: <ul style="list-style-type: none"> (i) actual acid sulfate soils being moved below the water table; (ii) previously saturated acid sulfate soils being aerated. <p>or</p> <p>AO2.2 The disturbance of acid sulfate soils is undertaken in accordance with an acid sulphate soils management plan and avoids the release of acid and metal contaminants by:</p> <ul style="list-style-type: none"> (a) neutralising existing acidity and preventing the generation of acid and metal contaminants; 	<p>Complies</p> <p>If required by testing an Acid Sulphate Management Plan will be prepared at Operational Works Stage.</p>

	<ul style="list-style-type: none"> (b) preventing the release of surface or groundwater flows containing acid and metal contaminants into the environment; (c) preventing the in situ oxidation of acid sulfate soils through ground water level management; (d) appropriately treating acid sulphate soils before disposal occurs on or off site; (e) appropriately testing and treating waters affected by acid sulfate soils prior to discharge to protect health and amenity of the receiving environment; <p>identifying risks and providing prescriptive guidance on what constitutes non- conformance. The plan includes appropriate testing, treatment, validation and reporting regimes with non-conformances linked to prescriptive remedial action and reporting.</p> <p>Contingency measures are in place during periods of inclement weather.</p> <p>Note – Planning scheme policy - Acid sulfate soils provides guidance on preparing an acid sulfate soils management plan.</p>	
<p>PO3</p> <p>No environmental harm is caused as a result of oxidation of acid sulfate soils or releases of water containing acid and metal contaminants.</p>	<p>AO3.1</p> <p>No acceptable outcomes are provided.</p>	<p>Complies</p>

3 AIRPORT ENVIRONS OVERLAY CODE



The subject property is within the Airport overlay - Precinct or Area = PAN-OPS Area - Within PANS- OPS Area. However the site is approximately 18 klm from the Cairns Airport.

8.2.2.1 Application

This code applies to assessing development within the Airport environs overlay as shown on the Airport environs overlay maps contained in Schedule 2.

When using this code, reference should be made to Part 5.

Note: Development affected by the Airport environs overlay may be referred to the Cairns Airport for Third Party Advice.

8.2.2.2 Purpose

- (1) The purpose of the Airport environs code is to protect the existing and future safety, efficiency and operational integrity of the Cairns Airport and associated aviation facilities.

- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) conflicts between the Cairns Airport and surrounding land uses are avoided;
 - (b) development does not create incompatible intrusions, or compromise aircraft safety, in operational airspace;
 - (c) development does not adversely affect the functioning of aviation facilities;
 - (d) development avoids increasing risk to public safety in public safety areas;
 - (e) development is compatible with forecast levels of aircraft noise.

8.2.2.3 Assessment benchmarks and requirements

Table 8.2.2.3.a – Airport environs overlay code – assessment benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
Protection of operational air space		
<p>PO1 Development does not create a permanent or temporary obstruction into the operational airspace of the Cairns Airport.</p>	<p>AO1.1 The height of buildings, structures, and plant do not encroach into:</p> <ul style="list-style-type: none"> (a) the Obstacle limitation surface as identified on the Airport environs overlay - Obstacle Limitation Surface (OLS) map contained in Schedule 2; and (b) the Procedure for Air Navigation Services Aircraft Operational (PANS-OPS) surfaces for 	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>the Cairns Airport as identified on the Airport environs overlay - PANS-OPS surfaces map contained in Schedule 2.</p> <p>Note – Structures, and plant includes, but is not limited to, masts, antennae, aerials, lift overruns or rooftop furniture.</p>	
	<p>AO1.2 The height of cranes and other temporary construction equipment used during construction do not encroach into:</p> <ul style="list-style-type: none"> (a) the Obstacle Limitation Surface as identified on the Airport environs overlay – Obstacle Limitation Surface (OLS) map contained in Schedule 2; and (b) the Procedure for Air Navigation Services Aircraft Operational (PANS-OPS) surfaces for the Cairns Airport as identified on the Airport environs overlay PANS-OPS surfaces map contained in Schedule 2. <p>Note – Temporary construction equipment includes, but is not limited to, cranes, scaffolding, booms and other equipment used during construction.</p>	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>
	<p>AO1.3 Landscaping does not include vegetation that at a mature height could encroach into:</p> <ul style="list-style-type: none"> (a) the Obstacle Limitation Surface as identified on the Airport environs overlay Obstacle Limitation Surface (OLS) map contained in Schedule 2; and (b) the Procedure for Air Navigation Services Aircraft Operation (PANS-OPS) surfaces for the Cairns Airport as identified on the Airport environs overlay PANS-OPS surface map contained in Schedule 2. 	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>
	<p>AO1.4</p>	

Performance outcomes	Acceptable outcomes	Applicant response
	<p>Development that includes transient obstructions does not occur within the operational airspace of the Cairns Airport.</p> <p>Note – Transient obstructions into the operational airspace is any transient intrusion into the operational airspace associated with development and includes, but is not limited to, parachuting, hot air ballooning, hang gliding, drones, remotely controlled aircraft, and shooting (for example, shooting bullets, ordnance or lasers).</p>	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>
Lighting and reflective surfaces		
<p>PO2 Development within a light restriction zone or lighting area buffer as identified on the Airport environs overlay – Light intensity map contained in Schedule 2, does not include light sources or reflective surfaces that could distractor confuse pilots, or adversely impact the operational airspace fo the Cairns Airport.</p>	<p>AO2.1 Development located within a Light restriction zone as identified on the Airport environs overlay - Light intensity map contained in Schedule 2, does not emit light source that will exceed the maximum light intensity, as specified below for the following zones: (a) Zone A - 0 Candela; (b) Zone B - 50 Candela; (c) Zone C - 150 Candela; (d) Zone D - 450 Candela.</p> <p>Note – Maximum light intensity of Light Sources measured at 3 degrees above its horizontal plane.</p> <p>AO2.2 Development located within a Light restriction zone or a Lighting area buffer as identified on the Airport environs overlay - Light intensity map contained in Schedule 2, does not include a reflective surface or any of the following types of outdoor lighting: (a) straight parallel lines of lighting 500 m to 1000 m long; (b) flare plume; (c) upward shining lights; (d) flashing lights; (e) laser lights; (f) sodium light.</p>	<p>NA The site is not within any Lighting Zone.</p> <p>NA The site is not within any Lighting Zone</p>

Performance outcomes	Acceptable outcomes	Applicant response
Airport public safety area		
<p>PO3 Development within a Public safety area as identified on the Airport environs overlay – Public Safety Area map contained in Schedule 2 does not increase the risk to public safety.</p>	<p>AO3.1 Development located within in the public safety area as identified on the Airport environs overlay - Public Safety Area map contained in Schedule 2, does not: (a) increase in the number of people living, working or congregating in the public safety area; or (b) involve the manufacture, use or storage of flammable, explosive, hazardous or noxious materials.</p>	NA
Aircraft noise		
<p>PO4 Development is appropriately located and designed to prevent adverse impacts from aircraft noise.</p> <p>Note – Where the acceptable outcomes cannot be met, a Noise Assessment Report prepared by an appropriately qualified acoustic consultant must be prepared to demonstrate compliance with this performance outcome. Note: Guidance on Compatible, Compatible subject to conditions and Incompatible sensitive land uses for ANEF contours is provided within Table 8.2.2.3 .b.</p>	<p>AO4.1 Development listed within Table 8.2.2.3.b. and located within the 20-->40 ANEF contour as identified on the Airport environs overlay – Australian Noise Exposure Forecast (ANEF) contours map contained in Schedule 2 is identified as a compatible land use within the identified ANEF contour within Table 8.2.2.3.b.</p> <p>or</p> <p>AO4.2 Development listed within Table 8.2.2.3.b. and located within the 20-->40 ANEF contour as identified on the Airport environs overlay – Australian Noise Exposure Forecast (ANEF) contours map contained in Schedule 2 is identified as a compatible subject to conditions land use and is designed and constructed to attenuate aircraft noise by achieving the indoor design sound levels specified for the listed development in Table 8.2.2.3.c.</p>	<p>NA</p> <p>NA</p>
Emissions		

Performance outcomes	Acceptable outcomes	Applicant response
<p>PO5 Development does not include emissions that could significantly increase air turbulence, reduce visibility or compromise the operation of aircraft engines in the operational airspace of the Cairns Airport.</p>	<p>AO5.1 Development does not emit smoke, dust, ash or steam into the operational airspace of the Cairns Airport.</p>	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>
	<p>AO5.2 Development does not emit a gaseous plume into the operational airspace of the Cairns Airport at a velocity exceeding 4.3 m per second.</p>	<p>Complies The top of the Asphalt Tower is at RL41 which is less than the OLS level of RL300</p>
<p>Protection of aviation facilities</p>		
<p>PO6 Development does not interfere with the function of the Cairns Airport aviation facilities as identified on the Airport environs overlay maps – Aviation facilities contained in Schedule2.</p> <p>Editor’s Note – State Planning Policy – state interest guidance material: Strategic airports and aviation facilities provides guidance on meeting the performance and acceptable outcomes.</p>	<p>AO6.1 Development located within the building restricted area or an area of interest of aviation facilities as identified on the Airport environs overlay maps – Aviation facilities contained in Schedule 2, does not create permanent or temporary:</p> <ul style="list-style-type: none"> (a) physical intrusion into the line of sight between transmitting and receiving devices; (b) radio frequency interference; (c) electromagnetic emissions that will interfere with signals transmitted by the facility; (d) reflective surfaces that could deflect or interfere with signals transmitted by the facility. 	<p>NA</p>
<p>For assessable development</p>		
<p>Wildlife hazards</p>		
<p>PO7 Development does not attract wildlife or increase wildlife hazards within a wildlife hazard buffer zone as identified on the Airport environs overlay map – Wildlife hazard buffer zone contained in Schedule 2.</p>	<p>AO7.1 Development located within the 3km Wildlife hazard buffer zone as identified on the Airport environs overlay map – Wildlife hazard buffer zone contained in Schedule 2, does not involve uses listed in column 1 of Table 8.2.2.3.d.</p>	<p>NA The site is outside the 13klm zone</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO7.2 Development located within the 3km Wildlife hazard buffer zone as identified on the Airport environs overlay map – Wildlife hazard buffer zone contained in Schedule 2, involving a use listed in column 2 of Table 8.2.2.3.d, includes measures to reduce the potential to attract wildlife.</p>	<p>NA The site is outside the 13klm zone</p>
	<p>AO7.3 Development located within the 8km Wildlife hazard buffer zone as identified on the Airport environs overlay map – Wildlife hazard buffer zone contained in Schedule 2, involving a use listed in column 1 or column 2 of Table 8.2.2.3.d includes measures to reduce the potential to attract wildlife.</p>	<p>NA The site is outside the 13klm zone</p>
	<p>AO7.4 Development located within the 13km Wildlife hazard buffer zone shown on the Airport environs overlay map – Wildlife hazard buffer zone contained in Schedule 2, involving a use listed in column 1 or column 2 of Table 8.2.2.3.d does not increase the potential to attract wildlife.</p>	<p>NA The site is outside the 13klm zone</p>

Table 8.2.2.3.b— Compatible and incompatible land uses within ANEF contours ^{1,2}

Land use	20-25 ANEF contour	25-30 ANEF contour	30-35 ANEF contour	35-40 ANEF contour
Caretakers accommodation	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Childcare centre	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Community care centre	Compatible subject to conditions	Compatible subject to conditions	Incompatible	Incompatible
Community residence	Compatible subject to conditions	Incompatible	Incompatible	Incompatible

¹ Table 8.2.2.3.b excludes consideration of aircraft noise impacts on outdoor spaces specifically. However, the table does reflect the extent/frequency of outdoor space use associated with particular uses.
² AS 2021 should be referred to by those seeking information / background on the basis for Table 8.2.2.3.b.

Land use	20-25 ANEF contour	25-30 ANEF contour	30-35 ANEF contour	35-40 ANEF contour
Community use	Compatible subject to conditions	Compatible subject to conditions	Incompatible	Incompatible
Detention facility	Compatible subject to conditions	Compatible subject to conditions	Incompatible	Incompatible
Dual occupancy	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Dwelling house (where for a new Dwelling house or additions to a Dwelling house where the addition has a GFA greater than 50% of the GFA of the existing Dwelling house)	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Dwelling unit	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Educational establishment	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Health care service	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Home-based business	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Hospital	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Hotel (to the extent the hotel provides accommodation for tourists or travellers)	Compatible	Compatible subject to conditions	Incompatible	Incompatible
Low impact industry	Compatible	Compatible	Compatible subject to conditions	Compatible subject to conditions
Multiple dwelling	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Nature-based tourism	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Non-resident workforce accommodation	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Office	Compatible	Compatible subject to conditions	Compatible subject to conditions	Incompatible
Place of worship	Compatible subject to conditions	Compatible subject to conditions	Incompatible	Incompatible
Relocatable home park	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Residential care facility	Compatible subject to conditions	Incompatible	Incompatible	Incompatible

Land use	20-25 ANEF contour	25-30 ANEF contour	30-35 ANEF contour	35-40 ANEF contour
Resort complex	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Retirement facility	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Rooming accommodation (to the extent the Rooming accommodation is a hostel)	Compatible	Compatible subject to conditions	Incompatible	Incompatible
Rural workers accommodation	Compatible subject to conditions	Incompatible	Incompatible	Incompatible
Short term accommodation	Compatible	Compatible subject to conditions	Incompatible	Incompatible
Tourist park	Compatible subject to conditions	Incompatible	Incompatible	Incompatible

Table 8.2.2.3.c — Desirable indoor design sound levels for sensitive land uses

Land use	Location within development	Indoor design sound level dB(A)
<ul style="list-style-type: none"> Caretaker's accommodation Community residence Dual occupancy Dwelling house (where for a new Dwelling house or additions to a Dwelling house where the addition has a GFA greater than 50% of the GFA of the existing Dwelling house) Dwelling unit Home based business Multiple dwelling Nature-based tourism Non-resident workforce accommodation Relocatable home park Residential care facility Resort complex Retirement facility Rural workers' accommodation Tourist park 	<ul style="list-style-type: none"> Sleeping areas 	50
	<ul style="list-style-type: none"> Other habitable areas 	55
<ul style="list-style-type: none"> Short-term accommodation Hotel (to the extent the hotel provides accommodation for tourists or travellers) Rooming accommodation (to the extent the Rooming accommodation is a hostel) 	<ul style="list-style-type: none"> Sleeping areas 	55
<ul style="list-style-type: none"> Educational establishment Child care centre 	<ul style="list-style-type: none"> Libraries Classrooms Study areas Sleeping areas 	50
	<ul style="list-style-type: none"> Teaching areas Assembly areas 	55






Land use	Location within development	Indoor design sound level dB(A)
<ul style="list-style-type: none"> • Hospital • Health care service 	<ul style="list-style-type: none"> • Wards • Theatres • Treatment and consulting rooms 	50
	<ul style="list-style-type: none"> • Laboratories 	65
<ul style="list-style-type: none"> • Community care centre • Community use • Detention facility • Place of worship 	<ul style="list-style-type: none"> • All indoor areas 	50
<ul style="list-style-type: none"> • Office 	<ul style="list-style-type: none"> • Private offices • Conference rooms 	55
	<ul style="list-style-type: none"> • Open offices 	65
<ul style="list-style-type: none"> • Low impact industry 	<ul style="list-style-type: none"> • Inspection areas • Analysis areas • Precision work areas 	75
	<ul style="list-style-type: none"> • Light machinery areas • Assembly areas • Bench work areas 	80

Table 8.2.2.3.d — Land uses associated with increases in wildlife strikes and hazards

Column 1 High Risk	Column 2 Moderate Risk
<ul style="list-style-type: none"> • Aquaculture (fish processing/packing plant); • Conservation estate (e.g. wetland); • Cropping (turf farm, fruit tree farm); • High-impact industry (food processing plant); • Intensive animal industry (piggery); • Low impact industry (food processing plant); • Major sport, recreation and entertainment facility (showground); • Medium-impact industry (food processing plant); • Sport and recreation activities; • Utility installation (Food / organic waste facility, Putrescible waste facility (e.g. landfill, transfer station). 	<ul style="list-style-type: none"> • Animal husbandry (cattle/dairy farm); • Environment facility • Intensive animal industry (poultry farm); • Major sport, recreation and entertainment facility (all other); • Outdoor sport and recreation activities; • Park; • Utility installation (Sewage/wastewater treatment facility, Non-putrescible waste facility e.g. landfill, transfer station).

4 FLOOD AND INUNDATION HAZARDS OVERLAY CODE



LEGEND	
	Flood inundation trigger area
	Floodplain assessment trigger area
	Precinct Boundary
	Sub-precinct 2a - Low-medium hazard area
	Sub-precinct 2b - High-extreme hazard area

The site is located within the Floodplain Assessment Trigger Area.

8.2.7.1 Application

This code applies to assessing development within the Flood and inundation hazards overlay as shown on the Flood and inundation hazards overlay maps contained in Schedule 2 or development for:

- (a) Industry activities (if including components which store, treat or use hazardous materials); or
- (b) Substation; or
- (c) Utility installation; or
- (d) Emergency services; or
- (e) Hospital; or

- (f) Major electricity infrastructure; or
- (g) Special industry.

This code does not apply to building work that the QDC MP3.5 applies to.

When using this code, reference should be made to Part 5.

Note – The Flood and Inundation hazards overlay maps contained in Schedule 2 identify areas where flood and storm tide inundation modelling has been undertaken by Council or where the State government has identified flood hazard areas (Designated flood hazard area – floodplain assessment trigger area. Other areas not identified by the Flood and inundation hazards overlay maps contained in Schedule 2 may also be subject to a Flood or inundation event.

Note - The mapping data source for the Designated flood hazard area – floodplain assessment trigger area is very broad and is a high level default mapping product required by State policy to be reflected in areas where the inundation level of the defined hazard event has not been determined through appropriate flood studies. The map is provided to ensure that the risk of inundation is assessed and mitigated when development is proposed in these areas.

8.2.7.2 Purpose

- (1) The purpose of the Flood and inundation hazards overlay code is to ensure that development:
 - (a) protects the safety of people and minimises damage to property and the environment;
 - (b) does not adversely interfere with the function of drainage catchments and coastal processes or require complex engineering solutions to do so;
 - (c) minimises impacts from flood hazards and storm tide inundation hazards on the community in relation to infrastructure function, environmental values and economic productivity, and improves the resilience of the community to the impacts of climate change.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) development maintains the safety of people and property from flood and storm tide inundation hazards;
 - (b) development minimises the exposure of people and property to unacceptable risk from flood and storm tide inundation hazards;
 - (c) development is designed, located and operated to minimise damage to property, disruption to building function and the re-establishment time after a flood or storm tide event;
 - (d) development ensures evacuation routes and emergency services are not impeded;
 - (e) development does not directly or cumulatively cause or increase adverse impacts of flood or storm tide inundation on other properties;
 - (f) development does not require complex engineering solutions to mitigate adverse impacts of flood or storm tide inundation;
 - (g) hazardous materials are not handled or stored in bulk where it would adversely impact on public safety or the environment as a result of the impacts of flood or storm tide inundation;
 - (h) development involving essential community infrastructure ensures it remains functional during and immediately after flood and storm tide inundation events;
 - (i) development does not adversely impact on ecological functions of waterways, drainage paths and coastal processes.
- (a) **Precinct 1 – Barron River Delta**
- (3) In addition to [8.2.7.2\(2\)](#), the overall outcomes sought for the precinct are:

- (a) maintain the characteristics of the floodplain, including its storage capacity, water flow paths and velocities, and environmental qualities;
- (b) protect the scenic amenity of this major inter-urban break.

(b) Precinct 2 – Mount Peter

- (4) In addition to [8.2.7.2\(2\)](#), the overall outcomes sought for the precinct are:
- (a) the extent of filling is limited to Sub-precinct 2a - Low-medium hazard areas only;
 - (b) an efficient drainage network is provided to mitigate loss of natural floodplain storage.

(c) Precinct 3 – CBD and environs

- (5) In addition to [8.2.7.2\(2\)](#), the overall outcomes sought for the precinct are:
- (a) development in the precinct ensures development results in no loss of planned floodplain storage.

(d) Precinct 4 – Floodplain assessment

- (6) In addition to [8.2.7.2\(2\)](#), the overall outcomes sought for the precinct are:
- (a) defines the flood event;
 - (b) ensures development is compatible with the impact of the flood event.

8.2.7.3 Assessment benchmarks and requirements

Table 8.2.7.3.a – Flood and inundation hazards overlay code – assessment benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
Safety of people and property		
<p>PO1 Development is located and designed to:</p> <ul style="list-style-type: none"> (a) ensure the safety of all persons; (b) minimise damages to the development and contents of buildings; (c) provide suitable amenity; (d) minimise disruption to residents, recovery time, and rebuilding or restoration costs after inundation events. 	<p>AO1.1 Development is sited on parts of the land that is not within an area shown on the Flood and inundation hazards overlay maps contained in Schedule 2;</p> <p>or</p> <p>AO1.2 Development is designed to provide immunity to the Defined Inundation Event as outlined within Table 8.2.7.3.b plus a freeboard of 300mm; or</p> <p>AO1.3 Where for Minor building work that is not associated with a Material Change of Use, development:</p> <ul style="list-style-type: none"> (a) is located within an existing building; (b) does not increase the gross floor area; (c) maintains the existing floor level. 	<p>Complies with PO Refer to engineering report</p>
Additional requirements for Precinct 2 – Mount Peter		
<p>PO2 The extent of future filling to support development is limited to areas of medium and low hazard as identified in Precinct 2 on the Flood and inundation hazards overlay maps contained in Schedule 2.</p>	<p>AO2.1 Filling of land to achieve immunity to the 1% AEP event occurs only in Sub-precinct 2a – Low-medium hazard area shown in Precinct 2 on the Flood and inundation hazards overlay maps contained in Schedule 2.</p>	<p>NA</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO2.2 Filling of land does not occur within Sub-precinct 2b – High-extreme hazard area shown in Precinct 2 on the Flood and inundation hazards overlay maps contained in Schedule 2.</p>	NA
Additional requirements for Precinct 3 – CBD and Environs		
<p>PO3 Development in Precinct 3 – CBD and environs as shown on the Flood and inundation hazards overlay maps contained in Schedule 2 does not result in more than the planned for loss of flood storage capacity.</p>	<p>AO3.1 Development within Sub-precinct Zone 2 of Precinct 3 – CBD and environs as shown on the Flood and inundation hazards overlay maps contained in Schedule 2 retains a minimum 40% of the flood storage of the site.</p>	NA
	<p>AO3.2 Where development in Sub-precinct Zone 1 necessitates a finished floor level for ground level tenancies above the height of the existing footpath level any ramp, stairs or other features utilised to bridge the variation in floor level are contained wholly within the curtilage of the building.</p>	
Hazardous materials and chemicals		
<p>PO4 Hazardous materials and chemicals are located and stored to ensure the public and environment are protected from adverse impacts of inundation waters being contaminated.</p>	<p>AO4.1 Hazardous materials and chemicals are stored above the defined inundation event.</p>	COMPLIES
	<p>AO4.2 Structures used to store hazardous materials and chemicals are designed to prevent intrusion of flood and storm tide inundation.</p>	COMPLIES

For assessable development

Performance outcomes	Acceptable outcomes	Applicant response
Safety of people and property		
<p>PO5 Development minimises the exposure of people and property to unacceptable risk from flooding and storm tide inundation.</p> <p>Editor's Note – Planning Scheme Policy – Natural hazards provides guidance on preparing a Flood and inundation hazard assessment.</p>	<p>AO5.1 No acceptable outcomes are provided.</p>	<p>Complies with PO Refer to engineering report</p>
<p>PO6 Development is designed, located and operated to minimise damage to property, disruption to building function and the re-establishment time after a flood or storm tide hazard event.</p>	<p>AO6.1 No acceptable outcomes are provided.</p>	<p>Complies with PO Refer to engineering report</p>
Cumulative impacts of developments		
<p>PO7 Development does not directly or cumulatively cause or increase adverse impacts from flood or storm tide inundation on:</p> <ul style="list-style-type: none"> (a) properties or land; (b) ecological functions of waterways or other drainage paths, including water quality or their hydraulic capacity; (c) natural coastal processes. 	<p>AO7.1 Development ensures there is no adverse change to the profile of flood or storm tide hazard events or its behaviour over land that is upstream, downstream or adjacent to the development site.</p>	<p>Complies with PO Refer to engineering report</p>
	<p>AO7.2 Works do not involve any physical alteration (including vegetation clearing) to:</p> <ul style="list-style-type: none"> (a) a watercourse; (b) drainage path; (c) the coastline; (d) tidal waters and land; or (e) wetlands. 	<p>Complies with PO Refer to engineering report</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>A07.3 Development:</p> <ul style="list-style-type: none"> (a) avoid any reductions of on-site flood storage capacity and storm tide inundation, and contain within the subject site any changes to depth/duration/velocity of flood or storm tide hazards up to and including the 1% AEP Event; or (b) does not change the flood or storm tide characteristics at the Defined Inundation Event external to the site in ways that result in: <ul style="list-style-type: none"> (i) loss of flood storage capacity; (ii) loss of/changes to flow paths; (iii) acceleration or retardation of flows; (iv) any reduction in warning times elsewhere; <p>or</p> <p>A07.4 The development is supported by a Inundation Hazard management plan that outlines the manner in which impacts of any changes to the flood or storm tide behaviour are mitigated to maintain the safety of people and property and the ecological function of the coast and tidal waters, flood plains, waterways and wetlands.</p>	<p>Refer to engineering report</p> <p>Complies with PO Refer to engineering report</p>
<p>PO8 Development provides an efficient drainage network which:</p> <ul style="list-style-type: none"> (a) provides capacity for stormwater discharge; (b) minimises flooding from major rainfall events; (c) does not result in loss of floodplain storage; (d) does not result in adverse impacts upstream or downstream; (e) does not result in an unacceptable increase in peak flood levels and flows. 	<p>A08.1 No acceptable outcomes are provided.</p>	<p>Complies with PO Refer to engineering report</p>

