Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area	In buffer area only
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
[Limnodromus semipalmatus](#) Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
[Macronectes halli](#) Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pachyptila turtur](#) Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Congregation or aggregation known to occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Emydocephalus annulatus](#) Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area	In feature area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Lepidochelys olivacea](#) Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
[Orcaella heinsohni](#) Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Sousa sahulensis Australian Humpback Dolphin [87942]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Kurwongbah Park	Nature Refuge	QLD	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Construction of dual-track electrified railway lines	2002/586	Controlled Action	Completed	In feature area
Petrie Mill redevelopment project, Qld	2016/7839	Controlled Action	Post-Approval	In feature area
redevelopment of waste water treatment plant	2005/2028	Controlled Action	Completed	In buffer area only
Not controlled action				
56 Lot Industrial subdivision and associated infrastructure construction activities adjacent to Hays	2004/1553	Not Controlled Action	Completed	In feature area
Concrete Batching plant	2003/1245	Not Controlled Action	Completed	In feature area
Development of residential community at Lawnton Pocket Road	2004/1571	Not Controlled Action	Completed	In feature area
Dohles Rocks residential subdivision and development	2004/1494	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Installation of a sewer rising main and replacement of the existing PVC rising m	2005/2058	Not Controlled Action	Completed	In feature area
Moreton Bay Rail Link between Petrie Station and Kippa Ring	2010/5589	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (Redcliffe)				
Rehabilitation of Dowse Lagoon, Sandgate	2004/1401	Not Controlled Action	Completed	In buffer area only
Residential Development at 31 Alma Rd Dakabin, QLD	2012/6455	Not Controlled Action	Completed	In feature area
Residential Subdivision, Freshwater Development, Brays Road	2004/1606	Not Controlled Action	Completed	In feature area
residential subdivision, park & infrastructure	2003/1216	Not Controlled Action	Completed	In feature area
Site preparation for residential dwelling, Lot 79, Gregory Road	2004/1499	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
North Lakes Development	2001/520	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

28ºS
ENVIRONMENTAL

Attachment 2 – WildNet

WildNet Records
Species List

For the selected area of interest 57.68 Custom input
Current as at 18/07/2025 WildNetSpeciesList

Summary Information
The following table provides an overview of the area of interest: Custom input

Table 1. Area of interest details

Size (ha)	
57.68	
Local Government(s)	
Moreton Bay City	
Catchment(s)	
Pine	
Bioregion(s)	**Subregion(s)**
Southeast Queensland	Sunshine Coast - Gold Coast Lowlands

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.

Introduction
This WildNet report is derived from a spatial layer that is generated from the WildNet database, managed by the Department of the Environment, Tourism, Science and Innovation. The layer, which is generated weekly, contains a subset of 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. It does not include aspatial data such as some baseline species lists created for some protected areas.

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.

The WildNet Application may provide additional information on species occurence within your area of interest.

Species data

Contextual location information is presented in Map 1.

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

Table 3 lists the plants recorded within the area of interest and its one kilometre buffer.

Table 4 lists the fungi recorded within the area of interest and its one kilometre buffer.

Table 5 lists the other species recorded within the area of interest and its one kilometre buffer.

Map 1. Locality Map

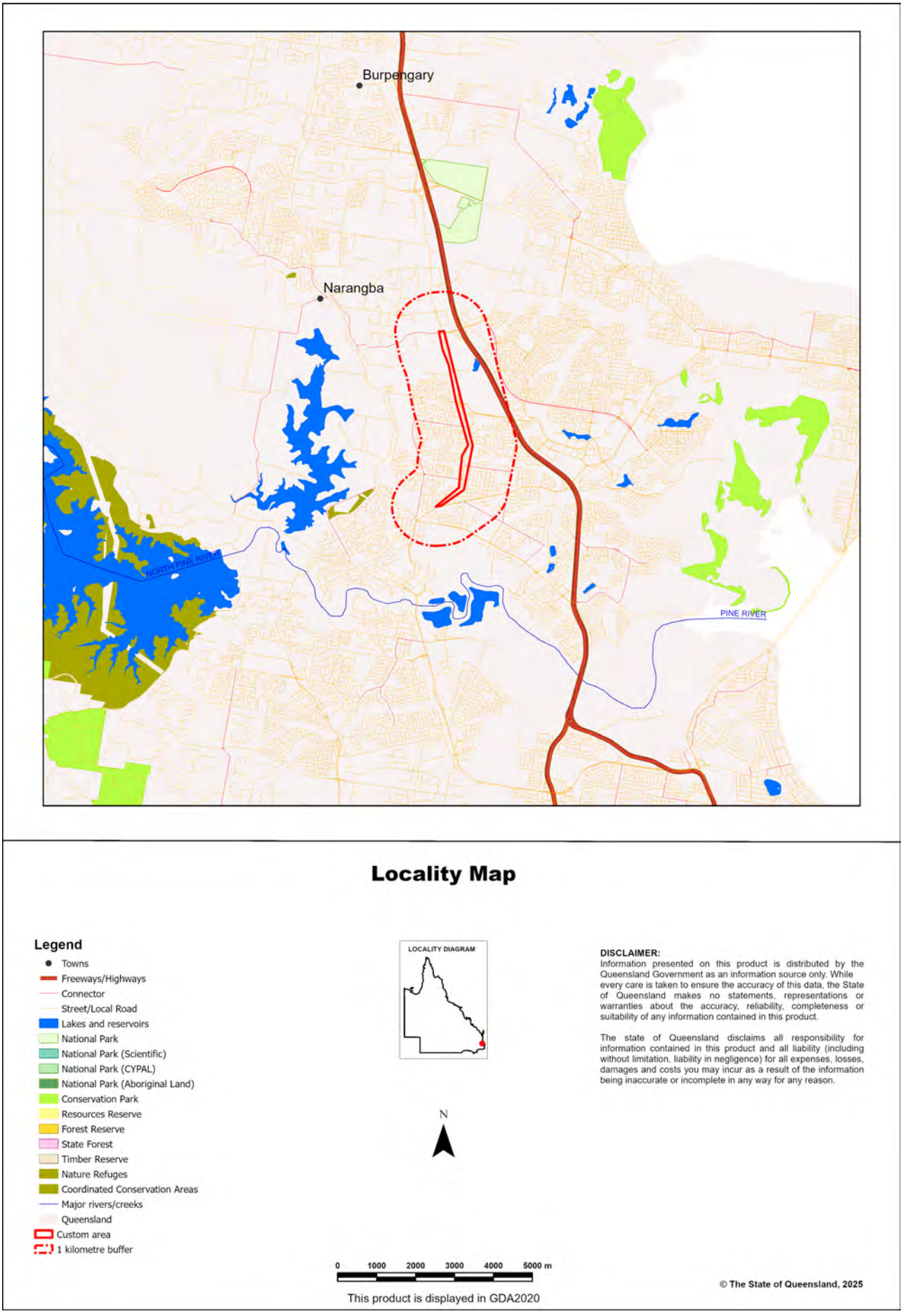


Table 2. Animals recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
26908	Actinopterygii	Anguillidae	*Anguilla australis*	southern shortfin eel			0	2	22/06/2016
26910	Actinopterygii	Anguillidae	*Anguilla reinhardtii*	longfin eel			0	1	20/07/2015
27055	Actinopterygii	Poeciliidae	*Gambusia holbrooki*	mosquitofish			0	1	14/11/2012
27089	Actinopterygii	Terapontidae	*Leiopotherapon unicolor*	spangled perch			0	1	20/07/2015
716	Amphibia	Bufonidae	*Rhinella marina*	cane toad			0	9	11/03/2015
608	Amphibia	Hylidae	*Litoria fallax*	eastern sedgefrog	C		0	8	1/12/2017
681	Amphibia	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog	C		0	7	29/06/2016
696	Amphibia	Myobatrachidae	*Crinia parinsignifera*	beeping froglet	C		0	2	22/06/2016
698	Amphibia	Myobatrachidae	*Crinia signifera*	clicking froglet	C		0	1	19/04/1993
686	Amphibia	Myobatrachidae	*Crinia tinnula*	wallum froglet	V		0	3	22/06/2016
672	Amphibia	Myobatrachidae	*Pseudophryne coriacea*	red backed broodfrog	C		0	5	19/11/1994
659	Amphibia	Myobatrachidae	*Pseudophryne major*	great brown broodfrog	C		0	2	19/04/1993
661	Amphibia	Myobatrachidae	*Pseudophryne raveni*	copper backed broodfrog	C		0	2	11/03/2015
1419	Aves	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill	C		0	2	20/06/1992
1421	Aves	Acanthizidae	*Acanthiza lineata*	striated thornbill	C		0	3	20/06/1992
1422	Aves	Acanthizidae	*Acanthiza nana*	yellow thornbill	C		0	1	14/03/1992
1423	Aves	Acanthizidae	*Acanthiza pusilla*	brown thornbill	C		0	6	29/06/1996
1425	Aves	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill	C		0	4	25/04/1993
1408	Aves	Acanthizidae	*Gerygone levigaster*	mangrove gerygone	C		0	10	29/06/1996
1410	Aves	Acanthizidae	*Gerygone mouki*	brown gerygone	C		0	3	15/05/1993
1396	Aves	Acanthizidae	*Gerygone olivacea*	white-throated gerygone	C		0	13	29/06/1996
1403	Aves	Acanthizidae	*Pyrrholaemus sagittatus*	speckled warbler	C		0	1	6/03/1992
1381	Aves	Acanthizidae	*Sericornis citreogularis*	yellow-throated scrubwren	C		0	1	6/03/1992

1382	Aves	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren	C		0	11	4/07/2007
1384	Aves	Acanthizidae	*Sericornis magnirostra*	large-billed scrubwren	C		0	2	15/05/1993
1371	Aves	Acanthizidae	*Smicrornis brevirostris*	weebill	C		0	1	6/03/1992
1742	Aves	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk	C		0	7	4/07/2007
1729	Aves	Accipitridae	*Accipiter fasciatus*	brown goshawk	C		0	3	5/11/1994
1730	Aves	Accipitridae	*Accipiter novaehollandiae*	grey goshawk	C		0	3	3/07/1993
1732	Aves	Accipitridae	*Aquila audax*	wedge-tailed eagle	C		0	3	31/01/1993
1721	Aves	Accipitridae	*Aviceda subcristata*	Pacific baza	C		0	10	11/10/2023
1722	Aves	Accipitridae	*Circus approximans*	swamp harrier	C		0	4	29/06/1996
1725	Aves	Accipitridae	*Elanus axillaris*	black-shouldered kite	C		0	5	30/04/1993
1718	Aves	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle	C		0	7	3/07/1993
1720	Aves	Accipitridae	*Haliastur indus*	brahminy kite	C		0	7	5/11/1994
1707	Aves	Accipitridae	*Haliastur sphenurus*	whistling kite	C		0	15	14/11/2012
1710	Aves	Accipitridae	*Hieraaetus morphnoides*	little eagle	C		0	4	30/04/1993
1712	Aves	Accipitridae	*Lophoictinia isura*	square-tailed kite	C		0	9	16/05/2016
1714	Aves	Accipitridae	*Milvus migrans*	black kite	C		0	1	21/03/1983
1305	Aves	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler	C		0	5	6/10/1996
1973	Aves	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar	C		0	2	20/06/1992
1776	Aves	Alcedinidae	*Ceyx azureus*	azure kingfisher	C		0	10	6/10/1996
1767	Aves	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra	C		0	32	31/07/2008
1760	Aves	Alcedinidae	*Todiramphus macleayii*	forest kingfisher	C		0	19	29/06/1996
1762	Aves	Alcedinidae	*Todiramphus sanctus*	sacred kingfisher	C		0	24	14/11/2012
1759	Aves	Alcedinidae	*Todiramphus sordidus*	Torresian kingfisher	C		0	5	25/04/1993
1992	Aves	Anatidae	*Anas castanea*	chestnut teal	C		0	23	6/10/1996

1993	Aves	Anatidae	*Anas gracilis*	grey teal	C		0	25	6/10/1996
1998	Aves	Anatidae	*Anas superciliosa*	Pacific black duck	C		0	29	10/09/2000
1999	Aves	Anatidae	*Aythya australis*	hardhead	C		0	24	13/08/2002
2001	Aves	Anatidae	*Biziura lobata*	musk duck	C		0	1	20/06/1992
2003	Aves	Anatidae	*Chenonetta jubata*	Australian wood duck	C		0	24	4/07/2007
2005	Aves	Anatidae	*Cygnus atratus*	black swan	C		0	4	11/03/2015
1977	Aves	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck	C		0	5	6/10/1996
1978	Aves	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck	C		0	1	20/06/1992
1980	Aves	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck	C		0	2	5/11/1994
1996	Aves	Anatidae	*Spatula rhynchotis*	Australasian shoveler	C		0	5	29/06/1996
1279	Aves	Anhingidae	*Anhinga novaehollandiae*	Australasian darter	C		0	12	6/10/1996
1963	Aves	Anseranatidae	*Anseranas semipalmata*	magpie goose	C		0	3	20/06/1992
1965	Aves	Apodidae	*Apus pacificus*	fork-tailed swift	SL		0	4	5/11/1994
1971	Aves	Apodidae	*Hirundapus caudacutus*	white-throated needletail	V	V	0	3	21/03/1993
1829	Aves	Ardeidae	*Ardea alba modesta*	eastern great egret	C		0	13	4/07/2007
1831	Aves	Ardeidae	*Ardea intermedia*	intermediate egret	C		0	19	29/06/1996
1832	Aves	Ardeidae	*Ardea pacifica*	white-necked heron	C		0	1	20/06/1992
1830	Aves	Ardeidae	*Bubulcus ibis*	cattle egret	C		0	28	14/11/2012
1839	Aves	Ardeidae	*Butorides striata*	striated heron	C		0	5	9/10/1993
1840	Aves	Ardeidae	*Egretta garzetta*	little egret	C		0	8	19/11/1994
1826	Aves	Ardeidae	*Egretta novaehollandiae*	white-faced heron	C		0	23	6/10/1996
1813	Aves	Ardeidae	*Egretta sacra*	eastern reef egret	C		0	1	20/06/1992
1816	Aves	Ardeidae	*Ixobrychus dubius*	Australian little bittern	C		0	1	20/06/1992
1815	Aves	Ardeidae	*Ixobrychus flavicollis*	black bittern	C		0	1	20/06/1992

1818	Aves	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron	C		0	9	6/10/1996
1659	Aves	Artamidae	*Artamus cyanopterus*	dusky woodswallow	C		0	1	20/06/1992
1660	Aves	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow	C		0	8	6/10/1996
1647	Aves	Artamidae	*Artamus personatus*	masked woodswallow	C		0	2	14/11/2012
1649	Aves	Artamidae	*Artamus superciliosus*	white-browed woodswallow	C		0	3	22/05/1993
1654	Aves	Artamidae	*Cracticus nigrogularis*	pied butcherbird	C		0	25	31/07/2008
1656	Aves	Artamidae	*Cracticus torquatus*	grey butcherbird	C		0	24	31/07/2008
1644	Aves	Artamidae	*Gymnorhina tibicen*	Australian magpie	C		0	34	3/12/2020
1645	Aves	Artamidae	*Strepera graculina*	pied currawong	C		0	4	4/07/2007
1191	Aves	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo	C		0	15	14/11/2012
1194	Aves	Cacatuidae	*Cacatua sanguinea*	little corella	C		0	2	20/06/1992
21967	Aves	Cacatuidae	*Cacatua tenuirostris*	long-billed corella	C		0	1	30/06/2000
22494	Aves	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)	V	V	0	1	1/04/1992
1193	Aves	Cacatuidae	*Eolophus roseicapilla*	galah	C		0	13	30/06/2000
1185	Aves	Cacatuidae	*Zanda funerea*	yellow-tailed black-cockatoo	C		0	1	29/06/1996
1636	Aves	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike	C		0	31	4/07/2007
1637	Aves	Campephagidae	*Coracina papuensis*	white-bellied cuckoo -shrike	C		0	5	19/11/1994
1639	Aves	Campephagidae	*Edolisoma tenuirostre*	common cicadabird	C		0	10	19/11/1994
1640	Aves	Campephagidae	*Lalage leucomela*	varied triller	C		0	21	4/07/2007
1642	Aves	Campephagidae	*Lalage tricolor*	white-winged triller	C		0	3	5/11/1994
1946	Aves	Charadriidae	*Charadrius bicinctus*	double-banded plover	SL		0	1	20/06/1992
1937	Aves	Charadriidae	*Charadrius ruficapillus*	red-capped plover	C		0	1	20/06/1992
1940	Aves	Charadriidae	*Elseyornis melanops*	black-fronted dotterel	C		0	19	6/10/1996
1942	Aves	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel	C		0	3	19/11/1994

1944	Aves	Charadriidae	*Pluvialis fulva*	Pacific golden plover	SL		0	2	20/06/1992
1933	Aves	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)	C		0	28	7/08/1999
1820	Aves	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork	C		0	2	20/06/1992
1294	Aves	Cisticolidae	*Cisticola exilis*	golden-headed cisticola	C		0	5	3/07/1993
1628	Aves	Climacteridae	*Climacteris picumnus*	brown treecreeper	C		0	1	1/04/1992
18293	Aves	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)	C		0	7	5/11/1994
1804	Aves	Columbidae	*Columba livia*	rock dove			0	7	29/06/1996
1810	Aves	Columbidae	*Geopelia humeralis*	bar-shouldered dove	C		0	25	29/06/1996
18323	Aves	Columbidae	*Geopelia placida*	peaceful dove	C		0	23	6/10/1996
1789	Aves	Columbidae	*Lopholaimus antarcticus*	topknot pigeon	C		0	2	8/05/1993
1791	Aves	Columbidae	*Macropygia phasianella*	brown cuckoo-dove	C		0	3	9/10/1993
1793	Aves	Columbidae	*Ocyphaps lophotes*	crested pigeon	C		0	27	25/06/2020
1795	Aves	Columbidae	*Phaps chalcoptera*	common bronzewing	C		0	3	20/06/1992
1774	Aves	Columbidae	*Spilopelia chinensis*	spotted dove			0	27	14/11/2012
1779	Aves	Coraciidae	*Eurystomus orientalis*	dollarbird	C		0	9	19/11/1994
1609	Aves	Corvidae	*Corvus orru*	Torresian crow	C		0	36	24/11/2020
1754	Aves	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo	C		0	18	29/06/1996
1750	Aves	Cuculidae	*Cacomantis pallidus*	pallid cuckoo	C		0	5	9/10/1993
1743	Aves	Cuculidae	*Cacomantis variolosus*	brush cuckoo	C		0	7	19/11/1994
1751	Aves	Cuculidae	*Centropus phasianinus*	pheasant coucal	C		0	4	19/11/1994
1744	Aves	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo	C		0	3	20/06/1992
1745	Aves	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo	C		0	12	19/11/1994
1756	Aves	Cuculidae	*Chalcites minutillus barnardi*	Eastern little bronze -cuckoo	C		0	4	21/03/1993
1738	Aves	Cuculidae	*Eudynamys orientalis*	eastern koel	C		0	8	19/11/1994

1740	Aves	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo	C		0	2	20/06/1992
1611	Aves	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird	C		0	10	4/07/2007
1601	Aves	Dicruridae	*Dicrurus bracteatus*	spangled drongo	C		0	29	4/07/2007
1366	Aves	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin	C		0	6	14/11/2012
1367	Aves	Estrildidae	*Lonchura punctulata*	nutmeg mannikin			0	4	15/05/1993
1359	Aves	Estrildidae	*Neochmia temporalis*	red-browed finch	C		0	10	19/11/1994
1342	Aves	Estrildidae	*Taeniopygia bichenovii*	double-barred finch	C		0	21	29/06/1996
1949	Aves	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar	C		0	2	6/04/2019
1716	Aves	Falconidae	*Falco berigora*	brown falcon	C		0	3	20/06/1992
1704	Aves	Falconidae	*Falco cenchroides*	nankeen kestrel	C		0	4	11/03/2015
1691	Aves	Falconidae	*Falco longipennis*	Australian hobby	C		0	2	20/06/1992
1692	Aves	Falconidae	*Falco peregrinus macropus*	Australian peregrine falcon	C		0	5	3/07/1993
1678	Aves	Gruidae	*Antigone rubicunda*	brolga	C		0	1	20/06/1992
1926	Aves	Haematopodidae	*Haematopus longirostris*	Australian pied oystercatcher	C		0	1	20/06/1992
1583	Aves	Hirundinidae	*Cheramoeca leucosterna*	white-backed swallow	C		0	1	3/10/1993
1572	Aves	Hirundinidae	*Hirundo neoxena*	welcome swallow	C		0	28	4/07/2007
1561	Aves	Hirundinidae	*Hirundo rustica*	barn swallow	SL		0	1	20/06/1992
1585	Aves	Hirundinidae	*Petrochelidon ariel*	fairy martin	C		0	18	14/11/2012
1573	Aves	Hirundinidae	*Petrochelidon nigricans*	tree martin	C		0	6	3/07/1993
1928	Aves	Jacanidae	*Irediparra gallinacea*	comb-crested jacana	C		0	2	20/06/1992
1920	Aves	Laridae	*Chlidonias leucopterus*	white-winged black tern	SL		0	1	20/06/1992
1912	Aves	Laridae	*Chroicocephalus novaehollandiae*	silver gull	C		0	5	22/05/1993
1886	Aves	Laridae	*Gelochelidon macrotarsa*	Australian tern	C		0	3	5/11/1994
1896	Aves	Laridae	*Hydroprogne caspia*	Caspian tern	SL		0	1	20/06/1992