Performance outcomes	Acceptable outcomes	Applicant response
Community infrastructure		
<p>PO9 Community infrastructure is designed to remain functional during and immediately after flood and storm tide hazard events.</p>	<p>AO9.1 Any components of the development that are likely to fail to function or may result in contamination when inundated (e.g. electrical switch gear and motors, water supply pipeline air valves) are: (a) located above the Defined inundation event; or (b) designed and constructed to tolerate inundation.</p>	NA
	<p>AO9.2 Infrastructure is designed and constructed to withstand the impacts of flood and storm tide hazard events.</p>	NA
	<p>AO9.3 Community infrastructure which is located below the Defined Inundation Event level: (a) is designed to function effectively during and immediately after the flood or storm tide event; (b) has an emergency rescue area above the Defined Inundation Event level if it is for emergency services or hospitals.</p>	NA
Additional requirements for development within the Rural zone or Emerging community zone		
Evacuation routes and emergency services		
<p>PO10 Development ensures evacuation routes and emergency services are not impeded or otherwise plans for the prospect and impact of isolation or hindered evacuation during a flood or storm tide hazard event.</p>	<p>AO10.1 Development provides an effective evacuation route that remains passable, with sufficient flood or storm surge warning time, to enable people to progressively evacuate to areas above the Defined Inundation Event areas shown on the Flood and inundation hazards overlay maps contained in Schedule 2 in the lead up time to the event.</p>	NA

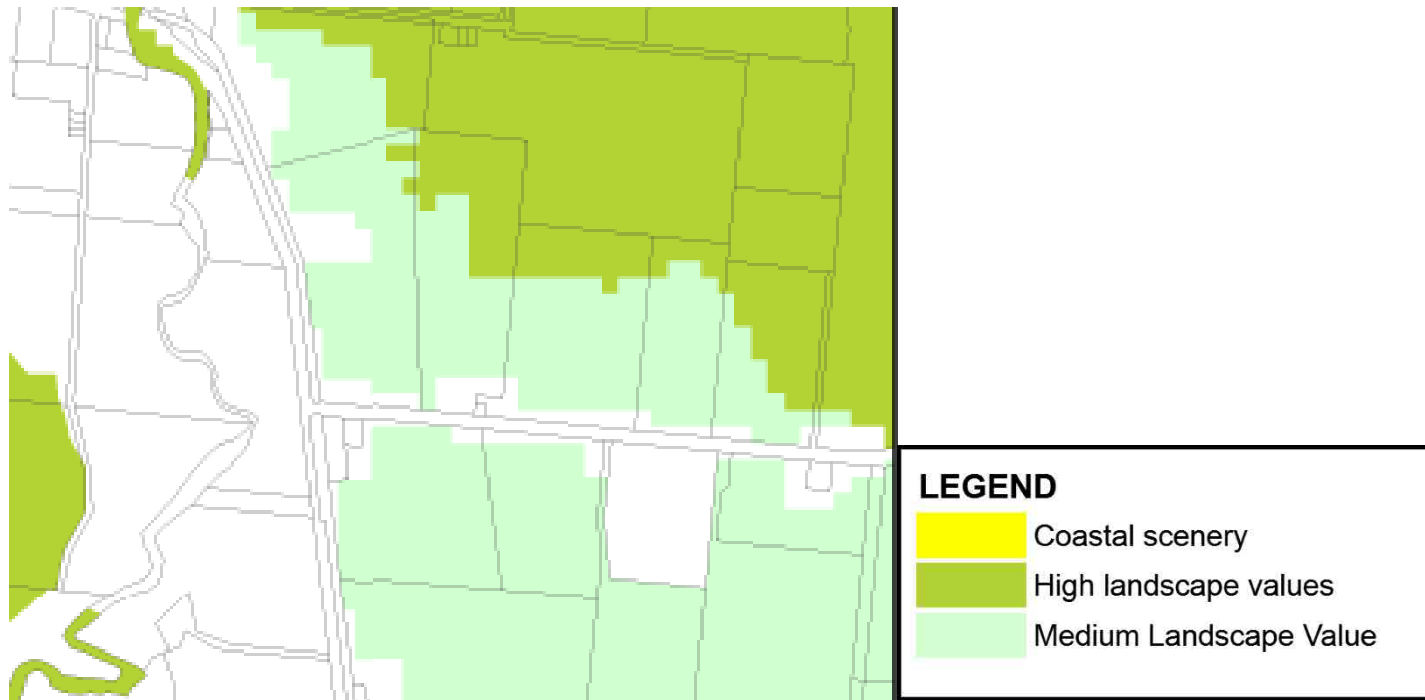
Performance outcomes	Acceptable outcomes	Applicant response
Additional requirements for Precinct 1 – Barron River Delta		
<p>PO11 Development in Precinct 1 – Barron River Delta maintains the characteristics and values of the floodplain, including its storage capacity, water flow paths and velocities, and environmental qualities.</p> <p>Editor's Note – Planning Scheme Policy – Natural hazards provides guidance on preparing a Flood and inundation hazards assessment.</p>	<p>AO11.1 No acceptable outcomes are provided.</p>	<p>NA</p>
<p>PO12 Development in Precinct 1 – Barron River Delta protects the scenic amenity of this major inter-urban break.</p>	<p>AO12.1 Development in the precinct does not result in an adverse impact on the amenity and landscape character of the area to achieve the required level of immunity.</p> <p>Note – The Landscape values overlay code provides further guidance on meeting the outcomes of this Acceptable outcome.</p>	<p>NA</p>
Additional requirements for Precinct 4 – Floodplain assessment		
<p>PO13 Development in Precinct 4 – floodplain assessment ensures siting and layout responds to the flooding potential and maintains personal safety at all times.</p>	<p>AO13.1 Development on land partially affected by Precinct 4 - floodplain assessment is located outside the affected part of the site;</p> <p>or</p> <p>AO13.2</p> <ul style="list-style-type: none"> (a) the highest known flood event and flood behaviours over land; or (b) the tolerable level of risk to people and property in the design, layout and mitigation measures; or (c) a Flood and inundation hazards assessment. <p>Editor's Note – State Planning Policy – State interest guideline – Natural hazards, risk and resilience provides further guidance on Tolerable risk.</p>	<p>AO13.1 Does not Comply The site is located within the Precinct 4 Floodplain Assessment</p> <p>Complies with PO Refer to engineering report</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO13.3 Development that is for an urban purpose, reconfiguration of a lot (other than for a non-urban purpose), or Community infrastructure, is supported by a detailed Flood and inundation hazards assessment and measures to minimise the risk to people and property, to a tolerable level are identified.</p> <p>Note – Planning Scheme Policy – Natural hazards provides guidance on preparing a Flood and inundation hazards assessment.</p>	<p>Refer to flood report</p> <p>The site has frontage to Warner Road that will serve as an evacuation route.</p>
<p>PO14 Development is compatible with the potential nature of the flood event defined for the site.</p>	<p>AO14.1 Development is located, designed, operated and managed to be compatible with the defined flood event.</p> <p>Note – The defined flood event in relation to this acceptable outcome is as identified in response to PO14. Where development is not supported by a flood hazard assessment, a risk assessment should provide an indication to the type of use and the level of immunity that would ordinarily be required and the consequence of the event occurring on that particular development.</p>	<p>Complies with PO</p> <p>Refer to engineering report</p>

Table 8.2.7.3.b — Minimum immunity (floor levels) for development in the flood and inundation risk category

Minimum immunity to be achieved (finished floor levels)(AEP of the Defined inundation event)	Uses and elements of activities acceptable in the event
No specified immunity	<ul style="list-style-type: none"> • Class 10 structures <p>Note – It is recommended, but not mandatory, that carports and garages attached to a Dwelling house is located at or above the 5% AEP Defined inundation event level, to minimise the risk of property damage in an inundation event.</p> <p>Note – It is recommended, but not mandatory, that patios, decks and other areas (including non-habitable parts of a Class 1 building) attached to a Dwelling house are located above the 1% AEP Defined inundation event level to avoid risk of property damage and ensure safety of people in an inundation event.</p> <ul style="list-style-type: none"> • Additions to a Dwelling house where the additions do not exceed 50% of the floor area and / or do not include building underneath of the existing building. <p>Note – This does not apply to a Dwelling house where raising or lifting is required to build underneath an elevated building (e.g. Dwelling house of posts, or creation of a two storey building). Where new habitable floor area is to be established underneath an existing Dwelling house (which is already elevated above the ground – e.g. house on posts), the habitable floor area must be located above the 1% AEP Defined inundation event level.</p>
20% AEP level	<ul style="list-style-type: none"> • Parks and open space.
5% AEP level	<ul style="list-style-type: none"> • Car parking facilities (including car parking associated with use of land except where for a Dwelling house).
1% AEP level	All development (where not otherwise requiring an alternate level of minimum immunity).
0.5% AEP level	<ul style="list-style-type: none"> • Emergency services (if for a police station); • Industry activities (if including components which store, treat or use hazardous materials); • Substation; • Utility installation.
0.2% AEP level	<ul style="list-style-type: none"> • Emergency services; • Hospital; • Major electricity infrastructure; • Special industry.

5 LANDSCAPE VALUES OVERLAY CODE



The site is within the Medium landscape values zone.

The landscape overlay conflicts with the High Impact Industry precinct of the State Development Area.

Refer to Visual assessment report

6 ENVIRONMENTAL PERFORMANCE CODE

9.3.2.1 Application

- (1) This code applies to assessable development identified as requiring assessment against the Environmental performance code by the Tables of Assessment in Part 5.
- (2) When using this code, reference should be made to Part 5.

9.3.2.2 Purpose

- (1) The purpose of the Environmental performance code is to ensure development is designed and operated to avoid or mitigate impacts on sensitive receiving environments.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) development that has potential to cause an adverse impact on amenity of adjacent and surrounding land, or environmental harm is avoided through location, design and operation of the development;
 - (b) sensitive land uses are protected from amenity related impacts of lighting, odour, airborne particles and noise, through design and operation of the development;
 - (c) development ensure stormwater is discharged lawfully;
 - (d) development is located, designed, constructed and managed to avoid or minimise impacts arising from altered stormwater quality or flow;
 - (e) development contributes to the removal and ongoing management of weed species;
 - (f) development is located and designed to ensure that users and nearby sensitive land uses are not exposed to unacceptable levels of contaminants.
 - (g) development is designed and operated to ensure activities involving the use, storage and disposal of potentially hazardous materials and chemicals, dangerous goods, and flammable or combustible substances are located and managed to avoid or mitigate potential adverse impacts on surrounding uses, and minimise the health and safety risks to communities and individuals.

9.3.2.3 Assessment benchmarks and requirements

Table 9.3.2.3.a – Environmental performance code – benchmarks for assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
Lighting		

<p>PO1 Lighting incorporated within development does not cause an adverse impact on the amenity of adjacent uses and nearby sensitive land uses.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO1.1 The use does not operate outside daylight hours or outdoor lighting is not part of the proposed use; or</p> <p>AO1.2 Lighting is provided for user safety and the conduct of the use; and</p> <p>AO1.3 Technical parameters, design, installation, operation and maintenance of outdoor lighting complies with the requirements of Australian standard AS4282-1997 Control of the obtrusive effects of outdoor lighting; and</p> <p>AO1.4 Access, car parking and manoeuvring areas are designed to shield nearby residential premises from impacts of vehicle headlights.</p>	<p>Complies with PO</p>
<p>Odour</p>		
<p>PO2</p>	<p>AO2.1 The development does not involve activities that create odorous air emissions;</p>	<p>Complies with PO The Development will be subject to an Environmental Authority that will regulate impacts on the environment.</p>

Performance outcomes	Acceptable outcomes	Applicant response
<p>Potential odour causing activities associated with the development are avoided through design, location and operation of the activity.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>or</p> <p>AO2.2 The use does not result in odour that causes environmental harm or nuisance with respect to surrounding land uses.</p>	
Noise		
<p>PO3 Potential noise generated from the development is avoided through design, location and operation of the activity.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO3.1 Development does not involve activities that would cause noise related environmental harm or nuisance;</p> <p>or</p> <p>AO3.2 Development ensures noise does not emanate from the site through the use of materials, structures and architectural features to not cause an adverse noise impact on adjacent uses.</p> <p>and</p> <p>AO3.3 The design and layout of development ensures car parking areas avoid noise impacting directly on adjacent sensitive land uses through one or more of the following: (a) car parking is located away from adjacent sensitive land uses; (b) car parking is enclosed within a building; (c) a noise ameliorating fence or structure is established adjacent to car parking areas where the fence or structure will not have a</p>	<p>Complies with PO The Development will be subject to an Environmental Authority that will regulate impacts on the environment.</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>visual amenity impact on the adjoining premises; (d) incorporating a densely vegetated buffer adjacent to car parking areas.</p> <p>Note – The Environmental Protection (Noise) Policy 2008, Schedule 1 provides guidance on acoustic quality objectives to ensure environmental harm (including nuisance) is avoided.</p>	
Airborne particles and other emissions		
<p>PO4 Potential airborne particles and emissions generated from the development are avoided through design, location and operation of the activity.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO4.1 Development does not involve activities that will result in airborne particles or emissions being generated;</p> <p>or</p> <p>AO4.2 The design, layout and operation of the development activity ensures that no airborne particles or emissions cause environmental harm or nuisance.</p> <p>Note – Examples of activities which generally cause airborne particles include spray painting, abrasive blasting, manufacturing activities and car wash facilities.</p> <p>Note – Examples of emissions include exhaust ventilation from basement or enclosed parking structures, air conditioning/refrigeration ventilation and exhaustion.</p> <p>Note – The Environmental Protection (Air) Policy 2008, Schedule 1 provides guidance on air quality objectives to ensure environmental harm (including nuisance) is avoided.</p>	<p>Complies with PO The Development will be subject to an Environmental Authority that will regulate impacts on the environment.</p>

Performance outcomes	Acceptable outcomes	Applicant response
Refuse collection		
<p>PO5 Development provides waste and recycling collection, separation and storage facilities that are designed, located and managed to:</p> <ul style="list-style-type: none"> (a) avoid adverse impacts on building occupants, neighbouring properties and the public realm; (b) allow for the safe and efficient collection of waste and recycling. <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO5.1 Development involving:</p> <ul style="list-style-type: none"> (a) Multiple dwelling of five or less dwellings; or (b) Residential care facility, Retirement facility Rooming accommodation or Short-term accommodation for five or less rooms; <p>must be designed to be serviced by wheelie bins for kerbside waste and recycling collection;</p> <ul style="list-style-type: none"> (c) an area for the storage of wheelie bins is provided: <ul style="list-style-type: none"> (i) at an accessible on site location at or near the road frontage; and (ii) that is convenient to the occupants; and (iii) screened from view from the street and adjoining properties. 	<p>NA</p>
	<p>AO5.2 Development involving:</p> <ul style="list-style-type: none"> (a) Multiple dwelling of six or more dwellings; or (b) Residential care facility, Retirement facility, Rooming accommodation or Short-term accommodation for six or more rooms; or (c) Centre activities; (d) Industrial activities; or (e) Sport and recreation activities; <p>must be designed to be serviced by bulk bins for waste and recycling collection;</p> <ul style="list-style-type: none"> (f) a bulk bin enclosure must be provided, that at a minimum: <ul style="list-style-type: none"> (i) at an accessible on site location at or near the road frontage; and 	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<ul style="list-style-type: none"> (ii) provides sufficient on site manoeuvrability area for collection services, and vehicles enter and leave the site in a forward gear; and (iii) are of a sufficient size to accommodate the required bulk bins; and (iv) are sited and designed to be unobtrusive and screened from view from the street frontage; and (v) are imperviously sealed, roofed and bunded, and contain a hose down area connected to the internal wastewater system. <p>Note – A refuse collection agreement with an approved refuse collection contractor is required where development is serviced by bulk bins.</p> <p>Note – The Environmental Protection (Waste Management) Policy 2008 provides guidance on the design of waste containers (receptacles) to ensure environmental harm (including nuisance) is avoided.</p>	

Performance outcomes	Acceptable outcomes	Applicant response
Sensitive land uses		
<p>PO6 Sensitive land uses are not established in areas which will receive potentially incompatible impacts on amenity from surrounding, existing development activities and land uses.</p> <p>Note – Refer to the definition of Sensitive land use contained in Schedule 1.2.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO6.1 Sensitive land uses are not established in areas where they will be adversely impacted by existing land uses, activities and potential development in an area;</p> <p>or</p> <p>AO6.2 Sensitive land uses may be established in areas of potential adverse amenity impacts where they mitigate all of the potential impacts through location, design, operation and maintenance.</p>	<p>Complies</p>
Hours of Operation		
<p>PO7 The operation of the development is limited to hours of a day that ensures the impacts on the amenity of nearby sensitive land uses are appropriately mitigated.</p> <p>Note – Regard will generally need to be given to the form of development and the location and appropriateness of the sensitive use impacted with respect to the outcomes also sought by the zone.</p>	<p>AO7.1 No acceptable outcomes are provided.</p>	<p>Complies</p>
Stormwater		
<p>PO8 Development activities are designed to ensure stormwater is directed to a lawful point of discharge and has a no worsening effect on downstream or upstream properties.</p>	<p>AO8.1 Stormwater associated with development is discharged to: (a) a lawful connection provided from the premises to Council’s stormwater network; or</p>	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>(b) land under Local Government control that has a lawful drainage function immediately adjoining to the premises; or</p> <p>(c) an easement for drainage purpose immediately adjoining to the premises; or</p> <p>(d) where the site cannot discharge to a, b or c, stormwater is discharged from the site in a manner that does not result in:</p> <ul style="list-style-type: none"> (i) change to the location of stormwater discharge; (ii) an increase to peak flow velocity or volume; (iii) a concentration in stormwater discharge. <p>Note – The Queensland Urban Drainage Manual provides guidance on lawful points of discharge (Section 3.9).</p>	
	<p>AO8.2 Stormwater discharge must have a no worsening effect on downstream or upstream properties, associated with the following:</p> <ul style="list-style-type: none"> (a) diversion of stormwater; (b) concentration of stormwater flows; (c) changes in other flow characteristics; (d) changes that affect the future use of land. <p>Note – The Queensland Urban Drainage Manual provides guidance on changes to stormwater (Section 3.6) for the purpose of determining no worsening.</p>	<p>Complies</p>
Stormwater quality		
<p>PO9 Development is planned, designed, constructed and operated to avoid or minimise adverse impacts on stormwater quality by:</p> <ul style="list-style-type: none"> (a) achieving stormwater quality objectives; (b) protecting water environmental values; 	<p>AO9.1 A stormwater quality management plan is prepared, and provides for achievable stormwater quality treatment measures meeting design objectives listed in Table 9.3.2.3.b and Table 9.3.2.3.c, reflecting land use constraints, such as:</p>	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
<p>(c) maintaining waterway hydrology.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report, particularly a stormwater quality improvement plan, to demonstrate compliance with the purpose and outcomes of the Code.</p>	<ul style="list-style-type: none"> (a) erosive, dispersive and/or saline soil types; (b) landscape features (including landform); (c) acid sulfate soil and management of nutrients of concern; (d) rainfall erosivity. 	
	<p>AO9.2</p> <p>An erosion and sediment control plan demonstrates that release of sediment-laden stormwater is avoided for the nominated design storm, and minimised when it is exceeded by addressing design objectives listed in Table 9.3.2.3.b for:</p> <ul style="list-style-type: none"> (a) drainage control; (b) erosion controls; (c) sediment control; (d) water quality outcomes. 	
	<p>AO9.3</p> <p>Erosion and sediment control practices are designed, installed, constructed, monitored, maintained, and carried out in accordance with the erosion and sediment control plan.</p>	
	<p>AO9.4</p> <p>Development incorporates stormwater flow control measures to achieve the design objectives set out in Table 9.3.2.3.b and Table 9.3.2.3.c, including management of frequent flows, peak flows, and construction phase hydrological impacts.</p> <p>Note - Planning scheme policy - FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the Environmental Protection Act 1994.</p> <p>During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.</p>	

Performance outcomes	Acceptable outcomes	Applicant response
Land contaminants		
<p>PO10 Development is located and designed to ensure that users and nearby sensitive land uses are not exposed to unacceptable levels of contaminants.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO10.1 Development is located where soils are not contaminated by pollutants which represent a health or safety risk to users.</p> <p>or</p> <p>AO10.2 Development remediates contaminated soils prior to plan sealing, operational works permit, or issuing a building works permit.</p>	<p>Complies</p>
Hazardous materials, chemicals, dangerous goods, flammable or combustible substances		
<p>PO11 The use, storage and disposal of potentially hazardous materials and chemicals, dangerous goods, and flammable or combustible substances are located and managed to avoid or mitigate potential adverse impacts on surrounding uses, and minimise the health and safety risks to communities and individuals.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>AO11.1 No acceptable outcomes are provided.</p>	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
Pest plants (for material change of use on vacant land over 1,500m²)		
<p>PO12 Development activities and sites provide for the removal of all pest plants and implement ongoing measures to ensure that pest plants do not reinfest the site or nearby sites.</p> <p>Note – This does not remove or replace all land owner's obligations or responsibilities under the Land Protection (Pest and Stock Route Management) Act 2002.</p>	<p>AO12.1 The land is free of declared pest plants prior to any works occurring on site and before any material is removed from the site;</p> <p>or</p> <p>AO12.2 Pest plants detected on a development site are removed in accordance with a management plan prepared by an appropriately qualified person prior to construction of buildings and structures or earthworks.</p> <p>Note – A declaration from an appropriately qualified person validates the land being free from pest plants.</p> <p>Note – Declared pest plants includes locally declared and State declared pest plants.</p> <p>Note – Planning Scheme Policy – Environmental Management Plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the Code.</p>	<p>Complies</p>
Additional requirements for Port services		
Ship-source pollutants reception facilities		
<p>PO13 Development provides facilities for the handling and disposal of ship-sourced pollutants.</p>	<p>AO13.1 Common user facilities for the handling and disposal of ship-sourced pollutants including oil, garbage and sewage are provided at a suitable location at the Port service.</p>	<p>NA</p>
	<p>AO13.2 Facilities are designed and operated to ensure the risk of spillage from operations is minimised.</p>	<p>NA</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO13.3 Appropriate equipment to contain and remove spillages is stored in a convenient position near the facility and is available for immediate use.</p>	NA
	<p>AO13.4 Boats visiting the marina are able to use the ship-sourced pollutants reception facilities.</p> <p>Note – Refer to the Australian and New Zealand Environment and Conservation Council (ANZECC), 1997, Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand.</p>	NA
	<p>AO13.5 The pollutant reception facility is connected to sewerage or other waste reception infrastructure.</p> <p>Note – Reception facilities require compliance assessment under the Plumbing and Drainage Act 2002. The plumbing compliance assessment process will ensure that the proposed facilities address 'peak load'.</p>	NA

Table 9.3.2.3.b – Stormwater management design objectives (Construction phase)

Issue	Design objectives
<p>Drainage control (Temporary drainage works)</p>	<p>(1) Design life and design storm for temporary drainage works: (a) Disturbed area open for <12 months—50% AEP event; (b) Disturbed area open for 12–24 months—20% AEP event; (c) Disturbed area open for > 24 months—10% AEP event. (2) Design capacity excludes minimum 150 mm freeboard. (3) Temporary culvert crossing—minimum 100% AEP hydraulic capacity.</p>
<p>Erosion control (Erosion control measures)</p>	<p>(1) Minimise exposure of disturbed soils at any time. (2) Divert water run-off from undisturbed areas around disturbed areas. (3) Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods.</p>

Issue	Design objectives
	(4) Implement erosion control methods corresponding to identified erosion risk rating.
<p>Sediment control (Sediment control measures, Design storm for sediment control basins, Sediment basin dewatering)</p>	<p>(1) Determine appropriate sediment control measures using: (a) potential soil loss rate; or (b) monthly erosivity; or (c) average monthly rainfall.</p> <p>(2) Collect and drain stormwater from disturbed soils to sediment basin for design storm event: (a) design storm for sediment basin sizing is 80th% five-day event or similar.</p> <p>(3) Site discharge during sediment basin dewatering: (a) TSS < 50 mg/L TSS; (b) Turbidity not >10% receiving waters turbidity; (c) pH 6.5–8.5.</p>
<p>Water quality (Litter and other waste, hydrocarbons and other contaminants)</p>	<p>(1) Avoid wind-blown litter; remove gross pollutants. (2) Ensure there is no visible oil or grease sheen on released waters. (3) Dispose of waste containing contaminants at authorised facilities.</p>
<p>Waterway stability and flood flow management (Changes to the natural waterway hydraulics and hydrology)</p>	<p>(1) For peak flow for the 100% AEP event and 1% AEP event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site</p>

Table 9.3.2.3.c – Stormwater management design objectives (post-construction phase)

Design objectives Minimum reductions in mean annual load from unmitigated development (%)				Application
Total suspended solids (TSS)	Total phosphorus (TP)	Total nitrogen (TN)	Gross pollutants >5 mm	
80	60	40	90	<p>Development for urban purposes</p> <p>Excludes development that is less than 25% impervious.</p> <p>In lieu of modelling, the default bio-retention treatment area to comply with load reduction targets of 1.5% of the contributing catchment area.</p>
<p>Waterway stability management (1) Limit the peak 100% AEP event discharge within the receiving waterway to the pre-development peak 100% AEP event discharge.</p>				<p>Catchments contributing to un-lined receiving waterway. Degraded waterways may seek alternative discharge management objectives to achieve waterway stability.</p> <p>For peak flow for the 100% AEP event, use collocated storages to attenuate site discharge rate of stormwater.</p>

7 EXCAVATION AND FILLING CODE

9.3.3.1 Application

- (1) This code applies to development identified as requiring assessment against the Excavation and filling code by the Tables of Assessment in Part 5.
- (2) When using this code, reference should be made to Part 5.