1911	Aves	Laridae	*Larus dominicanus*	kelp gull	C		0	1	20/06/1992
1899	Aves	Laridae	*Sterna hirundo*	common tern	SL		0	1	20/06/1992
1895	Aves	Laridae	*Thalasseus bergii*	crested tern	SL		0	5	22/05/1993
1291	Aves	Locustellidae	*Cincloramphus cruralis*	brown songlark	C		0	1	20/06/1992
1292	Aves	Locustellidae	*Cincloramphus mathewsi*	rufous songlark	C		0	1	6/03/1992
1289	Aves	Locustellidae	*Cincloramphus timoriensis*	tawny grassbird	C		0	7	19/11/1994
1287	Aves	Locustellidae	*Poodytes gramineus*	little grassbird	C		0	1	20/06/1992
1570	Aves	Maluridae	*Malurus cyaneus*	superb fairy-wren	C		0	2	20/06/1992
18458	Aves	Maluridae	*Malurus lamberti*	variegated fairy-wren	C		0	22	31/07/2008
1558	Aves	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren	C		0	17	14/11/2012
1559	Aves	Maluridae	*Malurus sp.*		C		0	1	11/03/2015
1694	Aves	Megapodiidae	*Alectura lathami*	Australian brush-turkey	C		0	2	30/05/1992
1555	Aves	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill	C		0	2	20/06/1992
1542	Aves	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird	C		0	5	4/07/2007
1523	Aves	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater	C		0	14	14/11/2012
1539	Aves	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater	C		0	9	4/07/2007
1524	Aves	Meliphagidae	*Gavicalis fasciogularis*	mangrove honeyeater	C		0	24	6/10/1996
1497	Aves	Meliphagidae	*Lichmera indistincta*	brown honeyeater	C		0	34	4/07/2007
1500	Aves	Meliphagidae	*Manorina melanocephala*	noisy miner	C		0	33	31/07/2008
1504	Aves	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater	C		0	30	14/11/2012
1507	Aves	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater	C		0	24	6/10/1996
1485	Aves	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater	C		0	3	31/01/1993
1488	Aves	Meliphagidae	*Myzomela obscura*	dusky honeyeater	C		0	1	6/03/1992
1489	Aves	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater	C		0	16	4/07/2007

1493	Aves	Meliphagidae	*Philemon citreogularis*	little friarbird	C		0	9	3/07/1993
1494	Aves	Meliphagidae	*Philemon corniculatus*	noisy friarbird	C		0	12	4/07/2007
1482	Aves	Meliphagidae	*Phylidonyris niger*	white-cheeked honeyeater	C		0	4	20/06/1992
1471	Aves	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater	C		0	11	9/10/1993
1513	Aves	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater	C		0	1	20/06/1992
1764	Aves	Meropidae	*Merops ornatus*	rainbow bee-eater	C		0	26	6/10/1996
1594	Aves	Monarchidae	*Carterornis leucotis*	white-eared monarch	C		0	1	6/03/1992
1589	Aves	Monarchidae	*Grallina cyanoleuca*	magpie-lark	C		0	34	25/06/2020
1595	Aves	Monarchidae	*Monarcha melanopsis*	black-faced monarch	C		0	6	19/11/1994
1598	Aves	Monarchidae	*Myiagra alecto*	shining flycatcher	C		0	1	6/03/1992
1599	Aves	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher	C		0	4	19/11/1994
1600	Aves	Monarchidae	*Myiagra inquieta*	restless flycatcher	C		0	4	20/06/1992
1586	Aves	Monarchidae	*Myiagra rubecula*	leaden flycatcher	C		0	16	29/06/1996
1597	Aves	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch	C		0	3	19/11/1994
1455	Aves	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit	C		0	3	20/06/1992
1453	Aves	Neosittidae	*Daphoenositta chrysoptera*	varied sittella	C		0	5	15/05/1993
1442	Aves	Oriolidae	*Oriolus sagittatus*	olive-backed oriole	C		0	10	6/10/1996
1444	Aves	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird	C		0	28	31/07/2008
1449	Aves	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush	C		0	29	6/10/1996
1450	Aves	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush	C		0	11	19/11/1994
1436	Aves	Pachycephalidae	*Pachycephala pectoralis*	golden whistler	C		0	7	19/11/1994
1437	Aves	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler	C		0	28	29/06/1996
1702	Aves	Pandionidae	*Pandion haliaetus cristatus*	eastern osprey	SL		0	8	6/10/1996
1389	Aves	Pardalotidae	*Pardalotus punctatus*	spotted pardalote	C		0	4	30/05/1992

1392	Aves	Pardalotidae	*Pardalotus striatus*	striated pardalote	C		0	30	4/07/2007
1360	Aves	Passeridae	*Passer domesticus*	house sparrow			0	9	15/05/1993
1284	Aves	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican	C		0	12	11/03/2015
1347	Aves	Petroicidae	*Eopsaltria australis*	eastern yellow robin	C		0	10	19/11/1994
1339	Aves	Petroicidae	*Microeca fascinans*	jacky winter	C		0	3	20/06/1992
1332	Aves	Petroicidae	*Petroica rosea*	rose robin	C		0	5	3/07/1993
1261	Aves	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant	C		0	16	11/03/2015
1275	Aves	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant	C		0	2	20/06/1992
1263	Aves	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant	C		0	19	6/10/1996
1264	Aves	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant	C		0	3	6/10/1996
1699	Aves	Phasianidae	*Coturnix pectoralis*	stubble quail	C		0	1	20/06/1992
1698	Aves	Phasianidae	*Synoicus chinensis*	king quail	C		0	1	20/06/1992
1687	Aves	Phasianidae	*Synoicus ypsilophorus*	brown quail	C		0	4	20/06/1992
1955	Aves	Podargidae	*Podargus strigoides*	tawny frogmouth	C		0	9	17/12/2016
1260	Aves	Podicipedidae	*Poliocephalus poliocephalus*	hoary-headed grebe	C		0	1	6/03/1992
1249	Aves	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe	C		0	24	6/10/1996
1318	Aves	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler	C		0	1	14/03/1992
1188	Aves	Procellariidae	*Ardenna pacifica*	wedge-tailed shearwater	V		0	1	20/06/1992
1180	Aves	Psittaculidae	*Alisterus scapularis*	Australian king-parrot	C		0	1	20/06/1992
1145	Aves	Psittaculidae	*Glossopsitta concinna*	musk lorikeet	C		0	1	20/06/1992
1147	Aves	Psittaculidae	*Parvipsitta pusilla*	little lorikeet	C		0	2	20/06/1992
1136	Aves	Psittaculidae	*Platycercus adscitus*	pale-headed rosella	C		0	27	7/08/1999
21976	Aves	Psittaculidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)	C		0	1	6/10/1996
1138	Aves	Psittaculidae	*Platycercus elegans*	crimson rosella	C		0	1	20/06/1992

1139	Aves	Psittaculidae	*Platycercus eximius*	eastern rosella	C		0	1	20/06/1992
1118	Aves	Psittaculidae	*Psephotus haematonotus*	red-rumped parrot	C		0	1	20/06/1992
1124	Aves	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet	C		0	28	31/07/2008
1125	Aves	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet	C		0	32	25/06/2020
1623	Aves	Psophodidae	*Psophodes olivaceus*	eastern whipbird	C		0	19	29/06/1996
1682	Aves	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen	C		0	3	31/01/1993
1686	Aves	Rallidae	*Fulica atra*	Eurasian coot	C		0	17	29/06/1996
1673	Aves	Rallidae	*Gallinula tenebrosa*	dusky moorhen	C		0	25	6/10/1996
1675	Aves	Rallidae	*Gallirallus philippensis*	buff-banded rail	C		0	2	20/06/1992
1670	Aves	Rallidae	*Lewinia pectoralis*	Lewin's rail	C		0	1	6/03/1992
1662	Aves	Rallidae	*Porphyrio melanotus*	purple swamphen	C		0	26	11/03/2015
1665	Aves	Rallidae	*Zapornia pusilla*	Baillon's crake	C		0	4	19/11/1994
1667	Aves	Rallidae	*Zapornia tabuensis*	spotless crake	C		0	1	6/03/1992
1893	Aves	Recurvirostridae	*Himantopus leucocephalus*	pied stilt	C		0	23	6/10/1996
1881	Aves	Recurvirostridae	*Recurvirostra novaehollandiae*	red-necked avocet	C		0	1	20/06/1992
1575	Aves	Rhipiduridae	*Rhipidura albiscapa*	grey fantail	C		0	27	11/03/2015
1576	Aves	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail	C		0	30	14/11/2012
1578	Aves	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail	C		0	7	9/10/1993
1885	Aves	Scolopacidae	*Actitis hypoleucos*	common sandpiper	SL		0	8	19/11/1994
1872	Aves	Scolopacidae	*Arenaria interpres*	ruddy turnstone	V	V	0	1	20/06/1992
1874	Aves	Scolopacidae	*Calidris acuminata*	sharp-tailed sandpiper	V	V	0	9	19/11/1994
1875	Aves	Scolopacidae	*Calidris alba*	sanderling	SL		0	2	20/06/1992
1877	Aves	Scolopacidae	*Calidris canutus*	red knot	V	V	0	1	20/06/1992
1863	Aves	Scolopacidae	*Calidris falcinellus*	broad-billed sandpiper	SL		0	1	6/03/1992