9.3.3.2 Purpose

- (1) The purpose of the Excavation and filling code is to ensure that excavation and filling occurs in a manner that does not adversely impact upon character and amenity, environmental values, flooding and drainage and land stability.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) the character and amenity of the site and the surrounding area is protected;
 - (b) works do not detrimentally impact upon the environment;
 - (c) flooding and drainage problems do not result as a consequence of the works;
 - (d) works do not create land instability;
 - (e) works do not involve complex engineering solutions.

9.3.3.3 Assessment benchmarks and requirements

Table 9.3.3.3.a – Excavation and filling code – benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
Amenity and slope stability		
<p>PO1</p> <p>Excavation or filling:</p> <ul style="list-style-type: none"> (a) avoids adverse impacts on the amenity, , privacy or function of the site or adjoining premises; (b) is not visually intrusive; (c) does not rely on complex engineering solutions that have an adverse amenity impact; (d) incorporates landscaping to visually soften built form elements; (e) avoids adverse impacts on landscape values and excessive changes to the natural landform as a result of the location, position on site, scale, design, extent and alignment of earthworks, roads, driveways, retaining walls and other on-ground or in-ground infrastructure; (f) other than Building work, avoids adverse impacts on the safety and stability of the site or adjoining premises and does rely on complex engineering solutions. 	<p>AO1.1</p> <p>Excavation or fill:</p> <ul style="list-style-type: none"> (a) is not more than 1.8 metres in height for each batter or retaining wall; (b) is set back a minimum of 2 metres from property boundaries where there is a change in ground level exceeding 1 metre; (c) does not exceed a maximum of 2 batters (i.e. not greater than 3.6 metres in total height) on any one lot; (d) is stepped with a minimum 2 metre wide berm to incorporate landscaping in accordance with the requirements of Planning scheme policy – Landscaping. (e) Note – Planning Scheme Policy - FNQROC Regional Development Manual contains requirements for the design and specification for excavation and filling associated with batters and retaining walls. 	<p>Complies</p> <p>Retaining Walls approximately 1m high are located onsite boundaries.</p>

Performance outcomes	Acceptable outcomes	Applicant response
-	<p>AO1.2 Soil used for filling or spoil from excavation is not stockpiled for a period exceeding one month from the commencement of the excavation or filling, in locations that can be viewed from:</p> <ul style="list-style-type: none"> (a) adjoining premises; or (b) a road frontage. 	Complies
	<p>AO1.3 Retaining walls:</p> <ul style="list-style-type: none"> (a) do not exceed 1.8 metres in height except where incorporated within a level change within a building; (b) do not exceed 20 metres in cumulative length, where not incorporated within a level change within a building; (c) where multiple retaining walls are used a landscaped separation of at least 2 metres is used between retaining walls. <p>Note – Cumulative is calculated upon the total length of retaining walls on site.</p>	<ul style="list-style-type: none"> a) Complies - all walls are less than 1.8m in height b) Does Not Comply - Walls are required for long lengths for the industrial use. c) Complies - there are no multiple retaining walls

Performance outcomes	Acceptable outcomes	Applicant response
	AO1.4 Excavation or filling does not exceed 40% of the site area or 500m ² whichever is the lesser.	Does not Comply Site filling covers all of the site
PO2 Excavation or filling does not result in the instability of a site or adjacent land.	AO2.1 All earthworks batters, other than Building work, steeper than 1 in 2 (50%) and higher than 1.5 metres require geotechnical certification.	Complies
Protection of public utilities		
PO3 Excavation and filling does not have a detrimental impact on Public Utilities.	AO3.1 Excavation and filling, other than Building work, is clear of the zone of influence of public utilities. Editor's Note – Queensland Development Code (QDC) MP1.4 applies to development that is for Building work.	NA
For assessable development		
Amenity		
PO4 Excavation and filling incorporates construction materials and external finishes that are compatible with the landscape values and amenity of the locality.	AO4.1 The surface treatment of retaining walls has a subdued and non-reflective palette. Note – Examples of suitable colours include shades of green, olive green, blue green, grey green, green blue, indigo, brown, blue grey, and green yellow.	Complies

<p>PO5 The height of excavation or filling does not adversely impact the character and amenity of the adjoining premises, the streetscape and the surrounding area when considering the height of expected development that could occur on the premises once the works have been completed.</p>	<p>AO5.1 No acceptable outcomes are provided.</p>	<p>Complies</p>
---	---	-----------------

Performance outcomes	Acceptable outcomes	Applicant response
Environmental performance		
<p>PO6 Excavation or filling does not adversely impact on other premises as a result of storm water drainage flows or flooding.</p>	<p>AO6.1 Stormwater drainage flows are taken to a lawful point of discharge and have a no worsening effect on downstream or upstream properties.</p>	<p>Complies Refer to Engineering report</p>
	<p>AO6.2 Excavation or filling does not result in: (a) the ponding of water; or (b) an erosive velocity of overland flow, on the site or adjoining premises.</p>	<p>Complies Refer to Engineering report</p>
	<p>AO6.3 All berms: (a) are graded towards the upwards slope; (b) contain adequate drainage infrastructure to accommodate the changed drainage flows.</p>	<p>Complies Refer to Engineering report</p>
	<p>AO6.4 Excavation or filling does not result in an increase in the volume of water or concentration of water in: (a) overland flow paths of the site and other sites; (b) waterways.</p>	<p>Complies Refer to Engineering report</p>
	<p>AO6.5 Excavation or filling does not occur: (a) within a waterway; or (b) within a riparian corridor.</p> <p>Note – Planning scheme policy - FNQROC Regional Development Manual provides design guidelines for excavation and filling.</p>	<p>Complies Refer to Engineering report</p>

PO7 Excavation or filling does not result in a reduction of the water quality of receiving waters.	AO7.1 Water quality is maintained by compliance with the Design guidelines set out in section D5 of the	Complies with PO. An on-site Biobasin will be installed.
---	--	---

Performance outcomes	Acceptable outcomes	Applicant response
	Planning scheme policy - FNQROC Regional Development Manual. Note – An Environmental Management Plan may be required to demonstrate how the impacts of works are controlled.	
Environmental considerations and public amenity		
PO8 Excavation or filling does not result in any contamination of land.	AO8.1 No contaminated material is: (a) used as fill; (b) excavated or disturbed.	Complies

8 INDUSTRY DESIGN CODE

9.3.4.1 Application

- (1) This code applies to assessing development:
 - (a) for Industry activities; or
 - (b) for Special industry; or
 - (c) located within the Low impact industry zone; or
 - (d) located within the Medium impact industry zone; or
 - (e) located within the High impact industry zone; or
 - (f) located within the Waterfront and marine industry zone.

Note – Refer to defined activity group for Industry activities contained in Schedule 1.2

- (2) When using this code, reference should be made to Part 5.

9.3.4.2 Purpose

- (1) The purpose of the Industry design code is to ensure that industry activities and areas protect public safety, provide a high quality of design and amenity and are appropriately located to ensure their long-term viability.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) the scale, character and built form of development contributes to a high standard of amenity;
 - (b) the design incorporates facilities and features that contribute to a high standard environment for workers and customers;
 - (c) infrastructure provision meets the needs of development, is safe and efficient and is provided to relevant standard;
 - (d) industrial, noxious and hazardous land uses are adequately separated from sensitive land uses to avoid adverse impacts and the occurrence of environmental harm or environmental nuisance to a sensitive land use;
 - (e) a site that is contaminated or poses a health risk is remediated prior to being developed for an alternative land use;
 - (f) hazardous chemicals are appropriately located, handled and stored to protect public safety and reduce the risk of contamination on the environment and to appropriately mitigate associated risks and off site hazards.

9.3.4.3 Assessment benchmarks and requirements

Table 9.3.4.3.a – Industry design code – benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development for building work		
Site coverage		
<p>PO1 The site coverage of development ensures that there is sufficient area for the provision of services and landscaping, and caters for flood storage in areas affected by flooding.</p>	<p>AO1.1 The site coverage is not more than 80%.</p>	<p>NA</p>
<p>PO2 Setbacks: (a) contribute to an attractive and consistent streetscape appearance; (b) provide for visible employee and customer car parking; (c) allow for landscape strips along street frontages; (d) minimise unusable spaces between buildings and boundaries; (e) provide separation between industry activities occurring within an industry zone and land within other zones.</p>	<p>AO2.1 Buildings, display areas and storage areas are set back: (a) 6 metres from the primary street frontage; (b) 3 metres from any secondary street frontage; (c) where the site has a common boundary with land in an Industry zone, the building is setback either: (i) zero metres from the side or rear boundary; or (ii) not less than 3 metres from the side or rear boundary. (d) where a site adjoins land in any other zone, the building is set back not less than 3 metres from the side or rear boundary.</p> <p>Note – Refer to the definition of Industry zone contained in Schedule 1.2.</p>	<p>NA</p>
Amenity		
<p>PO3 The development is designed to provide: (a) a safe and comfortable environment for employees and visitors;</p>	<p>AO3.1 A solid fence 2 metres high is provided and maintained along the full boundary adjoining land in a Residential zone and/or Community facilities zone and/or land containing a sensitive land use.</p>	<p>NA</p>

Performance outcomes	Acceptable outcomes	Applicant response
(b) easily identifiable vehicular and pedestrian entrances; (c) a high quality appearance; (d) mitigate adverse impacts on adjoining sensitive land uses.		
For all other accepted development subject to requirements and assessable development		
Site coverage		
PO4 The site coverage of development ensures that there is sufficient area for the provision of services and landscaping, and caters for flood storage in areas affected by flooding.	AO4.1 The site coverage is not more than 80%.	Complies Site Coverage is approximately 40%
Setbacks		
PO5 Setbacks: (a) contribute to an attractive and consistent streetscape appearance; (b) provide for visible employee and customer car parking; (c) allow for landscape strips along street frontages; (d) minimise unusable spaces between buildings and boundaries; (e) provide separation between industry activities occurring within an industry zone and land within other zones.	AO5.1 Buildings, display areas and storage areas are set back: (a) 6 metres from the primary street frontage; (b) 3 metres from any secondary street frontage; (c) where the site has a common boundary with land in an Industry zone, the building is setback either: (i) zero metres from the side or rear boundary; or (ii) not less than 3 metres from the side or rear boundary. (d) where a site adjoins land in any other zone, the building is set back not less than 3 metres from the side or rear boundary. Note – Refer to the definition of Industry zone contained in Schedule 1.2.	Complies Front Setback is 6m Side setbacks are 3m Rear Setback is 3m

Performance outcomes	Acceptable outcomes	Applicant response
Amenity		
<p>PO6 The development is designed to provide:</p> <ul style="list-style-type: none"> (a) a safe and comfortable environment for employees and visitors; (b) easily identifiable vehicular and pedestrian entrances; (c) a high quality appearance; (d) mitigate adverse impacts on adjoining sensitive land uses. 	<p>AO6.1 Pedestrian entrances to buildings are:</p> <ul style="list-style-type: none"> (a) easily identifiable from the street and directly accessible from the car parking areas; (b) provided with sun and rain shelter a minimum of 900mm width immediately above the entryway. 	Complies
	<p>AO6.2 Ancillary office or sales space is orientated toward the street frontage and is provided with human scale elements (such as windows, doors, shading devices and variation of construction materials and colours).</p>	Complies
	<p>AO6.3 Customer car parking is located to the front or side of premises with clear and direct pedestrian access to the main customer building entry.</p>	Complies
	<p>AO6.4 Outdoor storage areas are not located forward of the building line.</p> <p>Note – Outdoor storage does not include the display of goods for sale associated with the following land uses; agricultural supplies store, bulk landscape supplies, hardware and trade supplies or outdoor sales.</p>	Complies
	<p>AO6.5 Illumination is provided within parking and pedestrian areas during night time hours of operation.</p>	Complies
	<p>AO6.6 Development provides clear and legible street numbering for the benefit of motorists.</p>	Complies

Performance outcomes	Acceptable outcomes	Applicant response
	AO6.7 Gates to a road frontage are sliding or open inwardly into the site.	Complies
	AO6.8 Development provides staff amenity areas that incorporate: (a) seating and tables; (b) weather protection.	Complies
	AO6.9 A solid fence 2 metres high is provided and maintained along the full boundary adjoining land in a Residential zone and/or Community facilities zone and/or land containing a sensitive land use.	NA

Landscaping		
<p>PO7 Landscaping is provided to:</p> <ul style="list-style-type: none"> (a) enhance the appearance and amenity of the development; (b) contribute positively to the appearance of the streetscape. 	<p>AO7.1 At least 5% of the site is landscaped.</p>	<p>Complies Site Area = 13,000m² Landscaped Area is 1371m² = 10%</p>
	<p>AO7.2 A landscaped area not less than 2 metres wide is provided and maintained within the site along the full length of all street frontage boundaries, excluding areas required for vehicular and pedestrian access.</p>	<p>Complies A minimum 3m is landscaped along the frontage</p>
	<p>AO7.3 Landscaped areas adjoining parking and manoeuvring areas are protected from vehicular encroachment by a 150mm high vertical concrete kerb or similar obstruction.</p>	<p>Complies</p>
	<p>AO7.4 Planting is to consist of a combination of hardy tropical trees and spreading ground cover species in accordance with Planning scheme policy - Landscaping that will complement the scale of proposed development, without interfering with casual surveillance and sightlines.</p>	<p>Complies</p>
	<p>AO7.5 Hardy tropical shrubs are provided in accordance with Planning scheme policy - Landscaping to screen bin storage and service areas.</p>	<p>Complies</p>
	<p>AO7.6 Fencing along street frontages is more than 50% transparent.</p>	<p>Complies</p>
Access and loading/unloading of goods		
<p>PO8</p>	<p>AO8.1 All vehicles are contained within the site when loading and unloading.</p>	<p>Complies</p>

<p>The transport of goods and materials to and from sites does not adversely affect the movement of traffic on roads adjacent to the site.</p>	<p>AO8.2 Manoeuvring area is provided on site to allow a Medium rigid vehicle to enter and exit the site in a forward gear.</p>	<p>Complies</p>
	<p>AO8.3 Site access is limited to one access point to each frontage.</p> <p>or</p> <p>AO8.4 Where a site has a street frontage greater than 40 metres, the development provides:</p> <ul style="list-style-type: none"> (a) no more than two access points to the street frontage that is greater than 40m; (b) no more than one access point to all other street frontages; (c) separation between access points by a distance of no less than 10m. 	<p>Complies with AO8.4. Street frontage is 100 metres. There are 2 access points separated by over 40 metres.</p>
<p>Air and noise pollution</p>		
<p>PO9 Development should not result in sensitive land uses being exposed to air, noise and odour emissions from industrial uses, major sport, recreation and entertainment facilities or other noisy sport and recreation activities that have the potential to adversely impact on human health, amenity and wellbeing.</p> <p>Editor's note – Noisy sport and recreation activities include shooting and motor sport facilities.</p>	<p>AO9.1 The use is designed to ensure that:</p> <ul style="list-style-type: none"> (a) the indoor noise objectives set out in the Environmental Protection (Noise) Policy 2019 are met; (b) the air quality objectives in the Environmental Protection (Air) Policy 2008, and any relevant national or international standard (for example the World Health Organisation Guidelines for Air Quality 2000) are met; (c) noxious and offensive odours are not experienced at the location of sensitive land uses. <p>Editor's note – The Queensland odour impact assessment guideline, available from the Department of Environment and</p>	<p>Complies The Project requires an Environmental Authority which controls impacts on the Environment.</p>

	<p>Heritage Protection website, provides a methodology for assessing odour impacts. www.ehp.qld.gov.au.</p> <p>Note – Design measures may include:</p> <ol style="list-style-type: none"> (1) landscape buffers and physical barriers such as fences and that set appropriate setback/separation distances (2) adequate allotment design that reduces impacts of emissions (3) adequate construction materials and positioning of rooms and windows to mitigate impact of emissions. 	
Storage and handling of hazardous chemicals		
<p>PO10 Development involving the use, storage or generation of hazardous chemicals minimises off-site hazards and associated risks.</p> <p>Note – If development does not comply with AO10.1, in addition to PO10 development will be required to be assessed against PO12, PO13, PO14 and PO15.</p> <p>Note – To assist in demonstrating compliance with the performance outcomes, a Hazard Assessment Report may be required to be prepared and submitted by a suitably qualified person in accordance with the <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p> <p>Note- Terms used in this section are defined in <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>AO10.1 Development that involves the storage or handling of hazardous chemicals:</p> <ol style="list-style-type: none"> (a) complies within the accepted development subject to requirements thresholds contained within <ul style="list-style-type: none"> • Table 9.3.5.3b Accepted development subject to requirements thresholds and complies with the accepted development subject to requirements contained within • Table9.3.5.3d Accepted development subject to requirements for Hazardous chemicals; (b) does not involve identified assessable thresholds contained within Table 9.3.5.3c Assessable development thresholds; <p>Note – Terms used in this section are defined in <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>Complies</p>
Contaminated land		
<p>PO11 Development is located and designed to ensure that users and nearby sensitive land uses are not exposed to unacceptable levels of contaminants.</p>	<p>AO11.1 Development is not located on a part of the site containing contaminated soils.</p> <p>or</p>	<p>Complies</p>

	<p>AO11.2 Contaminated soils on the site are remediated prior to plan sealing, issuing of an operational works permit, or issuing of a building works permit.</p>	
<p>For assessable development</p>		
<p>Safety</p>		
<p>PO12 Design actively contributes to the safety of users of the development.</p> <p>Note – Guidance to demonstrating compliance with the Performance Outcome is outlined in Planning scheme policy – Crime prevention through environmental design (CPTED).</p>	<p>AO12.1 Crime prevention through environmental design principles are integrated into the form and design of the development.</p>	<p>Complies</p>
<p>Services</p>		
<p>PO13 Development adequately takes into account the functional requirements of infrastructure needs and service of the use.</p>	<p>AO13.1 Design takes into account the potential need to provide:</p> <ul style="list-style-type: none"> (a) space and access for trade waste connections to the sewer network; (b) waste and recyclable material storage areas; (c) storage tanks; (d) fire fighting booster pumps; (e) electrical infrastructure; (f) car parking, manoeuvring areas including loading facilities. 	<p>Complies Refer to Engineering report</p>
<p>Protection of medium impact, high impact, extractive and noxious and hazardous industries</p>		
<p>PO14 Industrial land uses are protected from encroaching incompatible land uses.</p>	<p>AO14.1 Sensitive land uses:</p> <ul style="list-style-type: none"> (a) do not compromise the viability of existing or future industrial development, including industrial land within an SDA, or an enterprise opportunity area or employment opportunity area identified in a regional plan; 	<p>NA</p>

	<ul style="list-style-type: none"> (b) do not compromise the viability of major sport, recreation and entertainment facilities; (c) do not compromise the operation of major hazard facilities, intensive animal industries or explosive facilities and reserves; (d) are not located within close proximity to waste and sewage treatment plants. 	
<p>Hazardous chemicals Note – Terms used in this section are defined in <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>		
<p>PO15 Off sites risks from foreseeable hazard scenarios involving hazardous chemicals are commensurate with the sensitivity of the surrounding land use zones.</p> <p>Note – To assist in demonstrating compliance with the performance outcomes, a Hazard Assessment Report may be required to be prepared and submitted by a suitably qualified person in accordance with the <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>AO15.1 Off- site impacts or risks from any foreseeable hazard scenario does not exceed the dangerous dose at the boundary of land zoned for vulnerable or sensitive land uses as described below:</p> <p><u>Dangerous dose:</u></p> <ul style="list-style-type: none"> (a) for any hazard scenario involving the release of gases or vapours: <ul style="list-style-type: none"> (i) AEGL2 (60 minutes) or if not available ERPG2; (ii) An oxygen content in air <19.5% or >23.5% at normal atmospheric pressure. b) for any hazard scenario involving fire or explosion: <ul style="list-style-type: none"> (i) 7 kPa overpressure; (ii) 4.7 kW/m² heat radiation. <p>Note – If benchmarks AO15.1 (a) or (b) cannot be achieved, then the risk of any foreseeable hazard scenario shall not exceed an individual fatality risk level of 0.5 x 10⁻⁶ /year.</p>	<p>Complies</p>
	<p>AO15.2 Off- site impacts or risks from any foreseeable hazard scenario does not exceed the dangerous dose at the boundary of a commercial or community activity land use zone as described below:</p>	

	<p><u>Dangerous dose:</u></p> <ul style="list-style-type: none"> (a) for any hazard scenario involving the release of gases or vapours: <ul style="list-style-type: none"> (i) AEGL2 (60 minutes) or if not available ERPG2; (ii) An oxygen content in air <19.5% or >23.5% at normal atmospheric pressure. (b) for any hazard scenario involving fire or explosion: <ul style="list-style-type: none"> (i) 7 kPa overpressure; (ii) 4.7 kW/m² heat radiation. <p>Note – If benchmarks AO12.2 (a) or (b) cannot be achieved, then the risk of any foreseeable hazard scenario shall not exceed an individual fatality risk level of 5 x 10⁻⁶ /year.</p>	
	<p>AO15.3</p> <p>Off site impacts or risks from any foreseeable hazard scenario does not exceed the dangerous dose at the boundary of an industrial land use zone as described below:</p> <p><u>Dangerous dose:</u></p> <ul style="list-style-type: none"> (a) for any hazard scenario involving the release of gases or vapours: <ul style="list-style-type: none"> (i) AEGL2 (60minutes) or if not available ERPG2 (ii) An oxygen content in air <19.5% or >23.5% at normal atmospheric pressure. (b) for any hazard scenario involving fire or explosion: <ul style="list-style-type: none"> (i) 14 kPa overpressure (ii) 12.6 kW/m² heat radiation. <p>Note – If benchmarks AO12.3 (a) or (b) cannot be achieved, then the risk of any foreseeable hazard scenario shall not exceed an individual fatality risk level of 50 x 10⁻⁶ /year.</p>	

<p>PO16 Buildings and package stores containing fire-risk hazardous chemicals are designed to detect the early stages of a fire situation and notify a designated person.</p> <p>Note – To assist in demonstrating compliance with the performance outcomes, a Hazard Assessment Report may be required to be prepared and submitted by a suitably qualified person in accordance with the <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>AO16.1 Buildings and package stores containing fire-risk hazardous chemicals are provided with a 24 hour monitored fire detection system for early detection of a fire event.</p>	<p>NA</p>
<p>PO17 Common storage areas containing packages of flammable and toxic hazardous chemicals are designed with spill containment system(s) that are adequate to contain releases, including firefighting media.</p> <p>Note – To assist in demonstrating compliance with the performance outcomes, a Hazard Assessment Report may be required to be prepared and submitted by a suitably qualified person in accordance with the <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>AO17.1 Storage areas containing packages of flammable and toxic hazardous chemicals are designed with spill containment system(s) capable of containing a minimum of the total aggregate capacity of all packages plus the maximum operating capacity of any fire protection system for the storage area(s) over a minimum of 60 minutes.</p>	<p>Complies</p>
<p>PO18 Storage and handling areas, including manufacturing areas, containing hazardous chemicals in quantities greater than 2,500 L or kg within a Local Government “flood hazard area” are located and designed in a manner to minimise the likelihood of inundation of flood waters from creeks, rivers, lakes or estuaries.</p> <p>Note – To assist in demonstrating compliance with the performance outcomes, a Hazard Assessment Report may be required to be prepared and submitted by a suitably qualified person in accordance with the <i>Model Planning Scheme development Code for Hazardous Industries and Chemicals</i>.</p>	<p>AO18.1 The base of any tank with a WC >2,500 L or kg is higher than any relevant flood height level identified in an area’s flood hazard area. Alternatively: (a) bulk tanks are anchored so they cannot float if submerged or inundated by water; and (b) tank openings not provided with a liquid tight seal, i.e. an atmospheric vent, are extended above the relevant flood height level.</p>	<p>Complies</p>
	<p>AO18.2 The lowest point of any storage area for packages >2,500 L or kg is higher than any relevant flood height level identified in an area’s flood hazard area. Alternatively, package stores are provided with</p>	<p>Complies</p>

	impervious bund walls or racking systems higher than the relevant flood height level.	
--	---	--

Table 9.3.4.3.b – Accepted development subject to requirements thresholds

Hazardous chemical	PG or type	Applicable storage and handling type	Threshold quantity	Exclusions
Flammable gases – DG class 2.1	N/A	Cylinder stores with natural ventilation	> 1,000 – ≤ 5,000 L	(a) Gases connected to a consuming device, fuel burning appliance or within a refrigeration system (b) Tanks with a WC > 500 L (c) Aerosols with a WC < 1 L (d) Cylinder exchange facilities that comply with AS1596, (e) Cylinders stores with any of the following attributes: <ul style="list-style-type: none"> • within or attached to a building, • mechanically ventilated.
Oxidising gases – DG class 2.2, sub risk 5.1	N/A	Cylinder stores with natural ventilation	> 1,000 – ≤ 20,000 L	
Non-toxic, non-flammable gases – DG class 2.2	N/A	Cylinder stores with natural ventilation	> 2,000 – ≤ 200,000 L	
Flammable liquids – DG class 3	PGII or PGIII	Aboveground tanks and package stores with natural ventilation	> 10,000 – ≤ 60,000 L	(a) Flammable or combustible liquids co-located with DG classes 2, 3, 4, 5 or 6.1 above minor storage (b) Any tank other than a static storage tank located outdoors (c) Tanks with a diameter > 6 m, (d) Package stores with any of the following attributes: <ul style="list-style-type: none"> • within or attached to a building, • mechanically ventilated.
		Underground tanks	> 10,000 – ≤ 500,000 L	
Combustible liquids with a flashpoint ≤ 93°C	N/A	Package stores with natural ventilation	> 10,000 – ≤ 100,000 L	
		Aboveground or underground tanks	> 10,000 – ≤ 500,000 L	
Oxidising substances – DG class 5.1	PG II	Aboveground tanks containing liquids	> 10,000 – ≤ 20,000 L/kg	
		Package stores with natural ventilation		
	PG III	Aboveground tanks containing liquids	> 10,000 - ≤ 250,000 L/kg	
		Package stores with natural ventilation		

Toxic substances – DG class 6.1	PGII or PGIII	Aboveground tanks and package stores with natural ventilation	> 10,000 – ≤ 500,000 L/kg	(a) Any tank other than a static storage tank (b) A hazardous chemical facility under Schedule 10 of the <i>Planning Regulation 2017</i> . (c) Toxic substances co-located with DG classes 2, 3, 4 or 5 above minor storage.
Corrosive substances – DG class 8	PGII or PGIII	Aboveground tanks and package stores with natural ventilation	> 10,000 – ≤ 200,000 L/kg	(a) Any tank other than a static storage tank, (b) A hazardous chemical facility under Schedule 10 of the <i>Planning Regulation 2017</i> .
Substances hazardous to the environment – DG class 9	PGII	Any storage in a local government flood hazard area	> 2,500 L/kg	No exclusions
	PGII I	Any storage in a local government flood hazard area	> 10,000 L/kg	

Notes –

- L/kg = Litres for liquids and kilograms for solids;
- Gases and liquids are calculated based on the water capacity (WC) of each storage container;
- Section 14 of a hazardous chemical’s Safety Data Sheet (SDS) will identify any applicable Dangerous Goods (DG) class and Packing Group (PG) and section 9 will identify any applicable flashpoint;
- Co-located means stored within a common spill compound or storage compound.

Table 9.3.4.3.c – assessable development thresholds

Hazardous chemical PG or type	Storage and handling type	Threshold quantity	Exclusions (MHF Quantities)	
GTDTBT	N/A	Any	> 500 L/kg	A hazardous chemical facility under Schedule 10 of the <i>Planning Regulation 2017</i> .
Toxic gases – DG class 2.3	N/A	Any	> 500 L	

Flammable gases – DG class 2.1	N/A	Cylinder store with any of the following attributes: <ul style="list-style-type: none"> contains aerosols with a WC < 1 L co-located with other fire-risk hazardous chemicals that exceed minor storage mechanically ventilated, or located within or attached to a building. 	> 1,000 L
		Any other aboveground storage or handling	> 5,000 L
Oxidising gases – DG class 2.2, sub risk 5.1	N/A	Cylinder store with any of the following attributes: <ul style="list-style-type: none"> co-located with fire-risk hazardous chemicals above minor storage mechanically ventilated, or located within or attached to a building. 	> 1,000 L
		Any other cylinder store	> 20,000 L
		Aboveground tank(s)	> 10,000 L
Non-toxic, non-flammable gases – DG class 2.2	N/A	Any	>200,000 L
Flammable liquids – DG class 3	PG I	Any	> 500 L
	PG II or PG III	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 L

		Storage and handling type	Threshold quantity
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> co-located with fire-risk hazardous chemicals or toxic substances above minor storage mechanically ventilated, or located within or attached to a building. 	> 10,000 L
		Any other aboveground storage or handling	> 60,000 L
Combustible liquids with a flashpoint \leq 93°C	N/A	Aboveground tank(s) within a multi-story building	> 1,000 L
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> co-located with fire-risk hazardous chemicals or toxic substances above minor storage mechanically ventilated located within or attached to a building, or tanks > 6m in diameter. 	> 10,000 L
		Any other package store	> 100,000 L
		Any other aboveground storage or handling	> 500,000 L
Flammable and reactive solids – DG classes 4.1, 4.2 or 4.3	PG I	All	> 500 kg
	PG II or PG III	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 kg
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> co-located with fire-risk hazardous chemicals above minor storage mechanically ventilated, or located within or attached to a building. 	> 2,500 kg

Hazardous chemical PG or type		Storage and handling type	Threshold quantity
		Any other aboveground storage or handling	> 10,000 kg
Oxidising substances – DG class 5.1	PG I	All	> 500 L/kg
	PG II	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 L/kg
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> constructed of combustible materials a floor area > 500 m² co-located with fire-risk hazardous chemicals or corrosive substances above minor storage mechanically ventilated, or located within or attached to a building. 	> 10,000 L/kg
		Solids stored in silos, bunkers or stock piles	> 20,000 L/kg
		Any other aboveground storage or handling	> 50,000 L/kg
		Any other aboveground storage or handling	> 50,000 L/kg
	PG III	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 L/kg
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> constructed of combustible materials a floor area > 500 m² co-located with fire-risk hazardous chemicals or corrosive substances above minor storage mechanically ventilated, or located within or attached to a building. 	> 20,000 L/kg
		Solids stored in silos, bunkers or stock piles	> 20,000 L/kg
		Solids stored in silos, bunkers or stock piles	> 20,000 L/kg

Hazardous chemical PG or type		Storage and handling type	Threshold quantity
		Any other aboveground storage or handling	> 250,000 L/kg
Organic Peroxides – DG class 5.2	All	Any	> 500 L/kg
Toxic substances – DG class 6.1	PG I	Any	> 500 L/kg
	PG II or PG III	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 L/kg
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> co-located with fire-risk hazardous chemicals above minor storage mechanically ventilated, or located within or attached to a building. 	> 10,000 L/kg
		Any other aboveground storage or handling	> 500,000 L/kg
Corrosive substances	PG I	Any	> 500 L/kg
	PG II or PG III	Activities that involve: <ul style="list-style-type: none"> elevated temperature or pressure, or chemical reactions that cause a temperature rise or generate a gas. 	> 1,000 L/kg
		Storage areas with any of the following attributes: <ul style="list-style-type: none"> co-located with oxidising substances above minor storage spill compounds that contain two or more corrosive substances that may react dangerously with each other mechanically ventilated, or located within or attached to a building. 	> 10,000 L/kg
		Any other aboveground storage or handling	> 200,000 L/kg

Notes –

- L/kg = Litres for liquids and kilograms for solids;
- Gases and liquids are calculated based on the water capacity (WC) of each storage container;
- Section 14 of a hazardous chemical's Safety Data Sheet (SDS) will identify any applicable Dangerous Goods (DG) class and Packing Group (PG) and section 9 will identify any applicable flashpoint; Co-located means stored within a common spill compound or storage compound.

Table 9.3.4.3.d –Accepted development subject to requirements criteria for Hazardous chemicals

Gases in cylinders
General requirements – Cylinder
<ul style="list-style-type: none"> (1) All separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements; (2) Separation distances shall be measured laterally from the outermost cylinder to any area to be protected. Cylinder stores (areas of stored cylinders) shall be located outdoors and used to store closed cylinders only. Toxic gases are not permitted within a cylinder store; (3) LPG decanting cylinders are not permitted in cylinder stores; (4) Gas cylinders shall be stored in the upright position only unless specified by the cylinder's manufacturer. Nominally empty cylinders shall be separated in the same manner as those which are full.
Construction requirements
<ul style="list-style-type: none"> (1) Cylinder stores shall be constructed from non-combustible materials that are compatible with the gases to be stored. Hardwood frames or floors are not considered combustible materials for the purposes of this code, however, hardwood cladding is; (2) Where there is a space between the floor of a cylinder store and the ground (i.e. cylinders are stored on a platform), such a space shall be either completely filled with a non-combustible solid material or shall be empty, open on at least three sides and free of any combustible materials; (3) The floor of a cylinder store shall not be capable of pooling liquid; (4) Any doors in a cylinder store shall open outwards or be of a ventilated roller type. Any door shall also be able to be opened from inside the store;
Siting and separation – Cylinder stores
<ul style="list-style-type: none"> (1) Where no minimum separation distance between a cylinder store and an on-site protected place is specified, the cylinder store shall be located ≥ 1 m from building openings. For cylinder stores with mixed divisions of gases separation distances shall be based on the aggregate of all gas cylinders within in the store with the greatest separation distance of Tables CS1-3 applying to the store; (2) Any two cylinder stores can be considered separate stores if they are separated from each other by ≥ 3 m or the same distance required between the largest store and a property boundary, whichever is greater; (3) Cylinder stores shall be separated from UN1075 (LPG) decanting cylinders or filling points by ≥ 6.5 m; (4) Cylinder stores shall be separated from property boundaries by \geqTable CS1; (5) Cylinder stores shall be separated from on-site protected places by \geqTable CS2; (6) Cylinder stores shall be separated from aboveground accumulations of combustible materials or storage and handling areas of other DG classes or combustible liquids >Minor Storage by \geqTable CS3; (7) Gas cylinders shall be segregated by ≥ 3m from any incompatible gases or substances. Division 2.2 gases are not considered to be incompatible with flammable gases, oxidising gases or toxic gases and can be used to segregate incompatible gases; (8) Gases shall be segregated from any other substance they may react dangerously with by ≥ 5 m.

Table CS1				
Aggregate capacity	UN1075 only	Class 2.1, other than UN1075	Class 2.2, sub-risk 5.1	Class 2.2, no sub-risk
1000-2000L	3m	3m	3m	1m
2000-2500L	3m	6m	5m	5m
2500-5000L	4.5m	6m	5m	5m
5000-20,000L	Not accepted development	Not accepted development	5m	5m
>20,000L	subject to requirements	subject to requirements	Not accepted development subject to requirements	5m
Table CS2				
Aggregate capacity	UN1075 only	Class 2.1, other than UN1075	Class 2.2, sub-risk 5.1	Class 2.2, no sub-risk
1000-2000L	3m	3m	3m	not specified
2000-2500L	3m	3m	3m	not specified
2500-5000L	4.5m	3m	3m	3m
5000-20,000L	Not accepted development	Not accepted development	3m	3m
>20,000L	subject to requirements	subject to requirements	Not accepted development subject to requirements	3m



Table CS3

Aggregate capacity	UN1075 only	Class 2.1, other than UN1075	Class 2.2, sub-risk 5.1	Class 2.2, no sub-risk
1000-2000L	3m	3m	3m	3m
2000-2500L	3m	5m	5m	3m
2500-5000L	3m	5m	5m	3m
5000-20,000L	Not accepted development	Not accepted development	5m	3m
>20,000L	subject to requirements	subject to requirements	Not accepted development subject to requirements	3m

Siting and separation – LPG decanting cylinders

- (1) LPG decanting cylinders shall be located outdoors on the ground in a static position only, with the outlet and safety relief valves directed away from any above ground LPG storage tank, dangerous goods storage area or fuel dispenser for flammable or combustible materials;
- (2) LPG decanting cylinders shall be segregated by ≥ 3 m from any incompatible gases or substances and any other substance they may react dangerously with by ≥ 5 m;
- (3) The centre point of any LPG decanting cylinder shall be located to achieve the following minimum separation distances:
 - (a) 6.5 m to any boundary
 - (b) 6.5 m to any on-site protected place
 - (c) 6.5 m to any aboveground LPG storage tank
 - (d) 6.5 m to any fire-risk dangerous goods or combustible materials stored above ground
 - (e) 4.5 m to any fuel dispenser for a flammable or combustible material
 - (f) 4.5 m to any non fire-risk dangerous goods stored above ground
 - (g) 4.5 m to any entrance to any drain, pit or basement
 - (h) 3.5 m to any opening into a building
 - (i) 3.5 m to any structure that limits egress past the cylinder
 - (j) 2.5 m to any fill or dip cap of any underground storage tank

Note – these separation distances are inclusive of a maximum hose length of 1.5m.

Ventilation

- (1) Cylinder stores shall be provided with a ventilation system capable of providing sufficient fresh air to dilute and remove gases and allow any flammable vapours to dissipate and reduce any risk of asphyxiation, fire or explosion. Where lighter-than-air gases are to be stored high-level ventilation shall be provided in the roof ridge or at the highest point(s) of any roof. Ceilings are not permitted in any roof;
- (2) Ventilation shall be in the form of an open wall or vents;
- (3) An open wall means a completely open external wall or wall of fixed louvers, chequered brickwork, slotted bricks, slotted roller doors or wire mesh from floor to ceiling with a minimum of 50 per cent of its area as openings;
- (4) A vent means an opening in an external wall with a minimum free surface area of $\geq 0.1 \text{ m}^2$. Where vents are used, they shall be provided at both high and low levels relative to the floor and roof and ventilate directly to outdoor areas away from building entrances, doors, windows, air conditioning intakes, sources of ignition, areas people are not likely to congregate or other areas that allow free air movement. Vents that pass through cavity walls must be lined to prevent vapours from escaping into a wall cavity;
- (5) Cylinder stores shall be provided with at least one of the following ventilation systems:
 - (a) Two opposing external sides that are open; or
 - (b) One external side that is open, provided at a minimum it is twice as long as it is wide; or
 - (c) Vents in at least one pair of opposing external sides, provided that:
 - (i) the distance between the opposing external walls does not exceed 10 m; and
 - (ii) in every 2 m length of external opposing walls, there are at least two vents evenly distributed; and
 - (iii) the total area of vents per meter length of wall.

Impact avoidance – Cylinder stores

- (1) Cylinders within a cylinder store shall be secured to restrict their movement by railings, chains or barriers;
- (2) Cylinder stores serviced by motor vehicles (including forklifts) or in vehicle manoeuvring areas (e.g. car parks or hard stands) shall be provided with impact protection in accordance with at least one of the following:
 - (a) Fully enclosed metal cage, not including the floor or roof of the store;
 - (b) Platform ≥ 900 mm above the ground level where motor vehicles can operate/manoeuvre;
 - (c) 1.2 m high x 75 mm wide core filled metal bollard buried a minimum of 500 mm deep and located either side of any point a motor vehicle can access or exit the store;
 - (d) Concrete kerb a minimum of 190 mm high located a minimum of 2 m from the cylinder store.

Impact avoidance – Decanting cylinders

- (1) Decanting cylinders located in or adjacent to vehicle manoeuvring area shall be provided with impact protection in accordance with at least one of the following:
 - (a) Core-filled metal bollards:
 - (iv) minimum of 1.2 m high x 75 mm wide; and
 - (v) buried a minimum of 500 mm deep below ground; and
 - (vi) spaced at a maximum of 1.3 m between any 2 posts or bollards required to separate a cylinder from a vehicle access area; and

- (vii) a minimum of 1.5 m away from the side of the cylinder; or
 - (b) Metal guardrail a minimum of 700 mm high with posts buried a minimum of 500 mm deep and located a minimum of 1.5 m from any cylinder; or
 - (c) A chain-wire metal fence a minimum of 1.8 m high with a minimum of 50 mm steel posts buried a minimum of 600 mm deep and located a minimum of 3 m from the cylinder; or
 - (d) A concrete or masonry kerb a minimum of 190 mm high located a minimum of 5 m from a cylinder.

Fire safety

- (1) Cylinder stores shall have >1 x hose reel and >1 x 9 kg ABE extinguisher within 10 m but not closer than 3 m;
- (2) Decanting cylinders shall have >1 x 9 kg ABE extinguisher within 10 m but not closer than 3 m. Where >2 decanting cylinders are stored <6.5 m from each other, a hose reel shall also be provided within 10 m but not closer than 3 m from each cylinder;
- (3) Any hose reel shall be capable of reaching all sides of the package store or decanting cylinder it is protecting.

Access restriction

- (1) Cylinder stores shall be kept under lock and key.

Flammable and combustible liquids in packages and IBCs**General requirements**

- (1) Package stores (areas of stored packages and IBCs) shall be located outdoors only and used for the storage of closed packages and/or IBCs only;
- (2) All separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances shall be measured from the inside edge of any bund wall or natural vent opening to any areas to be protected;
- (4) Package stores shall be constructed from non-combustible materials that are compatible with the flammable and combustible liquids to be stored. Hardwood frames are not considered combustible materials for the purposes of this Code, however, hardwood cladding is;
- (5) The lowest point of any package store containing >2,500 L of PGII or >10,000 L of PGIII shall be higher than any relevant flood height level identified in an area's flood hazard area. Alternatively, package stores are provided with impervious bund walls or racking systems higher than the relevant flood height level.

Siting and separation – package store

- (1) Package stores shall be separated from property boundaries and on-site protected places by \geq Table FL1;
- (2) Flammable and combustible liquids shall be segregated from any other substance that it may react dangerously with by \geq 5 m and stored in separate spill compounds;
- (3) Package stores shall be separated from any decanting area for flammable or combustible liquids by \geq 6 m;
- (4) Package stores shall be separated from aboveground tanks containing flammable liquids by \geq 6 m or the diameter of the tank up to a maximum of 15 m, whichever is greatest;

(5) Package stores shall be separated from aboveground tanks containing combustible liquids by \geq 3 m or the diameter of the tank up to a maximum of 7m, whichever is greatest.

Table FL1

PGII with or without PGIII, C1 or C2	PGIII with or without C1 or C2	C1 with or without C2	Minimum separation distance
1 000L	2 500L	10 000L	3m
2 000L	8 000L	20 000L	4m
4 000L	16 000L	40 000L	5m
7 000L	28 000L	70 000L	6m
10 000L	40 000L	100 000L	7m
14 000L	60 000L		8m
20 000L			9m
26 000L			10m

34 000L			11m
42 000L			12m
52 000L			13m
60 000L			14m

Note – Flammable or combustible liquids with differing flashpoints stored within the same package store, shall all be treated as an aggregate of the liquid with the lowest flashpoint.

Spill containment

- (1) Spill containment systems shall not bring together two or more hazardous chemicals that are not compatible (including common drains);
- (2) Package stores shall be provided with a spill compound (e.g. bund) that complies with all of the following:
 - (a) is impervious;
 - (b) constructed of a fire resistant material(s);
 - (c) capable of holding liquid when full;
 - (d) sloped to a low point or sump;

- (e) provided with a means of being emptied;
- (f) free from any other dangerous goods;
- (g) provided with restraints or barriers to prevent packages falling outside of the bund if packages are positioned closer than 600 mm from a bund wall;
- (h) has a minimum internal volume as per Table FL2.

Table FL2

Aggregate volume of packages/IBCs	Minimum volume of spill compound
2 000L	2 100L
4 000L	2 600L
7 000L	3 350L
8 000L	3 600L
10 000L	4 100L
14 000L	4 500L
16 000L	4 700L
20 000L	5 100L

26 000L	5 700L
28 000L	5 900L
34 000L	6 500L
40 000L	7 100L
42 000L	7 300L
52 000L	8 300L
60 000L	9 100L
70 000L	10 100L

100 000L	13 100L
----------	---------

Ventilation

- (1) Package stores shall be provided with ventilation to allow for flammable vapours to dissipate. Ventilation shall be in the form of an open wall or vent;
- (2) An open wall means any external wall that is completely open above the top of the bund wall or a wall of fixed louvers or wire mesh having a minimum of 50 per cent of its area are openings;
- (3) A vent means 2 x openings in an external wall with a minimum free surface area of 0.15 m² with one located directly above the top of a bund wall and the other above the highest package. For package stores storing combustible liquids only, the opening above the highest package is not mandatory;
- (4) Any vent that passes through a cavity wall must be lined to prevent vapours from escaping into a wall cavity. Package stores shall be provided with at least one of the following ventilation systems:
 - (a) Two or more open walls; or
 - (b) One open wall, provided it is longer than it is wide; or
 - (c) One open wall and vents in the opposite or adjacent wall at a minimum of every 3 m; or
 - (d) A minimum of two opposite walls provided with vents a minimum of every 3 m; or
 - (e) For package stores longer than 6m but no wider than 5m, vents in the longest wall minimum of every 1.4 m.

Impact avoidance

- (1) Impact damage caused by fork-lift trucks or other moving equipment against racking uprights shall be avoided by the protection of corner uprights as follows:
 - (a) An upright protector with a height of not less than 400 mm shall be positioned at the end upright of each run of racking between cross-aisles;
 - (b) An upright protector shall be positioned at all those uprights positioned at aisle and gangway intersections;
 - (c) The upright protector shall be designed for energy absorption of ≥ 400 Nm in any direction at any height between 0.1 m and 0.4 m;
 - (d) The upright protector shall be positioned in such a way that, after its deformation by absorbing an impact, the upright will not be damaged.

Note – As an alternative to use of upright protectors, the installation may be designed to survive the complete removal of a section at the bottom of an upright.

Fire safety

(1) Package stores shall be provided with a 24 hr monitored fire detection system and fire protection equipment \geq Table FL3.

Table FL3

Storage type	Fire protection
Unroofed package store containing flammable liquids only.	4 x 9 kg ABE extinguishers, 2 x 9 kg foam extinguishers and 1 x hose reel able to reach all areas of the package store with a branch pipe.
Roofed package store containing flammable liquids only.	1 x 9 kg ABE extinguisher located at each doorway(s), 1 x 9kg ABE extinguisher located internally every 15m and 1 x hose reel able to reach all areas of the package store with a branch pipe, pick up and a supply of foam concentrate*.
Unroofed package store containing combustible liquids only.	1 x 9 kg ABE extinguisher and 2 x 9kg foam extinguishers.
Roofed package store containing combustible liquids only.	1 x 9 kg ABE extinguisher located at each doorway(s) with a total no less than 2 and 1 x 9kg foam extinguisher located at each doorway(s) also with a total of no less than 2.
Unroofed package store containing flammable and combustible liquids.	4 x 9 kg ABE extinguishers, 2 x 9 kg foam extinguishers and 1 x hose reel able to reach all areas of the package store with a branch pipe.
Roofed package store containing flammable and combustible liquids.	1 x 9 kg ABE extinguisher located at each doorway(s), 1 x 9 kg ABE extinguisher located internally every 15m and 1 x hose reel able to reach all areas of the package store with a branch pipe, pick up and a supply of foam concentrate*.

* A supply of foam concentrate shall be consistent with the quantity identified in a site's emergency plan required under the *Work Health and Safety Act 2011*.