1878	Aves	Scolopacidae	*Calidris ferruginea*	curlew sandpiper	CR	CE	0	3	12/04/1993
1879	Aves	Scolopacidae	*Calidris melanotos*	pectoral sandpiper	SL		0	1	31/01/1993
1880	Aves	Scolopacidae	*Calidris ruficollis*	red-necked stint	SL		0	1	20/06/1992
1856	Aves	Scolopacidae	*Calidris tenuirostris*	great knot	V	V	0	1	20/06/1992
1857	Aves	Scolopacidae	*Gallinago hardwickii*	Latham's snipe	V	V	0	4	31/01/1993
1867	Aves	Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit	E	E	0	1	20/06/1992
1843	Aves	Scolopacidae	*Numenius madagascariensis*	eastern curlew	CR	CE	0	1	20/06/1992
1845	Aves	Scolopacidae	*Numenius phaeopus*	whimbrel	SL		0	1	20/06/1992
1860	Aves	Scolopacidae	*Tringa brevipes*	grey-tailed tattler	SL		0	1	20/06/1992
1852	Aves	Scolopacidae	*Tringa glareola*	wood sandpiper	SL		0	1	6/03/1992
1853	Aves	Scolopacidae	*Tringa nebularia*	common greenshank	E	E	0	4	5/11/1994
1841	Aves	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper	SL		0	10	19/11/1994
1827	Aves	Scolopacidae	*Xenus cinereus*	terek sandpiper	V	V	0	1	20/06/1992
1102	Aves	Strigidae	*Ninox boobook*	southern boobook	C		0	4	24/03/2009
1107	Aves	Strigidae	*Ninox strenua*	powerful owl	V		0	3	13/05/2017
1314	Aves	Sturnidae	*Acridotheres tristis*	common myna			0	1	14/11/2012
1303	Aves	Sturnidae	*Sturnus vulgaris*	common starling			0	8	6/10/1996
1822	Aves	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill	C		0	3	26/09/1994
1823	Aves	Threskiornithidae	*Platalea regia*	royal spoonbill	C		0	19	6/10/1996
1825	Aves	Threskiornithidae	*Plegadis falcinellus*	glossy ibis	SL		0	16	6/10/1996
1812	Aves	Threskiornithidae	*Threskiornis molucca*	Australian white ibis	C		0	30	25/06/2020
1800	Aves	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis	C		0	22	19/11/1994
1108	Aves	Tytonidae	*Tyto javanica*	eastern barn owl	C		0	2	3/11/1993
1276	Aves	Zosteropidae	*Zosterops lateralis*	silvereye	C		0	66	4/07/2007

1071	Mammalia	Canidae	*Vulpes vulpes*	red fox			0	2	21/03/1993
22485	Mammalia	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)	C		0	2	1/04/1992
803	Mammalia	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)	E	E	0	1	31/12/1990
832	Mammalia	Leporidae	*Lepus europaeus*	European brown hare			0	7	5/11/1994
901	Mammalia	Macropodidae	*Macropus giganteus*	eastern grey kangaroo	C		0	1	11/03/2015
904	Mammalia	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby	C		0	1	1/04/1992
885	Mammalia	Macropodidae	*Wallabia bicolor*	swamp wallaby	C		0	11	6/05/2008
998	Mammalia	Molossidae	*Mormopterus lumsdenae*	northern free-tailed bat	C		0	1	1/04/1992
741	Mammalia	Muridae	*Rattus fuscipes*	bush rat	C		0	1	6/02/2017
743	Mammalia	Muridae	*Rattus lutreolus*	swamp rat	C		0	5	1/08/2016
836	Mammalia	Ornithorhynchidae	*Ornithorhynchus anatinus*	platypus	SL		0	2	31/12/2002
787	Mammalia	Peramelidae	*Perameles nasuta*	long-nosed bandicoot	C		0	1	1/04/1992
877	Mammalia	Petauridae	*Petaurus breviceps sensu lato*	sugar glider			0	2	1/04/1992
879	Mammalia	Petauridae	*Petaurus norfolcensis*	squirrel glider	C		0	4	17/03/2020
859	Mammalia	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum	C		0	8	17/03/2020
860	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	koala	E	E	0	1541	11/02/2022
851	Mammalia	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum	C		0	4	4/07/2007
984	Mammalia	Pteropodidae	*Pteropus alecto*	black flying-fox	C		0	13	3/02/2021
963	Mammalia	Pteropodidae	*Pteropus scapulatus*	little red flying-fox	C		0	8	3/02/2021
1080	Mammalia	Suidae	*Sus scrofa*	pig			0	1	6/03/1992
567	Reptilia	Agamidae	*Diporiphora australis*	tommy roundhead	C		0	1	1/04/1992
554	Reptilia	Agamidae	*Intellagama lesueurii*	eastern water dragon	C		0	9	6/08/2016
556	Reptilia	Agamidae	*Pogona barbata*	bearded dragon	C		1	9	1/08/2016
519	Reptilia	Boidae	*Morelia spilota*	carpet python	C		0	2	7/06/2016

62	Reptilia	Chelidae	*Chelodina expansa*	broad-shelled river turtle	C		0	1	5/11/1994
63	Reptilia	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle	C		0	1	6/03/1992
512	Reptilia	Colubridae	*Dendrelaphis punctulatus*	green tree snake	C		0	1	1/04/1992
490	Reptilia	Elapidae	*Cacophis squamulosus*	golden crowned snake	C		0	2	20/10/1993
493	Reptilia	Elapidae	*Demansia psammophis*	yellow-faced whipsnake	C		0	3	1/06/2016
322	Reptilia	Pygopodidae	*Delma sp.*		C		0	1	1/04/1992
325	Reptilia	Pygopodidae	*Lialis burtonis*	Burton's legless lizard	C		0	1	1/04/1992
193	Reptilia	Scincidae	*Concinnia tenuis*	bar-sided skink	C		0	1	1/04/1992
31898	Reptilia	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink	C		0	3	19/11/1994
184	Reptilia	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink	C		0	1	1/04/1992
107	Reptilia	Scincidae	*Tiliqua scincoides scincoides*	eastern bluetongue	C		0	5	28/06/2016
71	Reptilia	Varanidae	*Varanus sp.*	goanna	C		0	1	10/04/1992
61	Reptilia	Varanidae	*Varanus varius*	lace monitor	C		0	1	5/11/1994

Table 3. Plants recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
15545	Equisetopsida	Apiaceae	*Centella asiatica*		C		0	1	11/03/2015
16526	Equisetopsida	Apocynaceae	*Parsonsia straminea*	monkey rope	C		0	1	11/03/2015
15612	Equisetopsida	Asteraceae	*Baccharis halimifolia*	groundsel bush			0	3	13/09/2016
22237	Equisetopsida	Asteraceae	*Cyanthillium cinereum*		C		0	1	11/03/2015
15438	Equisetopsida	Asteraceae	*Eclipta prostrata*	white eclipta			0	1	11/03/2015
26362	Equisetopsida	Asteraceae	*Sphagneticola trilobata*				0	2	15/12/2015
13755	Equisetopsida	Asteraceae	*Tagetes minuta*	stinking roger			0	1	11/03/2015
16766	Equisetopsida	Campanulaceae	*Lobelia purpurascens*	white root	SL		0	1	11/03/2015
18012	Equisetopsida	Casuarinaceae	*Allocasuarina littoralis*		C		0	1	11/03/2015
16599	Equisetopsida	Commelinaceae	*Murdannia graminea*	murdannia	C		0	1	11/03/2015

14467	Equisetopsida	Convolvulaceae	*Ipomoea cairica*				0	1	11/03/2015
9381	Equisetopsida	Cyperaceae	*Lepidosperma laterale*		C		0	1	11/03/2015
16211	Equisetopsida	Cyperaceae	*Schoenus apogon var. apogon*		C		1	1	22/10/2019
16340	Equisetopsida	Dennstaedtiaceae	*Pteridium esculentum*	common bracken	C		0	1	11/03/2015
4734	Equisetopsida	Euphorbiaceae	*Euphorbia hyssopifolia*				1	1	19/05/2023
17065	Equisetopsida	Goodeniaceae	*Goodenia rotundifolia*		C		0	1	11/03/2015
15974	Equisetopsida	Hemerocallidacea e	*Tricoryne elatior*	yellow autumn lily	C		0	1	11/03/2015
13895	Equisetopsida	Juncaceae	*Juncus polyanthemus*		C		1	1	11/07/2018
11859	Equisetopsida	Lauraceae	*Cinnamomum camphora*	camphor laurel			0	1	11/03/2015
15339	Equisetopsida	Laxmanniaceae	*Eustrephus latifolius*	wombat berry	C		0	1	11/03/2015
16771	Equisetopsida	Laxmanniaceae	*Lomandra filiformis*		C		0	1	11/03/2015
16776	Equisetopsida	Laxmanniaceae	*Lomandra longifolia*		C		0	1	11/03/2015
21915	Equisetopsida	Leguminosae	*Acacia disparrima subsp. disparrima*		C		0	1	11/03/2015
15745	Equisetopsida	Leguminosae	*Acacia fimbriata*	Brisbane golden wattle	C		0	1	11/03/2015
14066	Equisetopsida	Leguminosae	*Acacia leiocalyx subsp. leiocalyx*		C		0	1	11/03/2015
15460	Equisetopsida	Leguminosae	*Desmodium rhytidophyllum*		C		0	1	11/03/2015
6725	Equisetopsida	Leguminosae	*Glycine sp. (Petrie S.T.Blake 2166)*		C		0	1	11/03/2015
12952	Equisetopsida	Leguminosae	*Neonotonia wightii var. wightii*				1	1	25/08/2006
15092	Equisetopsida	Leguminosae	*Pultenaea villosa*	hairy bush pea	C		0	1	11/03/2015
15073	Equisetopsida	Leguminosae	*Senna pendula var. glabrata*	Easter cassia			0	1	11/03/2015
9647	Equisetopsida	Menispermaceae	*Stephania japonica*		C		0	1	11/03/2015
18000	Equisetopsida	Myrtaceae	*Angophora woodsiana*	smudgee	C		0	2	11/03/2015
42249	Equisetopsida	Myrtaceae	*Blakella citriodora*		C		0	1	9/11/2014
6445	Equisetopsida	Myrtaceae	*Corymbia intermedia*	pink bloodwood	C		0	2	11/03/2015