Access restriction

(1) Package stores shall be kept under lock and key.

Flammable and combustible liquids in tanks

General requirements for tanks

- (1) Aboveground tanks, vents, fill points and dispensers shall be located outdoors only;
- (2) Separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances for any tank, dispenser, pump, vent or fill point shall be measured from the outermost external surface;
- (4) Separation distances for any spill compound (bund) containing a flammable liquid tank shall be measured from the inside edge of the bund walls;
- (5) Aboveground tanks shall be made of steel only. The outer shell of any fire-rated double walled tank can be made of heat resistance materials required to achieve a 240/240/240 fire resistance level;

- (6) Underground tanks shall be double walled with the outer wall constructed of corrosion resistant materials. Separation distances for spill compounds (bund) shall be measured from the inside edge of the bund walls. Tanks shall be located ≥ 1 m from any wall to allow access for inspection and maintenance;
- (7) Spill compounds and tank supporting structures shall be constructed of fire resistant materials only;
- (8) ADG Code compliant isotainers and intermodal tanks are considered tanks for the purposes of this code. Aboveground tanks, including isotainers or intermodal tanks shall not be stacked on top of each other. Where the base of any tank containing $>2,500$ L of PGII or $>10,000$ L of PGIII is lower than a relevant flood height level identified in a local government's flood hazard area such a tank shall be anchored so it cannot float if submerged or inundated by water; and, any opening not provided with a liquid tight seal, i.e. an atmospheric vent, shall be extended above the relevant flood height level.

Siting and separation – tanks not including fire-rated tanks

- (1) Aboveground tanks shall be separated from property boundaries by \geq Table FL4;
- (2) Aboveground flammable liquid tanks shall be separated from on-site protect places by \geq Table FL4;
- (3) Aboveground combustible liquid tanks shall be separated from on-site protect places by ≥ 50 per cent of Table FL4 or 7.5 m, whichever is less;
- (4) Spill compounds containing flammable liquid tanks shall be separated from property boundaries by ≥ 50 per cent of Table FL4;
- (5) Any two aboveground flammable and/or combustible liquid tanks shall be separated from each other by \geq Table FL5;
- (6) Flammable and/or combustible liquid tanks shall be segregated from substances they may react dangerously with by ≥ 5 m and be stored in separate spill compounds;
- (7) Aboveground flammable liquid tanks shall be separated from package stores and decanting areas for flammable or combustible liquids by ≥ 6 m;
- (8) Aboveground combustible liquid tanks shall be separated from package stores containing flammable or combustible liquids by ≥ 3 m or the diameter of the tank, whichever is greater.
- (9) Underground tanks shall be separated from property boundaries by ≥ 2 m.

Siting and separation – fire-rated double walled tanks

- (1) Aboveground fire-rated self-bunded tanks shall be separated from property boundaries and on-site protected places by ≥ 50 per cent of Table FL4.

Siting and separation – tank openings, vents and fill points

- (1) Fill points for flammable liquid tanks shall be located outside in open air ≥ 4 m from property boundaries and building openings;
- (2) Fill points for combustible liquid tanks shall be located outside in open air ≥ 2 m from building openings;
- (3) Tank fill points shall also be adequately located to ensure delivery vehicles:
 - (a) can park entirely inside the property boundaries;
 - (b) are not required to enter a tank bund;
 - (c) are capable of exiting the fill point area without reversing.
- (4) Any vent discharge point of a flammable liquid tank shall be located a minimum of:
 - (d) 4 m aboveground or a minimum of 150 mm above the top of the tank or above the highest point of a refuelling vehicle, whichever is greater; and

- (e) 4 m from any opening into a building (i.e. window, mechanical vent intake etc) for flammable liquids; 1.5 m from a property boundary for underground tanks and self-bunded tanks; or
- (f) 3m from a property boundary for an aboveground tank.
- (5) Any vent discharge point for a combustible tank shall be located a minimum of:
 - (g) 4m above ground or a minimum of 150 mm above the top of the tank or above the highest point of a refuelling vehicle, whichever is greater; and
 - (h) 2 m from any opening into a building.

Siting and separation – Dispensers

- (1) Flammable liquid dispensers shall be separated from property boundaries by ≥ 4 m;
- (2) Flammable liquid dispensers shall be separated from aboveground non fire-rated tanks by ≥ 8 m.

Table FL4

PGII	PGIII	C1	Minimum separation distance
1 000L	2 500	10 000	3m
2 000L	8 000	20 000	4m
4 000L	16 000	40 000	5m
7 000L	28 000	70 000	6m
10 000L	40 000	100 000	7m
14 000L	60 000	140 000	8m
20 000L		200 000	9m
26 000L		260 000	10m
34 000L		340 000	11m
42 000L		420 000	12m

52 000 L		500 000	13m
60 000L			14m

Table FL5

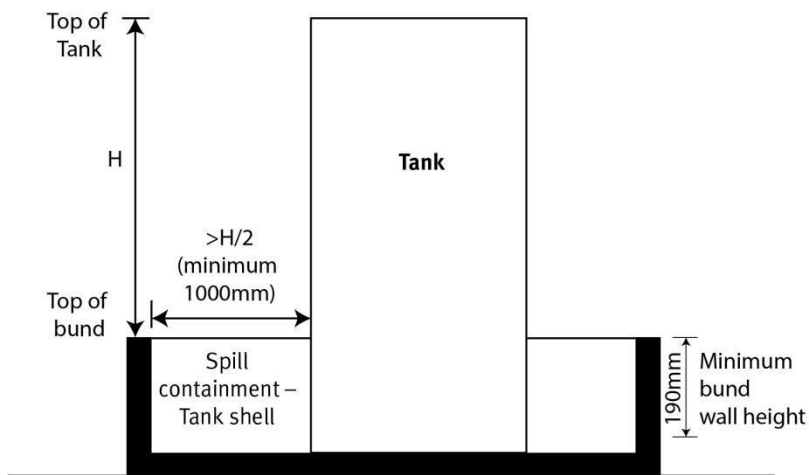
Liquid type	Vertical type	Horizontal tanks	Vertical and horizontal
Flammable liquid tanks only $\geq 60,000$ L	≥ 1 m or $1/3$ of the larger tank's diameter, whichever is greater.	≥ 600 mm and side to side, (not end-to-end).	≥ 1 m or $1/3$ of the larger tank's diameter, whichever is greater, and horizontal tank ends shall not face vertical tanks.
Combustible liquid tanks only $< 60,000$ L	≥ 1 m	≥ 600 mm and side to side, (not end-to-end)	All tanks shall be separated from each other by 1 m and horizontal tanks cannot face vertical tanks
A mix of flammable and combustible tanks $< 60,000$ L	≥ 1 m or $1/3$ of the diameter of the largest flammable liquid tank, whichever is greater.	≥ 600 mm side to side, (not end-to-end).	≥ 1 m or $1/3$ of the diameter of the largest flammable liquid tank, whichever is greater, and horizontal tank ends cannot face vertical tanks.
A mix of flammable and combustible tanks $> 60,000$ L	Not accepted development subject to requirements	Not accepted development subject to requirements	Not accepted development subject to requirements

Spill containment – Aboveground tanks, not including double walled self-bunded tanks

- (1) Spill containment systems shall not bring together two or more hazardous chemicals that are not compatible (including common drains);
- (2) Aboveground tanks, other than self-bunded aboveground tanks, shall be located inside a spill compound (e.g. bund) that complies with all of the following:
 - (a) is impervious;
 - (b) free from pipe work penetrating through any wall of the bund;
 - (c) constructed of fire resistant material(s);
 - (d) able to hold liquid when full;
 - (e) sloped to a low point or sump;
 - (f) provided with a means of being emptied;
 - (g) the distance between a bund wall and the nearest tank is a minimum of half the distance between the top of the tank and the top of the bund wall or 1 m whichever is greater; (see figure T1.1 for guidance);

(h) has an internal volume ≥ 110 per cent of the largest tank within the compound. (Includes 10 per cent for fire water);

Figure T1.1 An illustration of minimum bund wall height relative to tank height



Impact avoidance – above ground tanks

- (1) Aboveground tanks, not including fire-rated self-bunded tanks or those with a bund wall >190mm high shall be provided with impact protection in accordance with at least one of the following:
- (a) core-filled metal bollards:
 - (i) minimum of 1.2 m high x 75 mm wide; and
 - (ii) buried a minimum of 500 mm deep below ground; and
 - (iii) spaced at a maximum of 1.3 m between any 2 posts or bollards required to separate a tank from a vehicle access area; and
 - (iv) a minimum of 1.5 m away from the side of the tank; or
 - (b) metal guardrail a minimum of 700 mm high with posts buried a minimum of 500 mm deep and located a minimum of 1.5 m from the tank; or
 - (c) a chain-wire metal fence a minimum of 1.8 m high with a minimum of 50 mm steel posts buried a minimum of 600 mm deep and located a minimum of 3 m from the tank; or
 - (d) a concrete or masonry kerb a minimum of 190 mm high located a minimum of 5 m from the tank.

Impact avoidance – underground tanks

- (1) Underground tanks shall be buried a minimum of 300 mm belowground and provided with a reinforced concrete slab a minimum of 150 mm thick covering the tank storage area.

Impact avoidance – fill points

- (1) Fill points shall be positioned below ground and provided with a metal cover or located inside an above ground tank bund or provided with impact protection as required for above ground tanks.

Impact avoidance – vent pipes

- (1) Vent pipes shall be located inside an above ground tank bund or provided with impact protection as required for above ground tanks.

Impact avoidance – vehicle dispensers

- (1) Dispensers for road vehicles shall be provided with metal bollards in accordance with all of the following:
- (a) core-filled with concrete;
 - (b) minimum of 1.2 m high x 75 mm wide; buried a minimum of 500 mm deep;
 - (c) located at all 4 corners of a dispenser at a distance as wide as or wider than the dispenser;
 - (d) located a minimum of 500 mm from any side of a dispenser.

Note – Multiple dispensers in a row \leq 2 m apart may be grouped together and considered as one individual dispenser.

Fire safety – storage tanks

- (1) Tanks shall be provided with fire protection equipment in accordance with Table T3 and all firefighting equipment shall be located outside of spill compounds and within 10 m.

Fire safety – dispensers

(1) Dispenser shall have access to ≥ 2 x 9 kg ABE extinguishers within 10 m and one no closer than 3 m.

Fire safety – Tank fill points

(1) Fill points shall have access to ≥ 2 x 9 kg ABE extinguishers with one extinguisher >3 m from the fill point.

Fire safety – transfer pumps

(1) Transfer pumps shall have access to ≥ 1 x 9 kg ABE extinguisher within 10 m but not closer than 3 m.

Table T3

Storage type	Storage capacity	Fire protection
Aboveground flammable liquid tanks	<30 000L	1 x 9 kg ABE extinguisher and 1 x 9 kg foam extinguisher.
	30 000 – 60 000L	1 x 9 kg ABE extinguisher and 1 x hose reel able to reach all sides of the storage tank(s) with a branch pipe, pick up and a supply of foam concentrate*.
Aboveground combustible liquid tanks	<60 000L	1 x 9kg ABE extinguisher in a single tank; or 2 x 9kg ABE extinguishers if multiple tanks
	60 000 – 500 000 L	1 x 9 kg ABE extinguisher and 1 x hose reel able to reach all sides of the storage tank(s) with a branch pipe, pick up and a supply of foam concentrate*.
Aboveground flammable and combustible liquid tanks stored within a common spill compound	<30 000L	1 x 9 kg ABE extinguisher and 1 x 9 kg foam extinguisher.
	30 000 – 60 000L	1 x 9 kg ABE extinguisher and 1 x hose reel able to reach all sides of the storage tank(s) with a branch pipe, pick up and a supply of foam concentrate*.
Underground flammable or combustible liquid tanks	Any	Nil

* A supply of foam concentrate shall be consistent with the quantity identified in a site's emergency plan required under the *Work Health and Safety Act 2011*.

Access restriction

- (1) Above ground tanks shall be kept under lock and key.

Oxidising substances in packages and IBCs

General requirements

- (1) Package stores (areas of stored packages and IBCs) shall be located outdoors only and used for the store closed packages and/or IBCs only;
- (2) Separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances shall be measured from the inside edge of any bund wall or natural vent opening to any areas to be protected;

- (4) Package stores shall be constructed from non-combustible materials that are compatible with the oxidising substances to be stored. Hardwood frames are not considered combustible materials for the purposes of this Code, however, hardwood cladding is;
- (5) Package stores with a spill compound >250 m² shall have a minimum of 2 egress points;
- (6) The lowest point of any package store containing >2,500 L of PGII or >10,000 L of PGIII shall be higher than any relevant flood height level identified in an area's flood hazard area. Alternatively, package stores are provided with impervious bund walls or racking systems higher than the relevant flood height level.

Siting and separation

- (1) Package stores shall be separated from property boundaries and on-site protected places by \geq Table OS1;
- (2) Oxidising substances shall be segregated from any other substance that it may react dangerously with by a minimum of 5 m and stored in separate spill compounds.

Table OS1

Maximum aggregate quantity of store	PGII with or without PGIII	PGIII only
2 500 – 10 000L or kg	5m	3m
10 000 – 20 000L or kg	8m	5m
20 000 – 50 000L or kg	Not accepted development subject to requirements	5m
50 000 – 250 000L or kg		8m

Storage in stacks

- (1) Oxidising substances stacked ≥ 2 high and not in a pallet racking system, shall comply with the following:
- (a) not exceed 3 m in height;
 - (b) separated a minimum of 1.2 m from any perimeter wall of a package store;
 - (c) multiple stacks within the same package store are separated from each other by ≥ 3 m; IV. each stack shall not exceed table OS2:

Table OS2

Stack size	PGII with or withoutPGIII	PGIII only
Involving combustiblepallets	20 000 kg	20 000 kg

No combustible pallets	20 000 kg	50 000kg
------------------------	-----------	----------

Spill containment

- (1) Spill containment systems shall not bring together two or more hazardous chemicals that are not compatible (including common drains);
- (2) Package stores, containing liquids shall be provided with a spill compound that achieves the following:
 - (a) is impervious;
 - (b) constructed or lined with material(s) compatible with the oxidising substance(s) kept;
 - (c) capable of holding liquid when full;
 - (d) sloped to a low point or sump;
 - (e) provided with a means of being emptied;
 - (f) internal volume ≥ 35 per cent of aggregate storage volume (includes provision for fire water);
 - (g) Where liquid IBCs are stored, the distance between a bund wall and the nearest IBC shall be ≥ 50 per cent;
 - (h) the distance between the top of the highest IBC tank and the top of the closest bund wall; *(See figure OS1.1 in section 4.5 for guidance. Impervious shields can be used to extend bund walls);*
 - (i) provided with restraints or barriers to prevent packages falling outside of the bund if packages are positioned ≤ 1 m from a bund wall.

Ventilation

- (1) Package stores shall be provided with ventilation to allow for any vapours to dissipate. Ventilation shall be in the form of an open wall or vent;
- (2) An open wall means any external wall that is completely open above the top of the bund wall or a wall of fixed louvers or wire mesh having a minimum of 50 per cent of its area are openings;
- (3) A vent means 2 x openings in an external wall that are completely open each with a minimum surface area of 0.1 m² with one located directly above the top of a bund wall and the other above the highest package;
- (4) Any vent that passes through a cavity wall must be lined to prevent vapours from escaping into a wall cavity. Package stores shall be provided with at least one of the following ventilation systems:
 - (a) Two or more open walls; or
 - (b) One open wall, provided it is longer than it is wide; or
 - (c) One open wall and vents in the opposite or adjacent wall at a minimum of every 3 m; or
 - (d) Two opposite walls provided with vents a minimum of every 3 m; or
 - (e) For package stores >6 m long and <5 m wide, vents in the longest wall \geq every 1.4 m.

Impact avoidance

- (1) Impact damage caused by fork-lift trucks or other moving equipment against racking uprights shall be avoided by the protection of corner uprights as follows:
 - (a) An upright protector with a height of not less than 400 mm shall be positioned at the end upright of each run of racking between cross-aisles;
 - (b) An upright protector shall be positioned at all uprights positioned at aisle and gangway intersections;
 - (c) The upright protector shall be designed for energy absorption of ≥ 400 Nm in any direction at any height between 0.1 m and 0.4 m;

(d) The upright protector shall be positioned in such a way that, after its deformation by absorbing an impact, the upright will not be damaged.

Note – As an alternative to the use of upright protectors, the installation may be designed to survive the complete removal of a section at the bottom of an upright.

Fire safety

- (1) Package stores shall be provided with a 24 hr monitored fire detection system and ≥ 1 x 9 kg ABE fire extinguisher, within 10 m but no closer than 3 m and ≥ 1 x hose reel capable of reaching all areas of the store.

Security

- (1) Package stores shall be kept under lock and key.

Oxidising substances in tanks

General requirements

- (1) Aboveground tanks, vents, fill points and dispensers shall be located outdoors only. Underground tanks are not permitted;
- (2) Separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances shall be measured from the outermost external surface of a tank, fill point or dispenser. Separation distances for spill compounds (bund) shall be measured from the inside edge of the bund walls;
- (4) Tanks shall be located ≥ 1 m from any wall to allow access for inspection and maintenance;
- (5) Spill compounds and tank supporting structures shall be constructed of fire resistant materials only;
- (6) ADG Code compliant isotainers and intermodal tanks are considered tanks for the purposes of this code. Aboveground tanks shall not be stacked on top of each other;
- (7) Hydrogen Peroxide tanks $\geq 5,000$ L shall be fitted with an externally visible temperature measuring device;
- (8) Where the base of any tank containing $>2,500$ L of PGII or $>10,000$ L of PGIII is lower than a relevant flood height level identified in a local government's flood hazard area such a tank shall be anchored so it cannot float if submerged or inundated by water; and, any opening not provided with a liquid tight seal, i.e. an atmospheric vent, shall be extended above the relevant flood height level.

Siting and separation

- (1) Tanks shall be separated from property boundaries and on-site protected places by \geq Table OS3;
- (2) Tank bunds shall be separated from property boundaries and on-site protected place ≥ 3 m;
- (3) Tanks containing oxidising substances that are compatible with each other shall be separated by ≥ 1 m;
- (4) Oxidising substances shall be separated from any other substance that it may react dangerously with, including any another oxidising substance, by a minimum of 5 m and stored in separate spill compounds;
- (5) Tank fill points shall also be adequately located to ensure delivery vehicles:
 - (a) can park entirely inside the property boundaries;

- (b) are not required to enter a tank bund;
- (c) are capable of exiting the fill point area without reversing.

(6) Fill or dispensing points shall be located ≥ 3 m from property boundaries or on-site protected places. Separation distances may be measured around an intervening screen wall provided it is ≥ 1 m above the transfer point, impervious to liquid and vapour, immune to attack by the oxidising substance(s) kept and acts as a shield or deflection barrier.

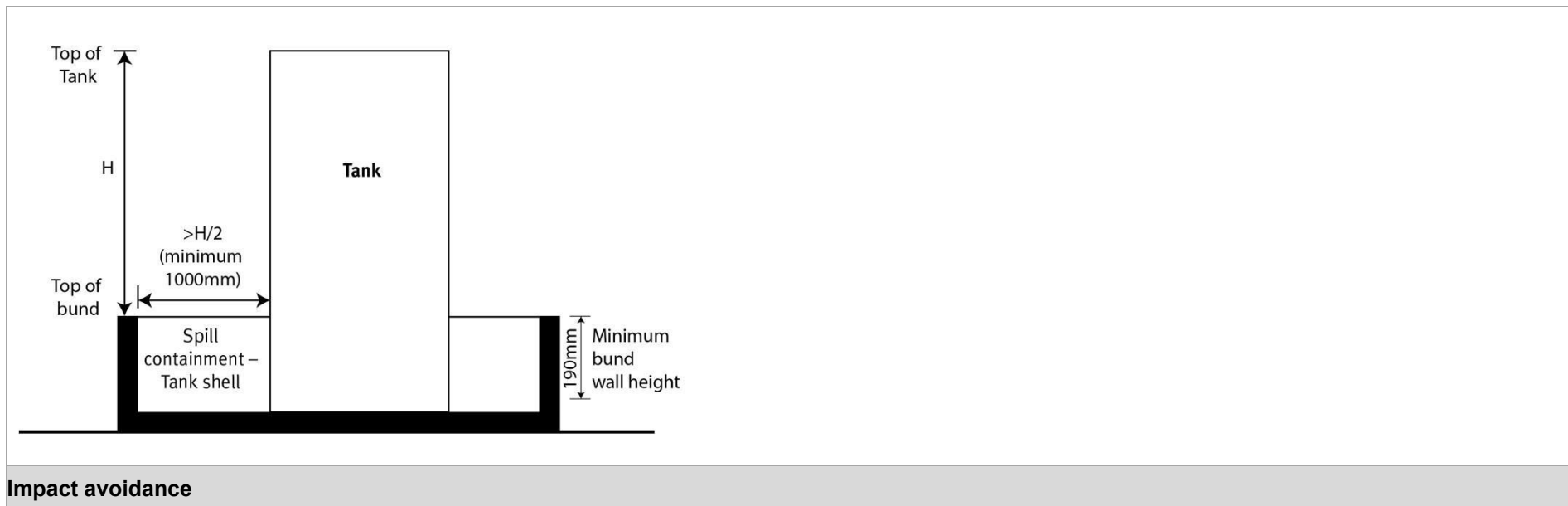
Table OS3

Tank size	PGII	PGIII
2 500 – 10 000L	8m	5m
10 000 – 20 000L	8m	5m
20 000 – 50 000L	Not accepted development subject to requirements	5m
50 000 – 250 000L		8m

Spill containment – tank shell

- (1) No two spill compounds containing incompatible substances or substances that may react dangerously with each other shall be connected to a common drain;
- (2) Tanks containing liquids shall be located inside a spill compound that achieves the following;
 - (a) is impervious;
 - (b) compatible with the oxidising substance(s) kept and fire-resistant;
 - (c) capable of holding liquid when full;
 - (d) sloped to a low point or sump;
 - (e) provided with a means of being emptied;
 - (f) free from pipe work penetrating through any bund walls;
 - (g) the distance between a bund wall and the nearest tank shall be ≥ 50 per cent the distance between the top of the tank and the top of the bund wall or 1m whichever is greater; (See figure OS1.1 for guidance. Impervious shields may be used to extend bund wall heights);
 - (h) has an internal volume ≥ 110 per cent of the largest tank stored within the compound.

Figure OS1.1 An illustration of minimum bund wall height relative to tank height



- (1) Tanks, other than those provided with masonry bunds >190mm high or self bunded fire-rated tanks shall be provided with impact protection in accordance with at least one of the following:
- (a) core-filled metal bollards:
 - (i) minimum of 1.2 m high x 75 mm wide; and
 - (ii) buried a minimum of 500 mm deep below ground; and
 - (iii) spaced at <1.3 m between any 2 posts or bollards required to separate a tank from a vehicle access area
 - (iv) a minimum of 1.5 m away from the side of the tank.
 - (a) metal guardrail a minimum of 700 mm high with posts buried a minimum of 500 mm deep and located a minimum of 1.5 m from the tank; or
 - (b) a chain-wire metal fence a minimum of 1.8 m high with a minimum of 50 mm steel posts buried a minimum of 600 mm deep and located a minimum of 3 m from the tank; or
 - (c) a concrete or masonry kerb a minimum of 190 mm high and a minimum of 5 m from the tank.

Fire Safety

- (1) Tanks shall be provided with ≥ 1 x 9 kg dry chemical fire extinguisher, within 10 m but no closer than 3 m and ≥ 1 x hose reel capable of reaching all sides of the tank(s).

Security

- (1) Tanks shall be kept under lock and key.

Toxic substances in packages and IBC's

General requirements

- (1) Package stores (areas of stored packages and IBCs) shall be free standing and used for the storage of closed packages and/or IBCs only;
- (2) Package stores within buildings shall be located on a floor with immediate access outside the building;
- (3) All separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (4) Separation distances shall be measured from the inside edge of any bund wall or natural vent opening to any areas to be protected;
- (5) Package stores shall be constructed from materials compatible with the toxic substances to be stored. Package stores with a spill compound >25 m² shall have a minimum of 2 access points;
- (6) Toxic substances with a flammable liquid subsidiary risk or vice versa shall not be stored with toxic substances that do not have a flammability (class 3) risk.
- (7) Decanting, blending or filling packages is not permitted in package stores containing toxic substances. The lowest point of any package store containing >2,500 L of PGII or >10,000 L of PGIII shall be higher than any relevant flood height level identified in an area's flood hazard area;
- (8) Alternatively, package stores are provided with impervious bund walls or racking systems higher than the relevant flood height level

Siting and separation

- (1) Separation distances between a package store and a property boundary shall be \geq Table TS1;
- (2) Separation distances between a package store and an on-site protected place shall be >50 per cent Table TS1;
- (3) Toxic substances shall be separated from any other substance that it may react dangerously with by a minimum of 5 m and stored in separate spill compounds.

Table TS1

Package store volume (L/kg)	PGII with or without PGIII	PGIII only
2 500 – 10 000	5m	3m
10 000 – 20 000	6m	4m
20 000 – 50 000	8m	5m
50 000 – 100 000	10m	8m
100 000 – 200 000	15m	10m
200 000 – 500 000	17.5m	15m

Spill containment

- (1) Spill containment systems shall not bring together two or more hazardous chemicals that are not compatible (including common drains);
- (2) Package stores, including those storing solids only, shall be provided with a bund that complies with all of the following:
 - (a) is impervious;
 - (b) constructed or lined with a material compatible with the toxic substance(s) kept; and capable of holding liquid when full;
 - (c) sloped to a low point or sump;
 - (d) provided with a means of being emptied;
 - (e) free from any other dangerous goods, incompatible materials or materials that may react violently with the toxic substances;
 - (f) has a minimum internal volume ≥ 25 per cent of the aggregate storage capacity;
 - (g) Where liquid IBCs are stored, the distance between a bund wall and the nearest IBC shall be ≥ 50 per cent the distance between the top of the highest IBC tank and the top of the closest bund wall. *(See figure TS1.1 in section 4.7 for guidance. Impervious shields may be used to extend bund walls);*
 - (h) provided with restraints or barriers to prevent packages falling outside of the bund if packages are positioned < 1 m from a bund wall.

Ventilation

- (1) Package stores shall be provided with ventilation to allow for corrosive vapours to dissipate. Ventilation shall be in the form of an open wall or vent;
- (2) An open wall means any external wall that is completely open above the top of the bund wall or a wall of fixed louvers or wire mesh having a minimum of 50 per cent of its area are openings;
- (3) A vent means 2 x openings in an external wall with a minimum free surface area of 0.1 m² with one located directly above the top of a bund wall and the other above the highest package;
- (4) Any vent that passes through a cavity wall must be lined to prevent vapours from escaping into a wall cavity. Package stores shall be provided with at least one of the following ventilation systems:
 - (a) Two or more open walls; or
 - (b) One open wall, provided it is longer than it is wide; or
 - (c) One open wall and vents in the opposite or an adjacent wall at a minimum of every 3 m; or
 - (d) Two opposite walls <10 m apart provided with vents a minimum of every 3 m; or
 - (e) For package stores ≥ 6 m long and ≤ 5 m wide, vents in the longest wall \leq every 1.4 m.

Impact avoidance

- (1) Impact damage caused by fork-lift trucks or other moving equipment against racking uprights shall be avoided by the protection of corner uprights as follows:
 - a. An upright protector with a height of not less than 400 mm shall be positioned at the end upright of each run of racking between cross-aisles;

- b. Upright protectors shall be positioned at uprights positioned at aisle and gangway intersections;
- c. The upright protector shall be designed for energy absorption of ≥ 400 Nm in any direction at any height between 0.1 m and 0.4 m;
- d. The upright protector shall be positioned in such a way that, after its deformation by absorbing an impact, the upright will not be damaged.

Note – As an alternative to the use of upright protectors, the installation may be designed to survive the complete removal of a section at the bottom of an upright.

Fire safety

- (1) Package stores shall be provided with a 24 hr monitored fire detection system and ≥ 1 x 9 kg ABE fire extinguisher, within 10m but no closer than 3 m.

Security

- (1) A package store shall be kept under lock-and-key.

Toxic substances in tanks

General requirements

- (1) Underground tanks are not permitted;
- (2) Separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances shall be measured from the outermost external surface of a tank, fill point or dispenser. Separation distances for spill compounds (bund) shall be measured from the inside edge of the bund walls;
- (4) Tanks shall be located ≥ 1 m from any wall to allow access for inspection and maintenance;
- (5) Spill compounds and tank supporting structures shall be constructed of fire resistant materials only;
- (6) ADG code compliant isotainers and intermodal tanks are considered tanks for the purposes of this code. Tanks shall not be stacked on top of each other;
- (7) Where the base of any tank containing $>2,500$ L of PGII or $>10,000$ L of PGIII is lower than a relevant flood height level identified in a local government's flood hazard area such a tank shall be anchored so it cannot float if submerged or inundated by water; and, any opening not provided with a liquid tight seal, i.e. an atmospheric vent, shall be extended above the relevant flood height level;

Siting and separation

- (1) Separation distances between tanks and property boundaries shall be \geq Table TS2;
- (2) Separation distances between tanks and on-site protected places shall be ≥ 50 per cent Table TS2;
- (3) Any two tanks containing toxic substances compatible with each other shall be separated by ≥ 1 m;
- (4) Toxic substances shall be separated from any other substance that it may react dangerously with by a minimum of 5 m and stored in separate spill compounds;
- (5) Tank fill points shall also be adequately located to ensure filling vehicles:
 - (a) can park entirely inside the property boundaries;

- (b) are not required to enter a tank bund;
- (c) are capable of exiting the fill point area without reversing.

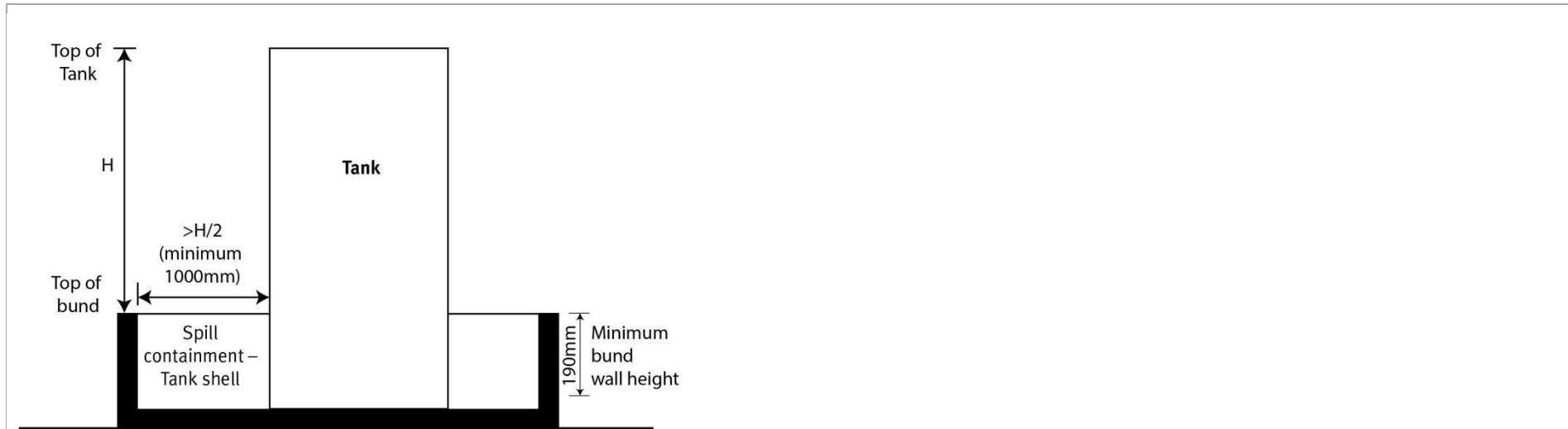
Table TS2

Volume of tank (L/kg)	PGII		PGIII	
	Inhalation hazard	No inhalation hazard	Inhalation hazard	No inhalation hazard
2 500 – 10 000	10m	5m	6m	3m
10 000 – 20 000	12m	6m	8m	4m
20 000 – 50 000	16m	8m	10m	5m
50 000 – 100 000	20m	10m	16m	8m
100 000 – 200 000	30m	15m	20m	10m
200 000 – 500 000	35m	17.5m	30m	15m

Spill containment – tanks

- (1) No two spill compounds containing incompatible substances or substances that may react dangerously with each other shall be connected to a common drain;
- (2) Tanks shall be within an impervious spill compound/bund that achieves the following:
 - (a) is constructed of material(s) compatible with the toxic substance(s) kept;
 - (b) capable of holding liquid when full;
 - (c) sloped to a low point or sump;
 - (d) provided with a means of being emptied;
 - (e) free from any other dangerous goods, incompatible materials or materials that will react violently with the toxic substance(s) kept;
 - (f) free from pipe work penetrating through any bund walls;
 - (g) the distance between a bund wall and the nearest tank shall be a ≥ 50 per cent the distance between the top of the tank and the top of the bund wall or 1m whichever is greater (see figure TS1.1 for guidance. Impervious shields can be used to extend bund wall heights);
 - (h) has an internal volume ≥ 110 per cent of the largest tank within the compound. (includes 500 L of fire water).

Figure TS1.1 An illustration of minimum bund wall height relative to tank height.



Impact avoidance

- (1) Tanks, other than those provided with masonry bunds >190 mm high, self bunded fire-rated tanks or tanks located inside a building not accessible by motor vehicles shall be provided with impact protection in accordance with at least one of the following:
- (a) core-filled metal bollards:
 - (i) minimum of 1.2 m high x 75 mm wide; and
 - (ii) buried a minimum of 500 mm deep below ground; and
 - (iii) spaced at a maximum of 1.3 m between any 2 posts or bollards required to separate a tank from a vehicle access area; and
 - (iv) a minimum of 1.5 m away from the side of the tank; or
 - (b) metal guardrail a minimum of 700 mm high with posts buried a minimum of 500 mm deep and located a minimum of 1.5 m from the tank; or
 - (c) a chain-wire metal fence a minimum of 1.8 m high with a minimum of 50 mm steel posts buried a minimum of 600 mm deep and located a minimum of 3 m from the tank; or
 - (d) a concrete or masonry kerb a minimum of 190 mm high and a minimum of 5 m from the tank.

Fire safety

- (1) Tank shall have access to ≥ 1 x 9 kg ABE fire extinguisher, within 10 m but no closer than 3 m.

Security

- (1) Aboveground tanks shall be kept under lock and key.

Corrosive substances in packages and IBCs

General requirements

- (1) Package stores (areas of stored, closed packages and IBCs) shall be free standing and used for the storage of closed packages and/or IBCs only;
- (2) Package stores within a building shall be located on a floor that has immediate access from outside the building;
- (3) All separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (4) Separation distances shall be measured from the inside edge of any bund wall or natural vent opening to any areas to be protected;
- (5) Package stores shall be constructed from materials compatible with the corrosive substances to be stored. Package stores with a spill compound >25 m² shall have a minimum of 2 access points;
- (6) The lowest point of any package store containing >2,500 L of PGII or >10,000 L of PGIII shall be higher than any relevant flood height level identified in an area's flood hazard area. Alternatively, package stores are provided with impervious bund walls or racking systems higher than the relevant flood height level.

Siting and separation

- (1) Package store shall be separated from property boundaries and on-site protected places by \geq Table CPS1;
- (2) Corrosive substances shall be separated from any other substance that it may react dangerously with by a minimum of 5 m and stored in separate spill compounds.

Table CPS1

PGII with or without PGIII		PGIII only
Open containers	Closed containers	Open or closed containers
5m	3m	3m

Spill containment

- (1) Spill containment systems shall not bring together two or more hazardous chemicals (including any two incompatible substances of the same class) that are not compatible (including common drains);
- (2) Package stores including those storing solids only shall be provided with a bund that complies with all of the following:
 - (a) is impervious;
 - (b) constructed or lined with a material that is compatible with the corrosive substance(s) to be stored;
 - (c) capable of holding liquid when full;
 - (d) sloped to a low point or sump;
 - (e) provided with a means of being emptied;
 - (f) has an internal volume \geq 35 per cent of the aggregate storage capacity but need not exceed 5,500 L;

- (g) Where liquid IBCs are stored, the distance between a bund wall and the nearest IBC shall be \geq 50 per cent the distance between the top of the highest IBC tank and the top of the closest bund wall. (See figure CS1.1 in section 4.9 for guidance. Impervious shields may be used to extend bund wall heights);
- (h) is provided with restraints or barriers to prevent packages falling outside of the bund if packages are positioned closer than 1m from a bund wall.

Ventilation

- (1) Package stores shall be provided with ventilation to allow for corrosive vapours to dissipate. Ventilation shall be in the form of an open wall or vent;
- (2) An open wall means any external wall that is completely open above the top of the bund wall or a wall of fixed louvers or wire mesh having a minimum of 50 per cent of its area are openings;
- (3) A vent means 2 x openings in an external wall with a minimum free surface area of 0.1 m² with one located directly above the top of a bund wall and the other above the highest package;
- (4) Any vent that passes through a cavity wall must be lined to prevent vapours from escaping into a wall cavity. Package stores shall be provided with at least one of the following ventilation systems:
 - (a) two or more open walls; or
 - (b) one open wall, provided it is longer than it is wide; or
 - (c) one open wall and vents in the opposite or adjacent wall at a minimum of every 3 m; or
 - (d) two opposite walls provided with vents a minimum of every 3m; or
 - (e) for package stores >6 m long and <5 m wide, vents in the longest wall ≤every 1.4 m.

Impact avoidance

- (1) Impact damage caused by fork-lift trucks or other moving equipment against racking uprights shall be avoided by the protection of corner uprights as follows:
 - (a) An upright protector with a height of not less than 400 mm shall be positioned at the end upright of each run of racking between cross-aisles;
 - (b) An upright protector shall be positioned at all those uprights positioned at aisle and gangway intersections;
 - (c) The upright protector shall be designed for energy absorption of ≥ 400 Nm in any direction at any height between 0.1 m and 0.4 m;
 - (d) The upright protector shall be positioned in such a way that, after its deformation by absorbing an impact, the upright will not be damaged.

Note – As an alternative to the use of upright protectors, the installation may be designed to survive the complete removal of a section at the bottom of an upright.

Fire safety

- (1) Package stores shall be provided with a 24 hr monitored fire detection system and $\geq 1 \times 9$ kg ABE fire extinguisher, within 10m but no closer than 3 m.

Security

- (1) A package store shall be kept under lock-and-key.

Corrosive substances in tanks**General requirements**

- (1) Underground tanks are not permitted;
- (2) Separation distances shall be achieved by open air only and measurement across a property boundary is not permitted for accepted development subject to requirements;
- (3) Separation distances shall be measured from the outermost external surface of a tank, fill point or dispenser. Separation distances for spill compounds (bund) shall be measured from the inside edge of the bund walls. Tanks shall be located ≥ 1 m from any wall to allow access for inspection and maintenance;
- (4) Spill compounds and tank supporting structures shall be constructed of fire resistant materials only;
- (5) ADG Code compliant isotainers and intermodal tanks are considered tanks for the purposes of this code. Aboveground tanks shall not be stacked on top of each other;
- (6) Where the base of any tank containing $>10,000$ L of PGIII is lower than a relevant flood height level identified in a local government's flood hazard area such a tank shall be anchored so it cannot float if submerged or inundated by water; and, any opening not provided with a liquid tight seal, i.e. an atmospheric vent, shall be extended above the relevant flood height level.

Siting and separation

- (1) Tanks, not including fire-rated double walled tanks, shall be separated from property boundaries and on-site protected places by \geq Table CS2;
- (2) Fire-rated self bunded tanks shall be separated from property boundaries and on-site protected places by ≥ 50 per cent Table CS2;
- (3) Tank bunds shall be separated from property boundaries and on-site protected places by ≥ 3 m;
- (4) Any two tanks containing corrosive substances compatible with each other shall be separated by ≥ 600 mm;
- (5) Corrosive substances shall be segregated from any other substance that it may react dangerously with, including another corrosive substance, by a minimum of 5 m and stored in separate spill compounds;
- (6) Any fill or dispensing point for a corrosive tank containing PGII shall be located ≥ 5 m from property boundaries and on-site protected places;
- (7) Fill and dispensing points for corrosive tanks containing PGIII shall be located >3 m from property boundaries and on-site protected places;
- (8) Tank fill points shall be adequately located to ensure delivery vehicles:
 - (a) can park entirely inside the property boundaries;
 - (b) are not required to enter a tank bund;
 - (c) are capable of exiting the fill point area without reversing.
- (9) Separation distances from fill or dispensing points may be measured around an intervening screen wall if it is a minimum of 1m higher than the fill or dispensing points, impervious to liquid and vapour, immune to attack by the corrosive substances kept and acts as a shield/deflection barrier.

Table CS2

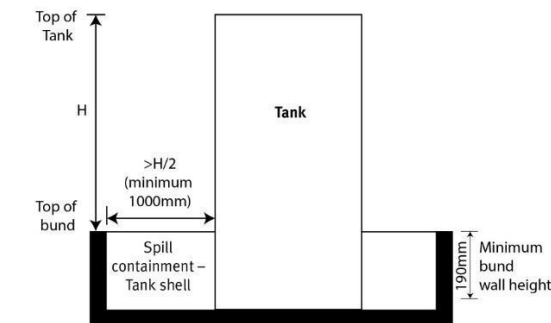
Tank size	PGII or PGIII	
	Solid	Liquid

2 500 – 3000L	3m	3m
3 000 – 50 000L	3m	5m
>50 000L	5m	8m

Spill containment – tank shell

- (1) No two spill compounds containing incompatible substances or substances that may react dangerously with each other shall be connected to a common drain;
- (2) Tanks other than self-bunded fire-rated tanks, shall be located inside a secondary spill compound/bund that complies with all of the following:
 - (a) is impervious;
 - (b) constructed or lined with a material compatible with the corrosive substance(s) kept;
 - (c) capable of holding liquid when full;
 - (d) sloped to a low point or sump;
 - (e) provided with a means of being emptied;
 - (f) free from pipe work penetrating through any bund walls;
 - (g) the distance between a bund wall and the nearest tank shall be \geq the distance between the top of the tank and the top of the bund wall or 1m, whichever is greater. (See figure CS1.1 for guidance. Impervious shields may be used to extend bund wall heights);
 - (h) has an internal volume equal to or greater than 110 per cent of the largest tank within the compound.

Figure CS1.1 An illustration of minimum bund wall height relative to tank height.



Impact avoidance

- (1) Tanks, other than those provided with masonry bunds >190 mm high or self bunded fire-rated tanks shall be provided with impact protection in accordance with at least one of the following;
- (a) core-filled metal bollards:
 - (i) minimum of 1.2 m high x 75 mm wide; and
 - (ii) buried a minimum of 500 mm deep below ground; and
 - (iii) spaced at a maximum of 1.3 m between any two posts or bollards required to separate a tank from a vehicle access area; and
 - (iv) a minimum of 1.5 m away from the side of the tank; or
 - (b) metal guardrail a minimum of 700 mm high with posts buried a minimum of 500 mm deep and located a minimum of 1.5 m from the tank; or
 - (c) a chain-wire metal fence a minimum of 1.8m high with a minimum of 50 mm steel posts buried a minimum of 600 mm deep and located a minimum of 3 m from the tank; or
 - (d) a concrete or masonry kerb a minimum of 190 mm high and a minimum of 5 m from the tank.

Security

- (1) Aboveground tanks shall be kept under lock and key.

Environmentally hazardous substances in package stores or tanks

General requirements

- (1) The lowest point of any package store containing >2,500 L of PGII or >10,000 L of PGIII environmentally hazardous substances shall be higher than any relevant flood height level identified in an area's flood hazard area. Alternatively, package stores are provided with impervious bund walls or racking systems higher than the relevant flood height level;
- (2) Where the base of any tank containing >2,500 L of PGII or >10,000 L of PGIII environmentally hazardous substances is lower than a relevant flood height level identified in a local government's flood hazard area, such a tank shall be anchored so it cannot float if submerged or inundated by water; and, any opening not provided with a liquid tight seal, i.e. an atmospheric vent, shall be extended above the relevant flood height level.

9 LANDSCAPING CODE

9.3.6.1 Application

- (1) This code applies to development identified as requiring assessment against the Landscaping code by the Tables of Assessment in Part 5.
- (2) When using this code, reference should be made to Part 5.

9.3.6.2 Purpose

- (1) The purpose of the Landscaping code is to ensure that landscaping is provided to enhance the tropical amenity and character of the region.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) the landscape character of the region is retained, promoted and enhanced through high quality landscape works;
 - (b) the natural environment of the region is enhanced;
 - (c) the visual quality, amenity and identity of the region is enhanced;
 - (d) attractive streetscapes and public places are created through landscape design;
 - (e) as far as practical, existing vegetation on site is retained, and protected during works and integrated with the built environment;
 - (f) landscaping is provided to enhance the tropical landscape character of development and the region;
 - (g) landscaping is functional, durable, contributes to passive energy conservation and provides for the efficient use of water and ease of ongoing maintenance;
 - (h) landscaping takes into account utility service protection;
 - (i) weed species and invasive species are eliminated from development sites;
 - (j) landscape design enhances personal safety and incorporates CPTED principles.

9.3.6.3 Assessment benchmarks and requirements

Table 9.3.6.3.a – Landscaping code – benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
<p>PO1 Development provides landscaping that contributes to and creates a high quality landscape character for the site, street and local areas of the region by:</p> <ul style="list-style-type: none"> (a) promoting the region’s character as a tropical environment; (b) softening the built form of development; (c) enhancing the appearance of the development from within and outside the development and makes a positive contribution to the streetscape; (d) screening the view of buildings, structures, open storage areas, service equipment, machinery plant and the like from public places, residences and other sensitive development; (e) where necessary, ensuring the privacy of habitable rooms and private outdoor recreation areas; (f) contributing to a comfortable living environment and improved energy efficiency, by providing shade to reduce glare and heat absorption and re-radiation from buildings, parking areas and other hard surfaces; (g) ensuring private outdoor recreation space is useable; (h) providing long term soil erosion protection; (i) providing a safe environment; (j) integrating existing vegetation and other natural features of the premises into the development; (k) not adversely affecting vehicular and 	<p>AO1.1 Where for a centre activity within an existing building within the District centre zone, Major centre zone and Principal centre zone, development does not result in a loss of existing landscaping or landscaped areas on the site.</p> <p>Or</p> <p>AO1.2 Development provides landscaping in accordance with the minimum area, dimensions and other requirements of applicable development codes.</p> <p>or</p> <p>AO1.3 A minimum of 10% of the site is landscaped.</p>	<p>NA</p>
	<p>AO1.3 Development provides landscaping:</p> <ul style="list-style-type: none"> (b) that is designed and planned in a way that meets the guidelines for landscaping outlined in Planning Scheme Policy – Landscaping; (c) that is carried out and maintained in accordance with a landscaping plan that meets the guidelines for landscaping outlined in Planning Scheme Policy – Landscaping. <p>Note – Planning scheme policy – Landscaping provides guidance on meeting the outcomes of this code. A landscape plan submitted for approval in accordance with the Planning scheme</p>	

Performance outcomes	Acceptable outcomes	Applicant response
pedestrian sightlines and road safety.	policy is one way to achieve this outcome.	
For assessable development		
Landscape character, streetscape and planting		
<p>PO2 Landscaping contributes to a sense of place, is functional to the surroundings, enhances the streetscape and visual appearance of the development and reflects the concept of a 'city in a rainforest'.</p> <p>Note – Landscaping is in accordance with the requirements specified in Planning scheme policy – Landscaping.</p> <p>Note – Planning scheme policy- Tropical urbanism provides guidance on meeting the performance outcome.</p>	<p>AO2.1 No acceptable outcomes are provided.</p>	<p>Complies with PO Landscaping will be provided along the front, side and rear frontages to generally screen the development from Warner Road.</p> <p>Certain building elements, including the Asphalt Tower at 27m tall cannot be completely screened by vegetation</p>
<p>PO3 Development provides landscaping that, as far as practical, is consistent with the existing desirable landscape character and elements of the area and protects trees, vegetation and other features of ecological, recreational, aesthetic and cultural value.</p>	<p>AO3.1 Existing vegetation on site is retained and incorporated into the site design, wherever possible.</p> <p>AO3.2 Mature vegetation on the site that is removed or damaged during development is replaced with advanced species.</p>	<p>NA there is no existing vegetation</p> <p>NA there is no existing vegetation</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO3.3 Where there is an existing landscape character in a street or locality which results from existing vegetation, similar species are incorporated into new development.</p>	
	<p>AO3.4 Street trees are species which enhance the landscape character of the streetscape, with species chosen from the Planning scheme policy – Landscaping.</p>	
<p>PO4 Plant species are selected with consideration to the scale and form of development, screening, buffering, streetscape, shading and the locality of the area.</p>	<p>AO4.1 Species are selected in accordance with Planning scheme policy – Landscaping.</p>	COMPLIES
<p>PO5 Shade planting is provided in car parking areas where uncovered or open, and adjacent to driveways and internal roadways.</p>	<p>AO5.1 Species are selected in accordance with Planning scheme policy – Landscaping.</p>	COMPLIES
Maintenance and drainage		
<p>PO6 Landscaped areas are designed in order to allow for efficient maintenance.</p>	<p>AO6.1 A maintenance program is undertaken in accordance with Planning scheme policy – Landscaping.</p>	COMPLIES
Podium planting		
<p>PO7 Podium planting is provided with appropriate species for long term survival and ease of maintenance, with beds capable of proper drainage.</p>	<p>AO7.1 Podium planting beds are provided with irrigation and are connected to stormwater infrastructure to permit flush out.</p>	NA

Performance outcomes	Acceptable outcomes	Applicant response
	AO7.2 Species of plants are selected for long term performance designed to suit the degree of access to podiums and roof tops for maintenance.	
Weeds and invasive species		
PO8 Development provides for the removal of all weed and invasive species and implement on-going measures to ensure that weeds and invasive species do not reinfest the site and nearby premises.	AO8.1 Weed and invasive species detected on a development site are removed prior to any works occurring on site and before any material is removed from the site in accordance with a management plan prepared by an appropriately qualified person.	COMPLIES
Safety		
PO9 The landscape design enhances personal safety and reduces the potential for crime and vandalism. Note – Planning scheme policy – Crime prevention through environmental design (CPTED) provides guidance on meeting this outcome.	AO9.1 No acceptable outcomes are provided.	COMPLIES
Utilities and services		
PO10 The location and type of plant species does not adversely affect the function and accessibility of services and facilities and service areas.	AO10.1 Species are selected in accordance with Planning scheme policy – Landscaping.	COMPLIES

10 PARKING AND ACCESS CODE

9.3.7.1 Application

- (1) This code applies to development identified as requiring assessment against the Parking and access code by the Tables of Assessment in Part 5.
- (2) When using this code, reference should be made to Part 5.