17290	Equisetopsida	Myrtaceae	*Eucalyptus acmenoides*		C		0	2	11/03/2015
17225	Equisetopsida	Myrtaceae	*Eucalyptus microcorys*		C		0	2	11/03/2015
6513	Equisetopsida	Myrtaceae	*Eucalyptus racemosa subsp. racemosa*	scribbly gum	C		0	1	11/03/2015
17192	Equisetopsida	Myrtaceae	*Eucalyptus resinifera*	red mahogany	C		0	2	11/03/2015
17196	Equisetopsida	Myrtaceae	*Eucalyptus seeana*	narrow-leaved red gum	C		0	1	11/03/2015
12465	Equisetopsida	Myrtaceae	*Eucalyptus siderophloia*		C		0	1	9/11/2014
17204	Equisetopsida	Myrtaceae	*Eucalyptus tereticornis*		C		0	1	9/11/2014
12468	Equisetopsida	Myrtaceae	*Eucalyptus tindaliae*	Queensland white stringybark	C		0	1	9/11/2014
14441	Equisetopsida	Myrtaceae	*Leptospermum polygalifolium*	tantoon	C		0	1	11/03/2015
16730	Equisetopsida	Myrtaceae	*Lophostemon suaveolens*	swamp box	C		0	1	11/03/2015
16695	Equisetopsida	Myrtaceae	*Melaleuca quinquenervia*	swamp paperbark	C		0	1	11/03/2015
13390	Equisetopsida	Ochnaceae	*Ochna serrulata*	ochna			0	1	11/03/2015
8197	Equisetopsida	Orchidaceae	*Geodorum densiflorum*	pink nodding orchid	SL		0	1	11/03/2015
36078	Equisetopsida	Passifloraceae	*Passiflora suberosa subsp. litoralis*				0	1	11/03/2015
17093	Equisetopsida	Phyllanthaceae	*Glochidion ferdinandi var. ferdinandi*		C		0	1	11/03/2015
17097	Equisetopsida	Phyllanthaceae	*Glochidion sumatranum*	umbrella cheese tree	C		0	1	11/03/2015
12030	Equisetopsida	Pinaceae	*Pinus elliottii*	slash pine			0	1	11/03/2015
15670	Equisetopsida	Poaceae	*Alloteropsis semialata*	cockatoo grass	C		0	1	11/03/2015
15485	Equisetopsida	Poaceae	*Cymbopogon refractus*	barbed-wire grass	C		0	1	11/03/2015
15426	Equisetopsida	Poaceae	*Digitaria parviflora*		C		1	1	18/02/2020
15411	Equisetopsida	Poaceae	*Entolasia stricta*	wiry panic	C		0	1	11/03/2015
15359	Equisetopsida	Poaceae	*Eragrostis curvula*				0	1	11/03/2015
15290	Equisetopsida	Poaceae	*Imperata cylindrica*	blady grass	C		0	1	11/03/2015
29093	Equisetopsida	Poaceae	*Megathyrsus maximus*				0	1	11/03/2015

15242	Equisetopsida	Poaceae	*Melinis minutiflora*	molasses grass			0	1	11/03/2015
15163	Equisetopsida	Poaceae	*Oplismenus aemulus*	creeping shade grass	C		0	1	11/03/2015
10637	Equisetopsida	Poaceae	*Ottochloa gracillima*	pademelon grass	C		0	1	11/03/2015
13607	Equisetopsida	Poaceae	*Panicum effusum*		C		0	1	11/03/2015
22783	Equisetopsida	Poaceae	*Paspalum mandiocanum*				0	1	11/03/2015
9190	Equisetopsida	Poaceae	*Setaria sphacelata*				0	1	11/03/2015
14974	Equisetopsida	Poaceae	*Themeda triandra*	kangaroo grass	C		0	1	11/03/2015
14999	Equisetopsida	Poaceae	*Urochloa mosambicensis*	sabi grass			0	1	11/03/2015
14352	Equisetopsida	Polygonaceae	*Persicaria strigosa*		C		0	1	11/03/2015
7897	Equisetopsida	Proteaceae	*Persoonia stradbrokensis*		C		1	1	6/08/2015
17682	Equisetopsida	Pteridaceae	*Cheilanthes sieberi subsp. sieberi*		C		0	1	11/03/2015
9659	Equisetopsida	Rhamnaceae	*Alphitonia excelsa*	soap tree	C		0	1	11/03/2015
17209	Equisetopsida	Rutaceae	*Melicope elleryana*		C		0	1	11/03/2015
26439	Equisetopsida	Solanaceae	*Solanum chrysotrichum*				0	1	11/03/2015
15983	Equisetopsida	Sparrmanniaceae	*Triumfetta rhomboidea*	chinese burr			0	1	11/03/2015
19905	Equisetopsida	Verbenaceae	*Lantana camara*	lantana			0	1	11/03/2015
8928	Equisetopsida	Verbenaceae	*Stachytarpheta australis*				1	1	30/06/2023
15951	Equisetopsida	Verbenaceae	*Verbena bonariensis*	purpletop			0	1	11/03/2015

Table 4. Fungi recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
28643	Agaricomycetes	Marasmiaceae	*Marasmius pellucidus*		C		1	1	8/01/2025
25429	Lecanoromycetes	Caliciaceae	*Buellia dissa*		C		1	1	15/11/2011
22973	Lecanoromycetes	Parmeliaceae	*Bulbothrix apophysata*		C		1	1	15/11/2011

Table 5. Other species recorded within the area of interest and its one kilometre buffer

Attachment 3 – Likelihood of Occurrence

28ºS ENVIRONMENTAL

Anzac Avenue to Boundary Road

Likelihood of Occurrence Assessment

2025-093

19 August 2025

DUE DILIGENCE ADVICE | DEVELOPMENT STRATEGY & PLANNING | ECOLOGICAL SURVEY & ASSESSMENT
EPBC ACT ASSESSMENT & APPROVALS | STATE & LOCAL GOVERNMENT APPROVALS & PERMITS
VEGETATION, HABITAT, FAUNA & REHABILITATION MANAGEMENT PLANS | BIODIVERSITY OFFSETS | EXPERT WITNESS

1. Likelihood of Occurrence

Table 1: Likelihood of occurrence category definitions

Likelihood category	Category definition
Known	The listed species or TEC has been recorded in the Study Area during the past decade (or during the Project survey period). The record is considered valid and is associated with a high spatial confidence.
High	Given the extent, quality and suitability of habitat in the Study Area, the location of the Study Area relative to existing contemporary records (past 20 years) of the species (with consideration of sampling effort in the region and the species' detectability (e.g. cryptic species) it is highly likely that the species occurs in the Study Area. Also includes species likely to regularly occur within the Study Area during migratory, short-distance season or nomadic movements (including cases for which likelihood of occurrence is high regardless of the nature of habitat present in the Study Area). The TEC has one or more corresponding REs mapped within the Study Area, and key species have been recorded from the broader area (desktop search extent). Key diagnostic characteristics and condition thresholds specified as part of the Commonwealth listing advice will need to be evaluated through field survey to verify presence/absence.
Moderate	Potential or suitable habitat is present in the Study Area, however, given the distribution of records in the surrounding region and/or the species' detectability a moderate rating for likelihood of occurrence is deemed more appropriate that a low or high rating. Includes species that may be present or may occasionally utilise the Study Area but for which there may be little information or those that are either cryptic or occur at low densities. Also includes species that may occasionally occur in the Study Area during migratory, short-distance season or nomadic movements. The TEC has one or more corresponding REs mapped within the Study Area; however, key species have not been recorded from the broader area (desktop search extent). Key diagnostic characteristics and condition thresholds specified as part of the Commonwealth listing advice will need to be evaluated through field survey to determine if the community is confirmed within the Study Area.
Low	The Study Area either contains limited suitable habitat or only potential/marginal habitat. The species is either very scarce or absent in the surrounding region. The species is deemed unlikely to occur within the Study Area based on the aforementioned factors. The species may disperse through or near the Study Area infrequently. The TEC has no corresponding REs mapped within the Study Area.
Unlikely	The Study Area offers limited to no potential habitat for the species or TEC, is outside its known range and/or is lacking broader habitat requirements.
Highly unlikely	The Study Area is fundamentally unsuitable for the species, or the species is presumed extinct or locally extinct. For example, this is usually applied to marine species or seabird for terrestrial sites. The TEC has corresponding REs which are associated with a different bioregion or land zone than REs mapped within the Study Area. This definition also incorporates where no REs or necessary diagnostic species were observed necessary for defining the TEC. This option is only utilised when the entirety of the Study Area has been ground-truthed.