9.3.7.2 Purpose

- (1) The purpose of the code is to ensure that parking and access infrastructure and facilities are provided to service the demand of the development.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) on-site vehicle and bicycle parking facilities are provided to accommodate the demand generated by the development.
 - (b) parking and access facilities are designed and constructed:
 - (i) in accordance with relevant standards;
 - (ii) to be convenient and accessible;
 - (iii) so that they do not adversely impact on the safety and efficiency of the surrounding road network;
 - (iv) so that they do not disrupt the on-street parking arrangements in the surrounding area
 - (c) where within a Neighbourhood character area, to be consistent with, and complementary and responsive to the Neighbourhood character elements displayed on the Neighbourhood character place, within the Neighbourhood character streetscape and the Neighbourhood character area;
 - (d) where within the Places of significance overlay, is complementary to the cultural significance of the place.

9.3.7.3 Assessment benchmarks and requirements

Table 9.3.7.3.a – Parking and access code – benchmarks for assessable development and requirements for accepted development

Performance outcomes	Acceptable outcomes	Applicant response
For accepted development subject to requirements and assessable development		
Parking rates		
PO1 On-site vehicle and bicycle parking is provided to accommodate the demand generated by the development.	AO1.1 Development provides on-site car parking spaces not less than the minimum rates outlined in Table 9.3.7.3.b.	Gross floor area, for a building, means the total floor area of all storeys of the building, measured from the outside of the external walls and the centre of any common walls of the building, other than areas used for— <ol style="list-style-type: none"> (a) building services, plant or equipment; or (b) access between levels; or a ground floor public lobby; or

		<p>(d) a mall; or (e) parking, loading or manoeuvring vehicles; or (f) unenclosed private balconies, whether roofed or not</p> <p>Proposed GFA = Office 36m² Amenities 18m² Lab 38m² Say Total GFA=100m²</p> <p>Required Rate for High Impact Industry = 1 space per 100m² of GFA</p> <p>Required Car Spaces = 1 Actual Car Spaces = 5</p> <p>Complies</p>
--	--	---

Performance outcomes	Acceptable outcomes	Applicant response
	<p>Note – Where a conflict exists between the rates specified in Table 9.3.7.3.b and those proposed, a Traffic Impact Assessment Report prepared in accordance with Planning scheme policy – Parking and access is required to demonstrate that sufficient vehicle parking is provided for the development</p>	
	<p>AO1.2 Development provides accessible vehicle parking spaces on-site not less than the minimum rates outlined in Table 9.3.7.3.c.</p> <p>Note – Accessible parking spaces are not required where less than five (5) vehicle parking spaces are required for the proposed development.</p>	<p>Required Rate for High Impact Industry = 1 space for every 100 car parking spaces or part thereof.</p> <p>Required PWD Space = 1 Actual PWD Space = 5</p> <p>Complies</p>

	<p>AO1.3 Development provides on-site bicycle parking spaces not less than the minimum rates outlined in Table 9.3.7.3.d.</p> <p>Note – Variations to the rates contained in Table 9.3.7.3.b, 9.3.7.3.c and 9.3.7.3.d may be included in Part 7 Local Plans</p>	<p>Complies No bicycle rate provided</p>
Parking space design		
<p>PO2 Vehicle parking spaces are designed and constructed in accordance with relevant standards.</p>	<p>AO2.1 Vehicle parking spaces are designed and constructed in accordance with Australian Standard:</p> <ul style="list-style-type: none"> (a) AS2890.1; (b) AS2890.3; (c) AS2890.6. 	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
Access requirements		
<p>PO3 Vehicular access is designed and constructed:</p> <ul style="list-style-type: none"> (a) to operate safely and efficiently; (b) to accommodate the anticipated type and volume of vehicles; (c) so that they do not impede the safe movement of vehicles, cyclists or pedestrians on the adjacent road area or verge; (d) so that they do not adversely impact upon existing intersections or future road or intersection improvements; (e) so that they do not adversely impact current and future on-street parking arrangements; (f) so that they do not adversely impact upon existing services within the road reserve adjacent to the site; (g) where within a Neighbourhood character area, to be consistent with, and complementary and responsive to the Neighbourhood character elements displayed on the Neighbourhood character place, within the Neighbourhood character streetscape and the Neighbourhood character area; (h) where within the Places of significance overlay, is complementary to the cultural significance of the place. 	<p>AO3.1 For development for a Dwelling House where located within the Neighbourhood Character Overlay or the Places of Significance Overlay access is limited to one access per lot that is:</p> <ul style="list-style-type: none"> (a) an existing access; or (b) a new access that: <ul style="list-style-type: none"> (i) is from the lower order road where there is more than one frontage to the site; (ii) has a maximum width of 3m; (iii) unless where located within the Rural and Rural Residential Zone, is imperviously sealed. <p>Note - Imperviously sealed includes, but is not limited to, concrete, asphalt or concrete pavers. Where concrete is used, construction is in accordance with Planning scheme policy – FNQROC Regional Development Manual S7 – Concrete Works and Standard Drawing S1015.</p> <p>or</p> <p>AO3.2 For development for a Dwelling House, where not located within the Neighbourhood Character Overlay or the Places of Significance Overlay provides for access to the lot that is:</p> <ul style="list-style-type: none"> (a) an existing access; or (b) a new primary access that: <ul style="list-style-type: none"> (i) is from the lower order road where there is more than one frontage to the lot; (ii) has a maximum width of 5.5m; (iii) unless where located within the Rural and Rural Residential Zone, is imperviously sealed. (c) a secondary access may be provided where: 	NA
		NA

Performance outcomes	Acceptable outcomes	Applicant response
	<ul style="list-style-type: none"> (i) development is on a lot that has a minimum road frontage of 18m to, and access is being provided to the lot from, an Access Road; (ii) the access has a maximum width of 3m; (iii) the secondary access is separated by a minimum of 5.5m from the primary access; (iv) unless where located within the Rural and Rural Residential Zone, the access is imperviously sealed. <p>Note - Imperviously sealed includes, but is not limited to, concrete, asphalt or concrete pavers. Where concrete is used, construction is in accordance with Planning scheme policy – FNQROC Regional Development Manual S7 – Concrete Works and Standard Drawing S1015.</p> <p>or</p> <p>AO3.3 Development for a Dual Occupancy provides for access to the dwellings that is:</p> <ul style="list-style-type: none"> (a) an existing access; or (b) a new shared access to the dwellings that has a maximum width: <ul style="list-style-type: none"> (i) Where located within the Neighbourhood Character Overlay or the Places of Significance Overlay of 3m; or (ii) Where not located within the Neighbourhood Character Overlay or the Places of Significance Overlay of 5.5m; or (c) two separate accesses to each of the dwellings each having a maximum width of 3m, that are separated by a minimum of 5.5m; 	<p>NA</p>

Performance outcomes	Acceptable outcomes	Applicant response
	<p>(d) constructed in accordance with Planning scheme policy – FNQROC Regional Development Manual.</p> <p>or</p> <p>AO3.4 For all other development, access is limited to one access per lot and is:</p> <ul style="list-style-type: none"> (a) an existing access; or (b) access constructed in accordance with Planning scheme policy – FNQROC Regional Development Manual. (c) <p>Note – access is for vehicular access and includes access crossovers and driveways.</p> <p>Note – Where multiple lots are associated with common property, access is provided via a single crossover to all associated lots or tenancies.</p>	<p>AO3.4</p> <ul style="list-style-type: none"> (a) Does not comply with AO3.4 as there are 2 access points required, one for entry and one for exit to accommodate the large industrial vehicles using the site (b) Complies
	<p>AO3.5 Access is designed, located and constructed to:</p> <ul style="list-style-type: none"> (a) achieve the following minimum clearances: <ul style="list-style-type: none"> (i) 600mm from stormwater infrastructure; (ii) 500mm from street signage; (iii) 500mm from electrical pillars; (iv) 1m from parking metres; (v) 1m from power or light poles; (vi) 1m clear of existing trees (measured from the tree trunk); (vii) 6m from the tangent point of any intersection; and (b) provides for a connection to any existing pathway located in the road verge either side of the access. <p>Note – access is for vehicular access and includes access crossovers and driveways.</p>	<p>AO3.5</p> <ul style="list-style-type: none"> (a) Complies (b) Complies- there are no existing pathways in the area.

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO3.6 Driveways are:</p> <ul style="list-style-type: none"> (a) designed to follow as close as possible to the existing contours of the land but are no steeper than the gradients outlined in Planning scheme policy – FNQROC Regional Development Manual; (b) constructed such that where there is a grade shift to 1 in 4 (25%), there is an area with a grade of no more than 1 in 6 (16.6%) prior to this area, for a distance of at least 5 metres. On gradients greater than 1 in 6 (16.6%) driveways are constructed to ensure that the crossfall of the driveway is one-way and directed into the hill, for vehicle safety and drainage purposes. (c) constructed such that the transitional change in grade from the road to the lot is fully contained within the lot and not within the road reserve. (d) designed to include all necessary associated drainage that intercepts and directs storm water runoff to the road, storm water drainage system. 	<p>Complies</p>
	<p>AO3.6 The crossfall of a driveway over the road verge:</p> <ul style="list-style-type: none"> (a) must not exceed 2.5%; or (b) where the existing crossfall of the road verge exceeds 2.5% in any direction, the driveway does not alter the crossfall of the verge. 	<p>Complies</p>

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
Parking area design		
<p>PO4 On-site parking areas are designed and constructed to:</p> <ul style="list-style-type: none"> (a) provide for shared vehicle (including cyclists) and pedestrian use; (b) provide for the desired character and amenity of the area in the vicinity of the development. 	<p>AO4.1 No acceptable outcomes are provided.</p>	Complies
<p>PO5 Vehicle, cyclist and pedestrian pathways are:</p> <ul style="list-style-type: none"> (a) delineated and identified with clear way-finding and awareness signage and markings; (b) establish clear and practical routes around the parking area; (c) separate users in high conflict areas; (d) discourage high speeds; (e) connected to the external transport network, including external existing and future bicycle paths in a safe and practical way. 	<p>AO5.1 Vehicle, cyclist and pedestrian pathways are designed and constructed in accordance with Australian Standard:</p> <ul style="list-style-type: none"> (a) AS2890.1; (b) AS2890.3. 	Complies
On street works		
<p>PO6 On-street parking may be provided in lieu of on-site parking where:</p> <ul style="list-style-type: none"> (a) development involves the re-use of an existing building; or (b) development does not front a major transport corridor as identified on the Transport network overlay maps contained in Schedule 2; (c) located within the immediate frontage of the site (d) designed and constructed in accordance with the relevant standards; 	<p>AO6.1 No acceptable outcomes are provided.</p>	On Street parking is not required.

Performance outcomes	Acceptable outcomes	Applicant response
<p>(e) designed and constructed so as not to detract from the character and amenity of the surrounding streetscape.</p> <p>Note – A Traffic Impact Assessment Report prepared in accordance with Planning scheme policy – Parking and access is one way to demonstrate achievement of the Performance Outcome.</p> <p>Note – PO6 only applies to undertaking new on-street works. Existing on-street car parking spaces will not be considered as on-street works in lieu of on-site car parking.</p>		
End of trip facilities		
<p>PO7 On-site end of trip facilities are incorporated into the design for the following developments:</p> <ul style="list-style-type: none"> (a) office development with GFA greater than 2000m²; or (b) shop or shopping centre with a GFA greater than 2000m²; or (c) educational establishment with a GFA greater than 2000m²; or (d) hospital with a GFA greater than 2000m². 	<p>AO7.1 End of trip facilities are provided, designed and constructed in accordance with:</p> <ul style="list-style-type: none"> (a) Australian Standard AS2890.3; (b) The Queensland Development Code MP4.1. 	NA
Service vehicle requirements		
<p>PO8 Access, internal circulation and on-site parking for service vehicles are designed and constructed:</p> <ul style="list-style-type: none"> (a) in accordance with relevant standards; (b) so that they do not interfere with the amenity of the surrounding area; (c) so that they allow for the safe and convenient movement of pedestrians, cyclists and other vehicles on the site. 	<p>AO8.1 Access driveways, vehicle manoeuvring and on-site parking for service vehicles are designed and constructed in accordance with Australian Standard AS 2890.1 and AS 2890.2.</p>	Complies
	<p>AO8.2 Service and loading areas are contained wholly within the site.</p>	Complies

Performance outcomes	Acceptable outcomes	Applicant response
	<p>AO8.3 The movement of service vehicles and service operations are designed so that they:</p> <ul style="list-style-type: none"> (a) do not impede access to parking spaces; (b) do not impede vehicle or pedestrian traffic movement. 	
Vehicle queuing requirements		
<p>PO9 Sufficient queuing and set down areas are provided to accommodate the demand generated by the development.</p>	<p>AO9.1 Development provides adequate area for on-site vehicle queuing to accommodate the demand generated by the development where drive through facilities or drop-off/pick-up services are proposed as part of the use, including but not limited to the following land uses:</p> <ul style="list-style-type: none"> (a) car wash; (b) child care centre; (c) educational establishment where for a school; (d) food and drink outlet, where including a drive-through facility; (e) hardware and trade supplies, where involving a drive-through facility; (f) hotel, where involving a drive-through facility; (g) service station. 	Complies
	<p>AO9.2 Queuing and set down areas are designed and constructed in accordance with Australian Standard AS2890.1.</p>	Complies

Table 9.3.7.3.b – Car parking requirements

Note – Where the number of spaces required is not a whole number, the number of spaces to be provided is the next highest whole number.

Note – Where the proposed development involves one or more land use, the minimum number of spaces for the proposed development will be calculated using the minimum number of spaces specified for each land use component.

Land use	Minimum number of spaces
Adult store	Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or for all other development - 1 space per 25m ² of GFA
Agricultural supplies store	1 space per 50m ² of GFA and outdoor display area
Brothel	1 space per bedroom
Bulk landscape supplies	1 space per 25m ² of GFA of Office
Caretaker's accommodation	A minimum of 1 space
Cemetery	A minimum of 30 spaces
Child care centre	(a) 1 space per 10 children; and (b) 1 space per employee. Note – space for set down and pick up areas is provided in accordance with the vehicle queuing requirements detailed in this code.
Club	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 25m ² of GFA
Club (small scale)	1 space per 25m ² of GFA
Community care centre	1 space per 20m ² of GFA
Community residence	A minimum of 2 spaces
Community use	1 space per 15m ² of GFA

Land use	Minimum number of spaces
Crematorium	1 space per 15m ² of GFA
Dual occupancy	(a) A minimum of 2 spaces per dwelling, which may be in tandem, with a minimum of 1 covered space per dwelling; or (b) A maximum of one space per dwelling, where an existing house on the site is retained in a Neighbourhood character area.
Dwelling house	(a) 2 car parking spaces per dwelling house. Where involving a secondary dwelling: (a) The 2 car parking spaces per dwelling house; (b) 1 space for the secondary dwelling. Note – The car parking requirement for a Dwelling house is contained within the Queensland Development Code
Dwelling unit	(a) 1.5 spaces per one or 2 bedroom unit; or (b) 2 spaces per 3 bedroom unit
Educational establishment	(a) 1 space per employee; plus Where for a secondary school, college, university or technical institute: (a) 1 space per 10 students. Note – space for set down and pick up areas is provided in accordance with the vehicle queuing requirements detailed in this code. Note – where the type of Educational establishment is not listed above, the use is considered to be 'not otherwise specified in this table'. Refer to the last row of this table for the minimum number of spaces required.
Food and drink outlet	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 25m ² GFA and outdoor dining area Note - space for queuing of vehicles for drive through facilities is provided in accordance with the vehicle queuing requirements detailed in this code.
Function facility	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 15m ² of GFA
Funeral parlour	1 space per 15m ² of GFA

Land use	Minimum number of spaces
Garden centre	1 space per 50m ² of GFA and outdoor display area
Hardware and trade supplies	1 space per 50m ² of GFA and outdoor display area
Health care services	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 20m ² of GFA
High impact industry	1 space per 100m ² of GFA
Home based business	Where for a bed and breakfast: (a) The 2 car parking spaces required for the dwelling house; (b) 1 space per bed and breakfast bedroom. Where for any other Home based business: (a) The 2 car parking spaces required for the dwelling house; (b) 1 space per non-resident employee; (c) 1 space per 25m ² of GFA. Note – The car parking requirement for a Dwelling house is contained within the Queensland Development Code
Hospital	(a) 1 space per 4 beds; (b) 2 spaces per consulting room; (c) 0.5 spaces per employee.
Hotel	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - (i) 1 space per 15m ² of GFA and licensed outdoor area; and (ii) 1 space per 50m ² of GFA for liquor barn or bulk liquor sales area.
Indoor sport and recreation	Where for Squash courts: (a) 4 spaces per court. Where for Indoor sports (e.g. basketball, netball, soccer, cricket): (a) 20 spaces per court / pitch. Where for Ten pin bowling:

Land use	Minimum number of spaces
	<p>(a) 3 spaces per bowling lane.</p> <p>Where for a Gymnasium:</p> <p>(c) 1 space per 15m² of GFA; or</p> <p>(d) 1 space per 25m² GFA where located in a Centre zone.</p> <p>Note – Where the type of Indoor sport and recreation is not listed above, the use is considered to be 'not otherwise specified in this table'. Refer to the last row of this table for the minimum number of spaces required.</p> <p>Note – Centre zones are defined in Schedule 1.2.</p>
Low impact industry	<p>(a) 1 space per 100m² of GFA; or</p> <p>Where for motor vehicle repair workshop:</p> <p>(b) 1 space per 50m² GFA.</p>
Marine industry	1 space per 100m ² of GFA
Medium impact industry	<p>(a) 1 space per 100m² of GFA; or</p> <p>Where for motor vehicle repair workshop:</p> <p>(b) 1 space per 50m² GFA.</p>
Multiple dwelling	<p>(a) 1.25 spaces per one or 2 bedroom unit; or</p> <p>(b) 1.75 spaces per 3 or more bedroom unit; and</p> <p>(c) 0.25 spaces per unit for visitors.</p> <p>or</p> <p>Where the site is located within the Building height overlay or the Cairns city centre local plan as shown on the maps contained in Schedule 2:</p> <p>(a) 1 space per one or 2 bedroom unit; or</p> <p>(b) 1.5 spaces per 3 or more bedroom unit; and</p> <p>(c) 1 spaces per 10 units for visitors.</p>
Nature based tourism	<p>For the accommodation component:</p> <p>(a) 1 space per lodge, hut, tent site or cabin;</p> <p>(b) 0.1 space per lodge, hut, tent site or cabin for visitor parking;</p>

Land use	Minimum number of spaces
	<p>(c) 1 space for an on-site manager.</p> <p>For all other components: Sufficient spaces to accommodate the number of vehicles likely to be parked at any one time.</p>
Office	<p>(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or</p> <p>(b) for all other development - 1 space per 25m² of GFA</p>
Outdoor sales	1 space per 25m ² GFA of Office
Outdoor sport and recreation	<p>Where for Football fields: (a) 50 spaces per field.</p> <p>Where for Lawn bowls: (a) 30 spaces per green.</p> <p>Where for a Swimming pool: (a) 15 spaces.</p> <p>Where for Tennis courts: (a) 4 spaces per court.</p> <p>Where for Netball courts: (a) 20 spaces per court.</p> <p>Where for a Golf course: (a) 4 spaces per tee on the course.</p> <p>Where for a Driving or Firing Range: (a) 1 space per tee or firing station</p> <p>Note – where the type of Outdoor sport and recreation is not listed above, the use is considered to be 'not otherwise specified in this table'. Refer to the last row of this table for the minimum number of spaces required.</p>
Place of worship	1 space per 15m ² of GFA
Relocatable home park	(a) 1 space per relocatable home site;

Land use	Minimum number of spaces
	(b) 0.1 space per relocatable home site for visitor parking; (c) 1 space for on-site management.
Research and technology industry	1 space per 100m ² of GFA.
Residential care facility	(a) 1 space per 10 beds; (b) 0.5 spaces per bed for visitor parking; (c) 0.5 spaces per employee.
Resort complex	Use the minimum number of spaces for each land use component of the Resort complex. Note – For example, where the development involves a Short-term accommodation and a Food and drink outlet, the minimum number of spaces for the Resort complex will be calculated using the minimum number of spaces specified for Short-term accommodation and Food and drink outlet.
Retirement facility	Where for self-contained accommodation units: (a) 1 space per accommodation unit; (b) 0.25 spaces per unit for visitor parking; (c) 0.5 spaces per employee. Where for all other accommodation units: (a) 1 space per 5 accommodation units; (b) 0.25 spaces per unit for visitor parking; (c) 0.5 spaces per employee.
Rooming accommodation	(a) The greater of 1 space per 2 bedrooms or 1 space per 4 beds; (b) 1 space for on-site management (where applicable).
Sales office	A minimum of 1 space
Service industry	Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or for all other development - 1 space per 100m ² of GFA
Service station	1 space per 25m ² of GFA

Land use	Minimum number of spaces
Shop	<ul style="list-style-type: none"> (a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 25m² of GFA
Shopping centre	<ul style="list-style-type: none"> (a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - <ul style="list-style-type: none"> (i) 1 space per 25m² GFA; (ii) 1 space per 100m² of internal storage and loading. <p>Note – Internal storage and loading areas are those areas used by shops or tenancies within the shopping centre for storage and loading of products or goods.</p>
Short-term accommodation	<p>Where for self-contained accommodation units:</p> <ul style="list-style-type: none"> (a) 1.25 spaces per one or 2 bedroom accommodation unit; (b) 1.75 spaces per 3 or more bedroom accommodation unit; (c) 0.25 spaces per accommodation unit for visitors, staff and service vehicles; <p>Where for non-self-contained accommodation units:</p> <ul style="list-style-type: none"> (a) 0.5 spaces per accommodation unit; (b) 0.25 spaces per accommodation unit for visitors, staff and service vehicles; <p>Where for self-contained accommodation units and on a site located within the Building height overlay or the Cairns city centre local plan as shown on the maps contained in Schedule 2:</p> <ul style="list-style-type: none"> (a) 1 space per one or 2 bedroom accommodation unit; or (b) 1.5 spaces per 3 or more bedroom accommodation unit; and (c) 1 spaces per 10 accommodation units for visitors, staff and service vehicles; <p>Where for non-self-contained accommodation units and on a site located within the Building height overlay or the Cairns city centre local plan as shown on the maps contained in Schedule 2:</p> <ul style="list-style-type: none"> (a) 0.25 spaces per accommodation unit; (b) 1 space per 10 accommodation units for visitors, staff and service vehicles; <p>Where for Backpackers accommodation:</p> <ul style="list-style-type: none"> (a) 1 space per 10 beds. <p>Note – Where development includes 'dual key' units, each room or discrete area that can be separately occupied (whether self-contained or non- self-contained) is counted as one accommodation unit for the purposes of calculating car parking spaces.</p>

Land use	Minimum number of spaces
	Note – where the type of Short-term accommodation is not listed above, the use is considered to be 'not otherwise specified in this table'. Refer to the last row of this table for the minimum number of spaces required.
Showroom	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development: (i) 1 space per 50m ² of GFA; (ii) 1 space per 50m ² GFA and outdoor display area for any Outdoor sales component.
Special industry	1 space per 100m ² of GFA
Theatre	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 15m ² of GFA
Veterinary services	(a) Where within an existing building located within the District centre zone, Major centre zone and Principal centre zone, the development does not result in a loss of existing on-site car parking spaces; or (b) for all other development - 1 space per 25m ² of GFA
Warehouse	1 space per 100m ² of GFA
Any use not otherwise specified in this table.	Sufficient spaces to accommodate number of vehicles likely to be parked at any one time.