Table 2: Likelihood of Occurrence assessment

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Threatened Ecological Communities					
Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	n/a	Endangered	N/A	The TEC can vary from forest to woodland depending on its location in the landscape and disturbance history. The canopy layer is dominated by *Casuarina glauca*. *Eucalyptus* or *Melaleuca* species can occur. If a mid-layer is present it is typically sparse. The ground layer is typically a continuous to semi-continuous cover of either forbs, ferns, sedges, grasses and/or plant litter. The composition of the ground layer is also influenced by groundwater salinity (Department of the Environment and Energy (DEE), 2018). The ecological community occurs in coastal catchments, mostly at elevations of less than 20 m above sea-level that are typically found within 30 km of the coast. It typically occurs on unconsolidated sediments, including alluvium deposits (DEE, 2018). Corresponding REs: 12.1.1, 12.3.20 (DEE, 2018).	***Moderate*** - REs corresponding to this TEC are not mapped to occur within the study area in either remnant or regrowth condition, however, alluvial soils appear commonly throughout the site area and other REs containing broad-leaved paperbarks (*Melaleuca quinquenervia*), and she-oak species (*Allocasuarina* and Casuarina sp.), characteristic species of the REs corresponding to this TEC are common throughout the area. Given the above the likelihood of this TEC occurring within the impact area is moderate and ground truthing of REs should be undertaken and assessments of any subsequent REs corresponding to the TEC performed. .
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	n/a	Endangered	N/A	The TEC often has a layered canopy, dominated by Melaleuca spp. and/or *Eucalyptus robusta*, varying from open woodland to closed forest. Vines are common. The understorey has a diverse range of hydrophytic plants of variable composition (Department of Agriculture, Water and the Environment (DAWE), 2021). The ecological community typically occurs in low-lying coastal alluvial areas with minimal relief, most commonly at elevations below 20m above sea-level but may occur occasionally up to 220m ASL on hill slopes (DAWE, 2021). Corresponding REs: 12.2.7, 12.3.4/12.3.4a, **12.3.5, 12.3.6**, 12.3.20 (DAWE, 2021).	**High** - REs corresponding to this TEC, specifically 12.3.5 and 12.3.6, have been mapped to occur within the area and immediately adjacent to the site. This vegetation occurs in both remnant and high value regrowth condition, and it is likely that species that would correspond to this TEC, including paperbarks (*Melaleuca* sp.), or swamp mahogany (*Eucalyptus robusta*) occur within the area. The likelihood of this TEC occurring within the impact area is high.
Lowland Rainforest of Subtropical Australia	n/a	Critically Endangered	N/A	The TEC is typically a moderately tall (≥20 m) to tall (≥30 m) closed forest. The canopy species composition varies, although tree species with compound leaves are common and leaves are relatively large (notophyll to mesophyll). Eucalyptus, Melaleuca and Casuarina are in low abundance. The canopy is often multilayered consisting of an upper, discontinuous layer of emergents, over the main canopy and subcanopy. Below the canopy is an understorey of sparse shrubs and seedlings Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), 2011). The TEC occurs on basalt and alluvial soils and occasionally on historically enriched rhyolitic soils and basaltically enriched metasediments. It mostly occurs in areas <300 m above sea level, however aspect can result in the community being found at >300 m (DSEWPC, 2011). Corresponding REs: 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, 12.12.16 (DSEWPC, 2011).	**Low** – REs corresponding to this TEC are not mapped anywhere within the impact area or immediately adjacent to it. The currently mapped REs within the impact area are dominated by broad-leaved paperbarks (*Melaleuca quinquenervia*), and she-oak species (*Allocasuarina* and *Casuarina* spp.) and a variety of Myrtaceous species (*Eucalyptus, Corymbia, Angophora* and *Melaleuca* sp.). A diagnostic characteristic of this TEC is the low abundance further highlighting the low likelihood of the TEC occurring within the impact area.
Subtropical eucalyptus floodplain forest and woodland of the New South Wales and South East Queensland bioregions		Endangered	N/A	The TEC varies from tall open forest to woodland dominated by eucalyptus and/or other myrtaceous trees, often as mixed species. A mid-layer or sub-canopy of small trees may be present with scattered to dense shrub layer. The ground layer typically includes grasses, forbs, ferns, sedges and scramblers (Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2022). The TEC occurs on alluvial landforms typically below 50 m above sea-level, although can occur up to 250 m ASL. Soils include silts, clay loams, clays and sandy loams, gravel and cobbles; and show little influence of saline ground water (DCCEEW, 2022).	**Low –** REs associated with this TEC are not currently mapped within the impact area which suggests that it is unlikely that this TEC will occur on site however due to a scarcity of data on canopy species within the area ground truthing of REs should be undertaken and assessments of any subsequent REs corresponding to the TEC performed.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				Corresponding REs: 12.3.3, 12.3.3a, 12.3.3c, 12.3.3d, 12.3.4, 12.3.7, 12.3.7c and 12.3.7d, 12.3.10, 12.3.11, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15, 12.3.19, , (DCCEEW, 2022).	
Threatened Plants					
Acacia attenuata	No common name	Vulnerable	Vulnerable	*Acacia attenuata* is confined to high rainfall areas on coastal lowland sandplains with a restricted geographical range extending from Littabella National Park north of Bundaberg to Burleigh Heads on the Gold Coast. Field studies conducted in 2005 confirmed that 24 populations remain in the wild and two ex situ populations (revegetation plantings) have been established (Brownlie, H., 2007). The species occurs in several vegetation communities including wet heathland, layered eucalypt open forest, open woodland and shrublands, although shows a close association with the ecotone between wet heathland and open eucalypt forest communities. It typically occurs in seasonally waterlogged areas consisting of poorly drained and infertile sandy soils or peat swamps (Brownlie, H., 2007). Associated REs: 12.2.13, 12.3.5, 12.3.13, 12.3.14, 12.9-10.4 (Brownlie, H., 2007).	**High** – Soil conditions and vegetation community associations where this species typically occurs, specifically alluvial plains or sandy soils, are found on site. This species shows a strong affinity to the ecotone between seasonally inundated heathland and open *Eucalyptus* woodland and can be found in a variety of REs including 12.3.5 which has been recorded within the impact area in a remnant condition and several portions of the site are designated as high risk areas under the Protected Plants Map (Queensland Globe, 2025). With a high number of REs containing broad-leaved paperbarks (*Melaleuca quinquenervia*) is it likely that the site is seasonally inundated and contains appropriate habitat for this species.
Arthraxon hispidus	Hairy-joint Grass	Vulnerable	Vulnerable	*Arthraxon hispidus* occurs in scattered locations throughout Queensland and northern New South Wales, with most occurences occuring south of Noosa Department of the Environment, Water, Heritage and the Arts (DEWHA), 2008a). It is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, and woodlands (DEWHA, 2008a).	**Moderate** – This species can be found on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, and woodlands (DEWHA, 2008a). The impact area is crossed several times along its length by tributaries of Saltwater Creek, Little Burpengary Creek and has a variety of old farm dams in the properties adjacent to the site. The presence of these creeks and areas with the potential to retain water suggest that habitat for this species does occur within the impact area.
Bosistoa transversa	Three-leaved Bosistoa, Yellow Satinheart	Vulnerable	Least concern	*Bosistoa transversa* occurs between Richmond River, NSW, to Mt Larcom near Gladstone, QLD (DEWHA, 2008b). It grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300 m in altitude. Associated vegetation includes *Argyrodendron trifoliolatum, Syzygium hodgkinsoniae, Endiandra pubens, Dendrocnide photiniphylla, Acmena ingens, Diploglottis australis* and *Diospyros mabacea* (DEWHA, 2008b).	**Low** - This species typically inhabits rainforest to dry sclerophyll forests and has strong associations with a variety of species that inhabit those ecosystems. The REs within the impact area do not correspond with ecosystems that this species is likely to inhabit.
Cryptostylis hunteriana	Leafless Tongue-orchid	Vulnerable	Special Least Concern	*Cryptostylis hunteriana* occurs in eastern NSW, Victoria and QLD. In QLD it is at only a few locations including a single plant near the village of Tinnanbar and four additional coastal populations north of the Glasshouse Mountains to Tin Can Bay (DEWHA, 2008c). Queensland populations occur in sandy heathland (DEWHA, 2008c).	**Unlikely** – This species is known to occur within areas of sandy heathland, REs 12.2.11 and 12.2.12. Land zone 2 or Quaternary coastal sand deposits, have not been mapped within the impact area suggesting that this species is unlikely to occur within the impact area.
Cupaniopsis shirleyana	Wedge-leaf Tuckeroo	Vulnerable	Vulnerable	*Cupaniopsis shirleyana* occurs over a small range of approximately 450 km between Brisbane and Curtis Island (DEWHA, 2008d). It is found in dry rainforest and scrubby urbanised areas on moderate to very steep slopes, scree slope gullies and rocky stream channels at elevations of 60–550 m above sea level (DEWHA, 2008d).	**Low** - The likelihood of this species occurring within the impact area are low. The impact area does not contain any dry rainforest vegetation however this species has been recorded in urbanised areas. The impact area is a relatively flat location that does not contain rocky slopes or scree slope gullies that this species prefers.
Dichanthium setosum	bluegrass	Vulnerable	Least concern	*Dichanthium setosum* typically occurs in inland NSW and QLD. In Queensland it has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions (DEWHA, 2008d). It is associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoil. It is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture (DEWHA, 2008d).	**Unlikely** – This species prefers heavy clay soils which are designated land zone 4 per the *Land Zones of Queensland* (Wilson and Taylor, 2012). Patches of potential habitat (i.e. non-residential areas) were ground-truthed as either saturated sodic soils supporting *Melaleuca quinquenervia* swamp (LZ 3), or sandy soils on higher relief containing semi-closed mixed woodlands of Eucalyptus and Allocasuarina littoralis (LZ 5). As such, suitable habitat does not occur within or adjacent to the Project area. Further, the species was not identified through either incidental or targeted floristic survey.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Macadamia integrifolia	Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak	Vulnerable	Vulnerable	Macadamia integrifolia is found between Mt Bauple, near Gympie, to Currumbin Valley in the Gold Coast Hinterland, south-east Queensland (DEWHA, 2008f). It occurs in remnant rainforest, including complex mixed notophyll forest, and prefers partially open areas such as rainforest edges (DEWHA, 2008f).	**Unlikely –** This species typically occurs in remnant rainforest from Gympie to Currumbin Valley. The likelihood of this species occurring within the impact area is low due to the absence of rainforest vegetation within the impact area. If this species is found it is likely planted and not “in the wild”.
Macadamia ternifolia	Small-fruited Queensland Nut, Gympie Nut	Vulnerable	Vulnerable	*Macadamia ternifolia* once occurred between Gympie and Brisbane in south-east Queensland, however the range is now restricted between Mount Pinbarren south to Mary Cairncross park near Maleny (DEWHA, 2008g). This species has specialised habitat requirements generally occurring in fertile, basalt derived soils on steep southern slopes. Associated species include *Argyrodendron trifoliatum-Dissilaria baloghiioides* alliance in the Blackall Range area and *Araucarian* microphyll-notophyll mixed tall closed forest at Mt Pinbarren (DEWHA, 2008g).	**Unlikely –** This species typically occurs in remnant rainforest from Gympie to Brisbane with significant contractions of its range to . between Mount Pinbarren south to Mary Cairncross Park near Maleny (DEWHA, 2008g). The likelihood of this species occurring within the impact area is low due to the absence of rainforest vegetation and the project’s location outside of the known distribution of this species. If this species is found it is likely planted and not “in the wild”.
Macadamia tetraphylla	Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut	Vulnerable	Vulnerable	*Macadamia tetraphylla* occurs in a small range of approximately 100 km from northern NSW to Mount Glorious near Brisbane, Queensland (DEWHA, 2008h). It is found in subtropical rainforest and notophyll vine forest near coastal areas, often on steep slopes and at ecotones. It on alluvial soils from 10 to 460 m above sea level (DEWHA, 2008h).	**Unlikely –** This species typically occurs in remnant rainforest from northern New South Wales to Mount Glorious to the west of Brisbane. The likelihood of this species occurring within the impact area is low due to the absence of rainforest vegetation within the impact area. If this species is found it is likely planted and not “in the wild”.
Notelaea lloydii	Lloyd's Olive	Vulnerable	Vulnerable	*Notelaea lloydii* occurs in a small range of approximately 3,700 m² between Mt Brisbane, near Somerset Dam, to just south of Beaudesert and west to Mt Berryman near Laidley (DEWHA, 2008i). It is found in open eucalyptus forest often near the margins of vine thickets, vine forests and softwood scrub at altitudes between 80 and 480 m. It generally occurs on stony, shallow and rocky soils derived from sandstone or acid volcanic rocks, often on steep slopes, or near drainage lines (DEWHA, 2008i).	**Unlikely –** This species is unlikely to occur within the impact area. The soils within the area are typically alluvial or loamy and sandy plains and pleateus, which is incongruous with this species preferred soil environment of shallow and rock soils derived from sandstone or acid volcanic rocks. This species is also closely associated with the margins of vine thickets which are unlikely to occur within the impact area.
Persicaria elatior	Knotweed, Tall Knotweed	Vulnerable	Vulnerable	*Persicaria elatior* has a coastal distribution from south east Queensland to southern NSW (DEWHA, 2008j). It grows on sandy, alluvial soil in swampy areas and riparian herb lands along watercourses and lake edges. Associated plant species include *Melaleuca linearifolia*, *M. quinquenervia*, *Pseudognaphalium luteoalbum*, *Persicaria hydropiper*, *Floydia praealta* and *Cyperus semifertilis* (DEWHA, 2008j).	High – This species has a typically coastal distribution within South East Queensland and northern New South Wales, occupying sandy soils along water courses and lake edges. The landforms within the impact area include alluvial soils and sandy and loamy plains with several tributaries and dams associated with Little Burpengary Creek and Saltwater Creek crossing the impact area. This species has a high potential to occur within or adjacent to the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Phaius australis	Lesser Swamp-orchid	Endangered	Endangered	*Phaius australis* has a coastal distribution from near Port Macquarie, NSW, north into Queensland with a disjunct range from Kirrima to Mackay (Department of the Environment (DE), 2014). It occurs in wet heath/sedgelands, swampy grasslands or swampy forests, and less commonly in drier forests near the coast. It is associated with *Melaleuca leucadendra* and *Eucalyptus robusta* (DE, 2014).	**High –** This species has a typically coastal distribution within South East Queensland and New South Wales, occurring within heathlands and sedgelands, swampy grasslands or forests and sometimes in drier communities. This species is associated with *Melaleuca leucadendra* and *Eucalyptus robusta* which bother have potential to occur within the impact area. The landforms within the impact area include alluvial soils and sandy and loamy plains with several tributaries and dams associated with Little Burpengary Creek and Saltwater Creek crossing the impact area. This species has a high potential to occur within or adjacent to the impact area. This species has the potential to occur adjacent to the creeks along the floodplains of these creeks and the wetter regions adjacent to the impact area.
Planchonella eerwah	Shiny-leaved Condoo, Black Plum, Wild Apple	Endangered	Endangered	Planchonella eerwah has a restricted distribution to three areas of south-east Queensland: the Ipswich Beaudesert area south-west of Brisbane; the Beenleigh–Ormeau–Pimpama area, south-east of Brisbane; and the Nambour–Maleny district on the Sunshine coast. The species occurs in warm subtropical areas of 650 -1000 mm annual rainfall and on slopes 80 – 420 m above sea level (DEWHA, 2008k). The known populations occur on rocky slopes and drainage lines on varied soils; on nutrient poor, metasediment derived soils; and well drained basaltic, dark sandy loams. The populations occur in Notophyll and Microphyll Vine Forests (DEWHA, 2008k).	**Low –** This species typically occurs in subtropical areas on slopes 80 – 420 m above sea level. The site sits significantly below this threshold and is unlikely to contain this species. In addition to the inappropriate elevation the soil characteristics in general around the site are not congruent with the soil preferences of this species, namely rocks slopes, nutrient poor sediment derives soils or basaltic dark sandy loams. However, land zone 5 has been recorded within the impact area which can be classified as loamy, sandy soil suggesting potential areas where this species could occur.
Rhodamnia rubescens	Scrub Turpentine, Brown Malletwood	Critically Endangered	Critically endangered	Rhodamnia rubescens occurs in a coastal distribution from Batemans Bay, NSW, north to Bundaberg, QLD, and occasionally extending inland onto the escarpment up to 600 m above sea level in areas with annual rainfall from 1,000 to 1,600 mm (Threatened Species Scientific Committee (TSSC), 2020a). It generally occurs in all rain forest sub-forms except cool temperate rainforest. The species occupies a range of volcanically derived and sedimentary soils and is a common pioneer species in eucalypt forests. It is associated with wet schlerophyl rainforest transition zones and creek side riparian areas (TSSC, 2020a).	**Low –** This species is closely associated with rainforest habitats except for cool temperate rainforests and occupies a variety of volcanically derived and sedimentary soils. It is unlikely that this species will be found within the impact area as no soils with volcanic origins are common throughout the impact area, however this species is associated with sclerophyll and rainforest ecotones and is a common pioneer species in *Eucalyptus* forests and Creekside riparian areas. With the tributaries of two creeks crossing the site there is a low possibility that this species occurs within the impact area.
Rhodomyrtus psidioides	Native Guava	Critically Endangered	Critically Endangered	Rhodomyrtus psidioides occurs in a coastal distribution from Gosford NSW, north to Maryborough, QLD. Typically recorded in coastal and sub-coastal areas of low elevation, although is known to occur up to 120 km inland in the Hunter and Clarence River catchments and along the border ranges (TSSC, 2020b). It is a pioneer species found in Subtropical Rainforests, Warm Temperate Rainforests, Littoral Rainforest, and Wet Sclerophyll Forests often near creeks and drainage lines (TSSC, 2020a).	**Low –** It is unlikely that this species will be found within the impact area due to the lack of rainforest associated REs within the impact area. However, this species is associated with sclerophyll forests as well as rainforest and is a common pioneer species in *Eucalyptus* forests and creek side riparian areas. With the tributaries of two creeks crossing the site there is a low possibility that this species occurs within the impact area.
Samadera bidwillii	Quassia	Vulnerable	Vulnerable	Samadera bidwillii is endemic to Queensland, with a distribution at several localities between Scawfell Island, near Mackay, south to Goomboorian, north of Gympie (DEWHA, 2008l). It occurs in lowland rainforest or on rainforest margins, although can be found in other forest types, including open forest and woodland. It often	**Unlikely –** This species is endemic to Queensland ranging between Mackay and Gympie. The impact area is approximately 130 km to the south of its most southern known distribution. It is unlikely that this species will occur within the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				occurs in areas adjacent to temporary and permanent watercourses, up to 510 m above sea level. It is commonly associated with a number of Eucalyptus species and Corymbia citriodora (DEWHA, 2008l).	
Sophora fraseri	No common name	Vulnerable	Vulnerable	*Sophora fraseri* is widespread but uncommon in south-east Queensland, and occurs south to Casino, NSW, where it is very rare (DEWHA, 2008m). It grows in moist habitats, often in hilly terrain at altitudes from 60–660 m on shallow soils along rainforest margins in eucalypt forests or in large canopy gaps in closed forest communities (DEWHA, 2008m).	**Unlikely –** This species is unlikely to occur within the impact area. This species typically occurs in rainforest margins and other closed forests. The habitat within the impact area is not associated with rainforests and are unlikely to host habitat and conditions conducive to this species flourishing within the region. Additionally, this species prefers hilly terrain from 60 to 600 m and with the site occurring at approximately sea level it is unlikely that this species will occur within the impact area.
Thesium australe	Austral Toadflax, Toadflax	Vulnerable	Vulnerable	*Thesium australe* occurs in NSW, the ACT, QLD and Vic. It has a sporadic, widespread distribution between Bunya Mountains, Queensland, south to north-eastern Victoria (DE, 2013). It grows in grassland and woodland, often in damp areas and on a variety of soil types (PantNET, 2025). It is often found in association with Themeda triandra (Office of Environment and Heritage (OEH), 2023).	High – This species has a high probability of occurring within the impact area. This species has a widespread by sporadic distribution. Little is known of its precise ecological requirements however this species will often be found in grasslands or woodlands in damp sites. With several tributaries, dams and REs that tolerate regular or season inundation it is likely that this species will occur within or adjacent to the impact area. Additionaly, this species has been recorded 10 km to the east of the site on Atlas of Living Australia (ALA) suggesting they are in the area.
Anthochaera phrygia	Regent Honeyeater	Critically Endangered		This species is endemic to south east Australia with a patchy distribution extending from south east Queensland to central Victoria (DOE, 2025). This species primarily inhabits box-ironbark eucalyptus woodland and dry sclerophyll forest and riparian vegetation with Casuarina sp. and needle-leaved mistletoes occur (DOE, 2025). This species movement patterns are governed by the flowering of select eucalypt species, living nomadically with some predictable seasonal movements. This species is highly mobile and can travel significant distances in the pursuit of nectar resources.	Low – This species relies on box-bark woodlands and dry sclerophyll forestry for habitat. The RE within the project area could not be described as box-bark dominated, instead being dominated by *Melaleuca* species. However, the regent honey eater (*Anthocaera phyrgia)* does display some reliace on *Casuarina* and *Allocasuarina* sp. and the needle-leaved mistletoes that infest them. With a high concentration of *Casuarina* and *Allocasuarina* sp. within the site and a high potential for these species to occur within the site it is possible that this site could play hot to foraging habitat for this species, however the overall likelihood of occurrence for this species is low.
Threatened Birds					
Botaurus poiciloptilus	Australasian Bittern	Endangered	Endangered	This species occurs from south east Queensland to south-east South Australia through to the southern Eyre Peninsula, Tasmania and south west Western Australia. This species is generally solitary and can show significant nomadic tendencies, moving hundreds of kilometres between wetlands. This species typically occurs in freshwater wetlands and rarely in estuaries or tidal wetlands favouring tall, dense vegetation for foraging activities. They favour permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (*Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboshoenus*) or saw sedges (*Gahnia*) that grow over muddy substrates. This species will consume small fish, frogs, freshwater crayfish, spiders, insects and small reptiles.	**High** – The impact area contains a variety of REs that are classified as Palustrine wetlands (12.3.5 and 12.3.6) that have the potential to meet the required criteria for this species foraging habitat. Palustrine wetlands are defined as vegetated non-riverine or non-channel systems including billabongs, swamps, bogs, springs and soaks that can have over 30% emergent cover including trees, shrubs, grasses and sedges (DETSI, 2021). The likelihood of this species to occur on site is high due to the suitability of the wetlands and vegetation within the area to support this species foraging activities.