Table 9.3.7.3.c – Accessible parking requirement

Land use	Minimum number of spaces
Resort complex Retirement facility Rooming accommodation Short term accommodation	Calculated by multiplying the total number of car parking spaces by the percentage of: (a) accessible self-contained accommodation units to the total number of sole occupancy units; or (b) accessible bedrooms to the total number of bedrooms. Note – For the purposes of calculating parking spaces required above – An accessible self-contained accommodation unit or bedroom means a self-contained accommodation unit or bedroom that has features to enable use by people with a disability.
Community care centre Residential care facility	1 space for every 100 car parking spaces or part thereof.

Land use	Minimum number of spaces
Agricultural supplies store Bulk landscape supplies Garden centre Hardware and trade supplies High impact industry Low impact industry Marine industry Medium impact industryOffice Outdoor sales Sales office Service industry Showroom Warehouse	1 space for every 100 car parking spaces or part thereof.
Adult Store Brothel Car Wash Food and Drink Outlet Home Based Business Hotel Market Service StationShop Shopping Centre Veterinary Services	(a) up to 1000 car parking spaces - 1 space for every 50 car parking spaces or part thereof; (b) for each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces – 1 space.
Health care services	1 space for every 50 car parking spaces or part thereof.
Hospital	Where for any non-outpatient area: (a) 1 space for every 100 car parking spaces or part thereof. Where for any outpatient area: (a) up to 1000 car parking spaces - 1 space for every 50 car parking spaces or part thereof; (b) for each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces – 1 space.
Child care centre Club	(a) up to 1000 car parking spaces - 1 space for every 50 car parking spaces or part thereof; (b) for each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces – 1 space.

Land use	Minimum number of spaces
Community use Crematorium Function facility Funeral parlour Indoor sport and recreation Major sport, recreation and entertainment facility Nightclub entertainment facility Outdoor sport and recreation Place of worship Theatre Tourist attraction	
Educational establishment	1 space for every 100 car parking spaces or part thereof.

Note – Where the number of spaces required is not a whole number, the number of spaces to be provided is the next highest whole number.

Table 9.3.7.3.d – Bicycle parking requirements

Land use	Minimum number of spaces
Club	1 space per 200m ² of GFA
Community use	1 space per 200m ² of GFA
Educational establishment	<p><u>Where for a Primary educational establishment:</u></p> <p>(a) 1 per 10 students over year 4.</p> <p><u>Where for a Secondary educational establishment:</u></p> <p>(a) 1 per 10 students.</p> <p><u>Where for a Tertiary educational establishment:</u></p> <p>(a) 1 per 50 students.</p>
Food and drink outlet	1 space per 250m ² of GFA

Land use	Minimum number of spaces
Function facility	1 space per 500m ² of GFA
Hardware and trade supplies	1 space per 500m ² of GFA
Health care services	1 space per 250m ² of GFA
Hospital	1 space per 500m ² of GFA
Hotel	1 space per 250m ² of GFA
Indoor sport and recreation	<p>Where for Squash courts: (a) 1 space per court.</p> <p>Where for Indoor sports (e.g. soccer, cricket, basketball, netball): (a) 2 spaces per court.</p> <p>Where for Ten pin bowling: (a) 1 space per bowling lane.</p> <p>Where for a Gymnasium: (a) 1 space per 200m² of GFA.</p>
Multiple dwelling	1 space per dwelling unit which may be provided as internal storage areas for the multiple dwelling.
Office	1 space per 250m ² of GFA
Outdoor sport and recreation	<p>Where for Football fields: (a) 3 spaces per field.</p> <p>Where for Lawn bowls: (a) 5 space per green</p> <p>Where for a Swimming pool:</p>

Land use	Minimum number of spaces
	<p>(a) 1 space per swimming lane</p> <p>Where for Tennis courts: (a) 1 space per court</p> <p>Where for Netball Courts: (a) 3 spaces per court</p> <p>Where for a Golf Course: (a) 1 space per 15m² of GFA for Club for clubhouse component</p> <p>Where for a Driving or Firing Range: (a) 1 space per 4 tees or firing stations.</p>
Place of worship	1 space per 250m ² of GFA
Service station	1 space per 250m ² of GFA
Shop	1 space per 250m ² of GFA
Shopping centre	(a) 0m ² GFA – 5,000m ² GFA - 1 space per 250m ² of GFA; or (b) Greater than 5,001m ² GFA – 1 space per 500m ² GFA
Showroom	1 space per 500m ² of GFA
Theatre	1 space per 250m ² of GFA

Note - Where the number of spaces required is not a whole number, the number of spaces to be provided is the next highest whole number.

11 CODES THAT ARE NOT APPLICABLE

11.1 Building height overlay code

This code applies to assessing development within the Building height overlay as shown on the Building height overlay maps contained in Schedule 2.

The subject property is not within the Building height overlay.

11.2 Bushfire hazard overlay - Not Applicable

The subject property is not within the Bushfire overlay.

11.3 Coastal processes overlay Not Applicable

The subject property is not within the Coastal overlay.

11.4 Extractive resources overlay Not Applicable

The subject property is not within the extractive Industries overlay.

11.5 Hazardous-Explosive facilities overlay Not Applicable

The subject property is not within the Hazardous and Explosive facilities overlay.

11.6 Hillslopes overlay Not Applicable

The subject property is not within the Hillslopes overlay.

11.7 Natural areas overlay Not Applicable

The subject property is not within the Natural Areas Overlay.

11.8 Neighbourhood character overlay Not Applicable

The subject property is not within the Neighbourhood character Overlay.

11.9 Places of Significance overlay Not Applicable

The subject property is not within the Places of Significance Overlay.

11.10 Potential Landslip overlay Not Applicable

The subject property is not within the Potential Landslip Overlay.

11.11 Transport Network overlay Not Applicable

The subject property is not within the Transport Network Overlay.

Appendix L State Code response Sdap1 state-controlled-road-environment-response

State code 1: Development in a state-controlled road environment

Purpose Statement

Purpose Statement	Response
<p>The purpose of this code is to protect the safety, function and efficiency of state-controlled roads, future state-controlled roads, road transport infrastructure, active transport infrastructure and public passenger services on state-controlled roads from adverse impacts of development. The code is intended to protect the safety of people using, and living or working near, state-controlled roads.</p> <p>Specifically, this code seeks to ensure development:</p>	
<p>1. does not increase the likelihood or frequency of accidents, fatalities or serious injury for users of a state-controlled road;</p>	Complies.
<p>2. does not adversely impact the structural integrity or physical condition of state-controlled roads, road transport infrastructure, public passenger transport infrastructure or active transport infrastructure;</p>	Complies.
<p>3. does not adversely impact the function and efficiency of state-controlled roads or future state-controlled roads;</p>	Complies.
<p>4. does not adversely impact the state's ability to plan, construct, maintain, upgrade or operate state-controlled roads, future state-controlled roads or road transport infrastructure</p>	Complies.
<p>5. does not significantly increase the cost to the state to plan, construct, upgrade or maintain state-controlled roads, future state-controlled roads or road transport infrastructure;</p>	Complies.
<p>6. maintains or improves access to public passenger transport infrastructure or active transport infrastructure;</p>	Complies.
<p>7. does not adversely impact the state's ability to operate public passenger services on state-controlled roads;</p>	Complies.
<p>8. protects community amenity from significant adverse impacts of environmental emissions generated by road transport infrastructure or vehicles using state-controlled roads.</p>	Complies.

Table 1.1 Development in general

Performance outcomes	Acceptable outcomes	Response
Buildings, structures, infrastructure, services and utilities		
PO1 The location of the development does not create a safety hazard for users of the state-controlled road .	<p>AO1.1 Development is not located in a state-controlled road.</p> <p>AND</p> <p>AO1.2 Development can be maintained without requiring access to a state-controlled road.</p>	<p>Complies with PO.</p> <p>The traffic demand on the existing Warner Road will be substantially reduced once State controlled roadworks currently under construction are completed and construct an alternative access at Maitland road overpass of the Bruce Highway, At that time the Warner road connection to the Bruce Highway will be terminated, making Warner Road east of the project site a dead end.</p> <p>Refer to https://www.tmr.qld.gov.au/projects/bruce-highway-cairns-southern-access-corridor-stage-3-edmonton-to-gordonvale</p>
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 .	No acceptable outcome is prescribed.	Complies - Refer to above
PO3 The location of the development does not obstruct road transport infrastructure or adversely impact the operating performance of the state-controlled road .	No acceptable outcome is prescribed.	Complies - Refer to above
PO4 The location, placement, design and operation of advertising devices, visible from the state-controlled road , do not create a safety hazard for users of the state-controlled road .	No acceptable outcome is prescribed.	There are no advertising devices proposed.
PO5 The design and construction of buildings and structures does not create a safety hazard	AO5.1 Facades of buildings and structures fronting the state-controlled road are made of non-reflective materials.	Complies with AO Apart from site ingress and egress the site will be screened from the road by landscaping.

State Development Assessment Provisions v3.0

State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
by distracting users of the state-controlled road .	<p>AND</p> <p>AO5.2 Facades of buildings and structures do not direct or reflect point light sources into the face of oncoming traffic on the state-controlled road.</p> <p>AND</p> <p>AO5.3 External lighting of buildings and structures is not directed into the face of oncoming traffic on the state-controlled road.</p> <p>AND</p> <p>AO5.4 External lighting of buildings and structures does not involve flashing or laser lights.</p>	<p>Complies with AO</p> <p>Complies with AO</p> <p>Complies with AO</p>
PO6 Road, pedestrian and bikeway bridges over a state-controlled road are designed and constructed to prevent projectiles from being thrown onto the state-controlled road .	AO6.1 Road, pedestrian and bikeway bridges over the state-controlled road include throw protection screens in accordance with section 4.11 of the Design Criteria for Bridges and Other Structures Manual, Department of Transport and Main Roads, 2020.	NA
Landscaping		
PO7 The location of landscaping does not create a safety hazard for users of the state-controlled road .	<p>AO7.1 Landscaping is not located in a state-controlled road.</p> <p>AND</p> <p>AO7.2 Landscaping can be maintained without requiring access to a state-controlled road.</p> <p>AND</p>	Complies with AO

Performance outcomes	Acceptable outcomes	Response
	AO7.3 Landscaping does not block or obscure the sight lines for vehicular access to a state-controlled road .	
Stormwater and overland flow		
PO8 Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of the state-controlled road .	No acceptable outcome is prescribed.	Complies - refer to engineering report
PO9 Stormwater run-off 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 .	No acceptable outcome is prescribed.	Complies - refer to engineering report
PO10 Stormwater run-off 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 .	No acceptable outcome is prescribed.	Complies - refer to engineering report
PO11 Development ensures that stormwater is lawfully discharged.	AO11.1 Development does not create any new points of discharge to a state-controlled road . AND AO11.2 Development does not concentrate flows to a state-controlled road . AND AO11.3 Stormwater run-off is discharged to a lawful point of discharge . AND	Complies with AO - refer to engineering report. The site currently discharges to Warner Road.

Performance outcomes	Acceptable outcomes	Response
	<p>AO11.4 Development does not worsen the condition of an existing lawful point of discharge to the state-controlled road.</p>	
Flooding		
<p>PO12 Development does not result in a material worsening of flooding impacts within a state-controlled road.</p>	<p>AO12.1 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (within +/- 10mm) to existing flood levels within a state-controlled road.</p> <p>AND</p> <p>AO12.2 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (up to a 10% increase) to existing peak velocities within a state-controlled road.</p> <p>AND</p> <p>AO12.3 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (up to a 10% increase) to existing time of submergence of a state-controlled road.</p>	<p>Complies with PO - refer to engineering report.</p>
Drainage Infrastructure		
<p>PO13 Drainage infrastructure does not create a safety hazard for users in the state-controlled road.</p>	<p>AO13.1 Drainage infrastructure is wholly contained within the development site, except at the lawful point of discharge.</p> <p>AND</p> <p>AO13.2 Drainage infrastructure can be maintained without requiring access to a state-controlled road.</p>	<p>Complies with PO</p>

Performance outcomes	Acceptable outcomes	Response
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 network.	No acceptable outcome is prescribed.	Complies with PO

Table 1.2 Vehicular access, road layout and local roads

Performance outcomes	Acceptable outcomes	Response
Vehicular access to a state-controlled road or within 100 metres of a state-controlled road intersection		
PO15 The location, design and operation of a new or changed access to a state-controlled road does not compromise the safety of users of the state-controlled road .	No acceptable outcome is prescribed.	Complies with PO - refer to engineering report.
PO16 The location, design and operation of a new or changed access does not adversely impact the functional requirements of the state-controlled road .	No acceptable outcome is prescribed.	Complies with PO - refer to engineering report.
PO17 The location, design and operation of a new or changed access is consistent with the future intent of the state-controlled road .	No acceptable outcome is prescribed.	Complies with PO - refer to engineering report.
PO18 New or changed access is consistent with the access for the relevant limited access road policy : 1. LAR 1 where direct access is prohibited; or 2. LAR 2 where access may be permitted, subject to assessment.	No acceptable outcome is prescribed.	NA
PO19 New or changed access to a local road within 100 metres of an intersection with a state-controlled road does not compromise the safety of users of the state-controlled road .	No acceptable outcome is prescribed.	NA
PO20 New or changed access to a local road within 100 metres of an intersection with a state-controlled road does not adversely impact on the operating performance of the intersection.	No acceptable outcome is prescribed.	NA

State Development Assessment Provisions v3.0

State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Public passenger transport and active transport		
PO21 Development does not compromise the safety of users of public passenger transport infrastructure, public passenger services and active transport infrastructure .	No acceptable outcome is prescribed.	Complies
PO22 Development maintains the ability for people to access public passenger transport infrastructure, public passenger services and active transport infrastructure .	No acceptable outcome is prescribed.	Complies
PO23 Development does not adversely impact the operating performance of public passenger transport infrastructure, public passenger services and active transport infrastructure .	No acceptable outcome is prescribed.	Complies
PO24 Development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure .	No acceptable outcome is prescribed.	Complies

Table 1.3 Network impacts

Performance outcomes	Acceptable outcomes	Response
PO25 Development does not compromise the safety of users of the state-controlled road network.	No acceptable outcome is prescribed.	Complies
PO26 Development ensures no net worsening of the operating performance of the state-controlled road network.	No acceptable outcome is prescribed.	Complies
PO27 Traffic movements are not directed onto a state-controlled road where they can be accommodated on the local road network.	No acceptable outcome is prescribed.	Complies
PO28 Development involving haulage exceeding 10,000 tonnes per year does not adversely impact the pavement of a state-controlled road .	No acceptable outcome is prescribed.	Complies - refer to engineering report
PO29 Development does not impede delivery of planned upgrades of state-controlled roads .	No acceptable outcome is prescribed.	Complies

State Development Assessment Provisions v3.0

State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
PO30 Development does not impede delivery of corridor improvements located entirely within the state-controlled road corridor .	No acceptable outcome is prescribed.	Complies

Table 1.4 Filling, excavation, building foundations and retaining structures

Performance outcomes	Acceptable outcomes	Response
PO31 Development does not create a safety hazard for users of the state-controlled road or road transport infrastructure .	No acceptable outcome is prescribed.	Complies
PO32 Development does not adversely impact the operating performance of the state-controlled road .	No acceptable outcome is prescribed.	Complies
PO33 Development does not undermine, damage or cause subsidence of a state-controlled road .	No acceptable outcome is prescribed.	Complies
PO34 Development does not cause ground water disturbance in a state-controlled road .	No acceptable outcome is prescribed.	Complies
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 .	No acceptable outcome is prescribed.	Complies
PO36 Filling and excavation associated with the construction of new or changed access do not compromise the operation or capacity of existing drainage infrastructure for a state-controlled road .	No acceptable outcome is prescribed.	Complies

Table 1.5 Environmental emissions

Statutory note: Where a **state-controlled road** is co-located in the same transport corridor as a railway, the development should instead comply with Environmental emissions in State code 2: Development in a railway environment.

Performance outcomes	Acceptable outcomes	Response
Reconfiguring a lot		
Involving the creation of 5 or fewer new residential lots adjacent to a state-controlled road or type 1 multi-modal corridor		
PO37 Development minimises free field noise intrusion from a state-controlled road .	<p>AO37.1 Development provides a noise barrier or earth mound which is designed, sited and constructed:</p> <ol style="list-style-type: none"> 1. to achieve the maximum free field acoustic levels in reference table 2 (item 2.1); 2. in accordance with: <ol style="list-style-type: none"> a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. <p>OR</p> <p>AO37.2 Development achieves the maximum free field acoustic levels in reference table 2 (item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</p> <p>OR</p> <p>AO37.3 Development provides a solid gap-free fence or other solid gap-free structure along the</p>	Not Applicable

Performance outcomes	Acceptable outcomes	Response
	full extent of the boundary closest to the state-controlled road .	
Involving the creation of 6 or more new residential lots adjacent to a state-controlled road or type 1 multi-modal corridor		
PO38 Reconfiguring a lot minimises free field noise intrusion from a state-controlled road .	<p>AO38.1 Development provides noise barrier or earth mound which is designed, sited and constructed:</p> <ol style="list-style-type: none"> 1. to achieve the maximum free field acoustic levels in reference table 2 (item 2.1); 2. in accordance with: <ol style="list-style-type: none"> a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. <p>OR</p> <p>AO38.2 Development achieves the maximum free field acoustic levels in reference table 2 (item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</p>	Not Applicable
Material change of use (accommodation activity)		
Ground floor level requirements adjacent to a state-controlled road or type 1 multi-modal corridor		
PO39 Development minimises noise intrusion from a state-controlled road in private open space .	<p>AO39.1 Development provides a noise barrier or earth mound which is designed, sited and constructed:</p> <ol style="list-style-type: none"> 1. to achieve the maximum free field acoustic levels in reference table 2 (item 	Not Applicable

Performance outcomes	Acceptable outcomes	Response
	<p>2.2) for private open space at the ground floor level;</p> <p>2. in accordance with:</p> <ul style="list-style-type: none"> a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. <p>OR</p> <p>AO39.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.2) for private open space by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.</p>	
<p>PO40 Development (excluding a relevant residential building or relocated building) minimises noise intrusion from a state-controlled road in habitable rooms at the facade.</p>	<p>AO40.1 Development (excluding a relevant residential building or relocated building) provides a noise barrier or earth mound which is designed, sited and constructed:</p> <ul style="list-style-type: none"> 1. to achieve the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms; 2. in accordance with: <ul style="list-style-type: none"> a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; 	<p>Not Applicable - there are no habitable rooms</p>

Performance outcomes	Acceptable outcomes	Response
	b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR AO40.2 Development (excluding a relevant residential building or relocated building) achieves the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	
PO41 Habitable rooms (excluding a relevant residential building or relocated building) are designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).	No acceptable outcome is provided.	Not Applicable
Above ground floor level requirements (accommodation activity) adjacent to a state-controlled road or type 1 multi-modal corridor		
PO42 Balconies, podiums, and roof decks include: <ol style="list-style-type: none"> a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); highly acoustically absorbent material treatment for the total area of the soffit above balconies, podiums, and roof decks. 	No acceptable outcome is provided.	Not Applicable
PO43 Habitable rooms (excluding a relevant residential building or relocated building) are designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).	No acceptable outcome is provided.	

Performance outcomes	Acceptable outcomes	Response
Material change of use (other uses)		
Ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor		
<p>PO44 Development:</p> <ol style="list-style-type: none"> 1. provides a noise barrier or earth mound that is designed, sited and constructed: <ol style="list-style-type: none"> a. to achieve the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas; b. in accordance with: <ol style="list-style-type: none"> i. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; ii. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; iii. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020; or 2. achieves the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound. 	<p>No acceptable outcome is provided.</p>	<p>Not Applicable</p>

Performance outcomes	Acceptable outcomes	Response
<p>PO45 Development involving a childcare centre or educational establishment:</p> <ol style="list-style-type: none"> 1. provides a noise barrier or earth mound that is designed, sited and constructed: 2. to achieve the maximum building facade acoustic level in reference table 1 (item 1.2); 3. in accordance with: <ol style="list-style-type: none"> a. Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; b. Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; c. Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020; or 4. achieves the maximum building facade acoustic level in reference table 1 (item 1.2) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound. 	No acceptable outcome is provided.	Not Applicable
<p>PO46 Development involving:</p> <ol style="list-style-type: none"> 1. indoor education areas and indoor play areas; or 2. sleeping rooms in a childcare centre; or 3. patient care areas in a hospital achieves the maximum internal acoustic level in reference table 3 (items 3.2-3.4). 	No acceptable outcome is provided.	Not Applicable
Above ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor		
<p>PO47 Development involving a childcare centre or educational establishment which have balconies, podiums or elevated outdoor play</p>	No acceptable outcome is provided.	Not Applicable

Performance outcomes	Acceptable outcomes	Response
<p>areas predicted to exceed the maximum free field acoustic level in reference table 2 (item 2.3) due to noise from a state-controlled road are provided with:</p> <ol style="list-style-type: none"> 1. a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); 2. highly acoustically absorbent material treatment for the total area of the soffit above balconies or elevated outdoor play areas. 		
<p>PO48 Development including:</p> <ol style="list-style-type: none"> 1. indoor education areas and indoor play areas in a childcare centre or educational establishment; or 2. sleeping rooms in a childcare centre; or 3. patient care areas in a hospital located above ground level, is designed and constructed to achieve the maximum internal acoustic level in reference table 3 (items 3.2-3.4). 	No acceptable outcome is provided.	Not Applicable
Air, light and vibration		
<p>PO49 Private open space, outdoor education areas and outdoor play areas are protected from air quality impacts from a state-controlled road.</p>	<p>AO49.1 Each dwelling or unit has access to a private open space which is shielded from a state-controlled road by a building, solid gap-free fence, or other solid gap-free structure.</p> <p>OR</p> <p>AO49.2 Each outdoor education area and outdoor play area is shielded from a state-controlled road by a building, solid gap-free fence, or other solid gap-free structure.</p>	Not Applicable

Performance outcomes	Acceptable outcomes	Response
<p>PO50 Patient care areas within hospitals are protected from vibration impacts from a state-controlled road or type 1 multi-modal corridor.</p>	<p>AO50.1 Hospitals are designed and constructed to ensure vibration in the patient treatment area does not exceed a vibration dose value of $0.1\text{m/s}^{1.75}$.</p> <p>AND</p> <p>AO50.2 Hospitals are designed and constructed to ensure vibration in the ward of a patient care area does not exceed a vibration dose value of $0.4\text{m/s}^{1.75}$.</p>	<p>Not Applicable</p>
<p>PO51 Development is designed and sited to ensure light from infrastructure within, and from users of, a state-controlled road or type 1 multi-modal corridor, does not:</p> <ol style="list-style-type: none"> 1. intrude into buildings during night hours (10pm to 6am); 2. create unreasonable disturbance during evening hours (6pm to 10pm). 	<p>No acceptable outcomes are prescribed.</p>	<p>Complies</p>

Table 1.6: Development in a future state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
PO52 Development does not impede delivery of a future state-controlled road .	<p>AO52.1 Development is not located in a future state-controlled road.</p> <p>OR ALL OF THE FOLLOWING APPLY:</p> <p>AO52.2 Development does not involve filling and excavation of, or material changes to, a future state-controlled road.</p> <p>AND</p> <p>AO52.3 The intensification of lots does not occur within a future state-controlled road.</p> <p>AND</p> <p>AO52.4 Development does not result in the landlocking of parcels once a future state-controlled road is delivered.</p>	Not Applicable
PO53 The location and design of new or changed access does not create a safety hazard for users of a future state-controlled road .	AO53.1 Development does not include new or changed access to a future state-controlled road .	Not Applicable
PO54 Filling, excavation, building foundations and retaining structures do not undermine, damage or cause subsidence of a future state-controlled road .	No acceptable outcome is prescribed.	Not Applicable
PO55 Development does not result in a material worsening of stormwater, flooding, overland flow or drainage impacts in a future state-controlled road or road transport infrastructure .	No acceptable outcome is prescribed.	Not Applicable
PO56 Development ensures that stormwater is lawfully discharged.	AO56.1 Development does not create any new points of discharge to a future state-controlled road .	Not Applicable

State Development Assessment Provisions v3.0

State code 1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
	<p>AND</p> <p>AO56.2 Development does not concentrate flows to a future state-controlled road.</p> <p>AND</p> <p>AO56.3 Stormwater run-off is discharged to a lawful point of discharge.</p> <p>AND</p> <p>AO56.4 Development does not worsen the condition of an existing lawful point of discharge to the future state-controlled road.</p>	