Calidris acuminata	sharp-tailed sandpiper	Vulnerable	Vulnerable	The species is widespread along the coast of Australia, and sparsely scattered inland, particularly in central and south-western regions of Queensland. This is a non-breeding visitor to Australia (DCCEEW, 2023y). The species uses coastal and inland, freshwater and saline habitats. The species uses a range of habitats, preferring muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. It is also known from lagoons, swamps, lakes and pools, dams, waterholes, sedgelands, ephemeral wetland when wet, intertidal mud flats, inlets, estuaries, seashores, creeks lined with mangroves, soaks, swamps, saltpans and salt lakes inland They will also use modified environments, such as bore drains, sewage farms, saltworks and paddocks (DCCEEW, 2023y).	**Moderate** – The impact area contains a variety of REs that are classified as Palustrine wetlands (12.3.5 and 12.3.6) that have the potential to meet the required criteria for this species foraging habitat. Palustrine wetlands are defined as vegetated non-riverine or non-channel systems including billabongs, swamps, bogs, springs and soaks that can have over 30% emergent cover including trees, shrubs, grasses and sedges (DETSI, 2021). The likelihood of this species to occur on site is high due to the suitability of the wetlands and vegetation within the area to support this species foraging activities.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Calidris canutus	Red Knot, Knot	Vulnerable	Vulnerable	This species is widespread around Australia, predominantly occurring in intertidal mudflats, sandflats and sandy beaches of sheltered coves, estuaries, bays, inlets, lagoons and harbours. They have occasionally been recorded on terrestrial saline wetlands and sewage ponds.	**Low** – This is a widespread species however, it is largely restricted to brackish and saltwater habitats. The wetlands within the impact area a predominantly freshwater wetlands and are unlikely to play host to this species.
Calidris ferruginea	Curlew sandpiper	Critically Endangered	Critically Endangered	The species is a non-breeding visitor to Australia, primarily occurs along coastal areas of Australia, but can also be found inland in smaller numbers. Most commonly occurs along the coast south of Cairns and occasionally in the Gulf of Carpentaria, in Queensland (DCCEEW, 2023b). Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. Habitat occupied inland, include ephemeral and permanent lakes, dams, waterholes and bore drains. They forage at the edges of wetland habitats in water up to 60 mm deep, although usually between 15-30 mm deep, usually with bare edges of mud or sand. They occupy fresh and brackish waters (Higgins, P.J. & Davies, S.J.J.F. (eds), 1996; DoE, 2015a; DCCEEW, 2023b).	**Low** – This species is recorded to preferentially occur in mudflats in brackish or saline wetlands. The wetlands within the impact area a predominantly freshwater wetlands and are unlikely to play host to this species.
Calyptorhynchus lathami lathami	South-eastern glossy black cockatoo	Vulnerable	Vulnerable	Queensland Distribution: An uncommon but widespread species, occurring mostly through forested parts of the Great Dividing Range in south-eastern Queensland south to north-eastern Victoria. It is less likely to be found further inland (DCCEEW, 2022b). Glossy Black-Cockatoos are habitat specialists. Except when on the move or roosting, they are rarely found away from *Allocasuarina* or *Casuarina* trees, which provide their only food source (GBC 2022). Habitat: South-eastern glossy black cockatoos feed almost exclusively on the seeds of sheoaks (*Allocasuarina* spp. and *Casuarina* spp.), usually relying on one or two species within a region and sometimes a preference for individual feed trees. They have a strong preference for feeding in woodland dominated by *Allocasuarina*, or open sclerophyll forests or woodlands with a mid-stratum of *Allocasuarina* below a canopy layer of *Eucalyptus*, *Corymbia* or *Angophora* (GBC 2022). The species nests in large hollows in live and dead Eucalypts in close proximity to preferred forage trees (Higgins, P.J. (eds), 1999; DCCEEW, 2022b).	**High** – This species feeds almost exclusively on the seeds of sheoaks (*Allocasuarina* and *Casuarina* sp.) , typically relying on two species within a region. Additionally, this species shows a strong affinity for individual feed trees within a site and will feed on this tree to the exclusion of others of the same species in close proximity. The impact area has the potential to host a significant population of preferred feed trees for this species and there is a high probability that there is foragin habitat within the impact area. In addition to their specific foraging preferences this species prefer large hollows in live or dead Eucalyptus sp.. The impact area has the potential to contain a variety of larger Eucalyptus trees within remnant patches that have hollows of sufficient size for this species. In addition to potential suitable habitat this species has been recorded three times within 10 km on ALA.
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Vulnerable		This species occurs in coastal areas across of all states and of Australia with the greatest population concentrated between North West Cape and Roebuck Bay, Western Australia. Feeding usually occurs around large intertidal mudflats, sandbanks, saltmarshes, estuaries, coral reefs, rocky islands, tidal lagoons and dunes near the coast. Their diet consists of marine molluscs, worms and crustaceans (DCCEEW, 2023).	**Unlikely** – Foraging habitat for this species does not occur within the impact area. This species preferentially forages in coastal waters that are either saline or brackish waters.
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	Vulnerable		This species is endemic to south eastern Australia from the Grampians in western Victoria to south eastern Queensland. This sub-species is commonly found on coastal plains and ranges (DCCEEW, 2023). This species can be found in dry open eucalypt forests and woodlands, dominated by stringy barks or other rough barked Eucalypts with either an open grassy understory or with several shrub species. They also occur in woodlands subject to periodic inundation. This species typically avoids woodlands with a dense shrub layer (DCCEEW, 2023). They rely on a variety of food sources including insects and their larvae, arachnids and nectar and sap resources from a variety of Eucalyptus species and paperbarks (*Melaleuca* sp.) (DCCEEW, 2023).	**Moderate** – The impact area contains a variety of foraging resources including paperbarks (*Melaleuca* sp.) and would support significant insect populations to allow for this species to persist within the area. Declines have been found in patches or remnant vegetation that are 300 ha or less (DCCEEW, 2023) however this species has been recorded within 10 km of the site as recently as 2017 on Atlas of Living Australia, suggesting the habitat within the region is of sufficient quality to support this species.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	Critically Endangered		This species is currently known from a small number of records within Queensland and New South Wales, however it has been historically recorded between Rockhampton in Queensland and the Richmond River in New South Wales. Their primary habitat includes lowland subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, sub-littoral mixed scrub, riparian corridors in woodlands, open woodland and within cleared urban and agricultural land where *Ficus* sp. occur (DCCEEW, 2023). They will also consume the fruit of the native and exotic species, lichen and insect larvae (DCCEEW, 2023)..	**Unlikely** – It is unlikely that the impact area plays host to habitat that would be suitable for this species. The Coxen's fig parrot has not been recorded with 10 km of the impact area on ALA. Additionally the REs present within the site do not commonly contain *Ficus* sp. and would be considered low quality habitat for this species.
Erythrotriorchis radiatus	Red goshawk	Endangered	Endangered	This species is reported as occurring sparsely across approximately 15% of coastal and sub-coastal northern Australia, between the western Kimberley Division and north-eastern New South Wales (DCCEEW, 2023d). However, the breeding population is thought to have contracted north and is no longer present in the southern part of its range, i.e. southern Queensland and in New South Wales (MacColl, C. et al., 2023). The species has been recorded in coastal and sub-coastal tall open forests and woodland, tropical savannas, edges of rainforests, forested rivers and prefers extensive forested areas with a mosaic of open vegetation types. They usually occur in close proximity to large forested watercourses or permanent water that is fertile and more likely to support biologically rich and large bird prey populations as well as suitable nesting trees. The species usually prefers tall open canopied trees (i.e. >20 m in height) in which to nest (DCCEEW, 2023e). Population densities are very low, even in optimal habitat and home ranges are estimated as 120 km2 for females and 200 km2 for males (Marchant, S. & Higgins, P.J. (eds), 1993; DCCEEW, 2023d).	**Low** – There is a low likelihood that the impact site will play host to this species. Preferring tall open woodland and forest with a mosaic of vegetation types with trees greater than 20 m in height for nesting the habitat within the impact area is unlikely to have reached those heights. However, the area could prove suitable with a variety of wetland REs and three tributaries crossing the site would promote a biologically rich area for feeding. Considering the historic disturbance to the site it is unlikely that the original hydrology is intact and that the ecosystem supports sufficient prey loads to allow this species to persist.
Falco hypoleucos	Grey falcon	Vulnerable	Vulnerable	The species is essentially confined to the arid and semi-arid zones of Australia, including the Murray-Darling Basin, Eyre Basin, central Australian and Western Australia, where total annual rainfall is <500 mm. This distribution may marginally expand in response to drought years. It is not known from Cape York Peninsula or east of the Great Dividing Range in Queensland (TSSC, 2020). The species is known from timbered lowland plains, particularly Acacia shrublands that are crossed by tree-lined water courses, as well as treeless areas, tussock grassland and open woodland. Nesting occurs in the tallest trees along watercourses, including in river red gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*) (TSSC, 2020).	**Unlikely** - The impact area does not contain habitat features that this species would rely upon to persist. This species is restricted to areas of low rainfall with timbered lowlands and Acacia shrublands and other low vegetation. The impact area is dominated by REs that correspond to wetlands and would be out of the regular
Gallinago hardwickii	Latham's snipe, Japanese snipe	Vulnerable	Special Least Concern	This species occurs along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia and slightly inland of the Great Dividing Range from Rockhampton south. This species is a non-breeding visitor to Australia. The species is known from permanent and ephemeral wetlands up to 2,000 m above sea level (DCCEEW, 2023aa). Latham's Snipe occupies fresh, saline or brackish habitats but usually freshwater open wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around soaks and water bodies). It is known from flooded meadows, seasonal or semi-permanent swamps, open waters, waterholes, billabongs, lagoons, lakes, creek or river margins, river pools, floodplains and nearby vegetated areas. Modified habitats may also be used, including pasture, ploughed paddocks, irrigation channels, drainage ditches, rice fields, orchards, saltworks and sewage farms (DCCEEW, 2023aa).	**Unlikely** – The impact areas contain very limited freshwater or brackish wetlands to suit the species. The species is restricted to areas of wetland that contain dense vegetation, and the impact area contains some palustrine wetlands (RE 12.3.6) which contains emergent vegetation and not dense vegetation like the species requires.
Geophaps scripta scripta	Squatter pigeon (southern)	Vulnerable		The southern subspecies of squatter pigeon occurs south from the Burdekin-Lynd divide in the southern Cape York Peninsula to the Border Rivers region of northern New South Wales and between the east coast	**Unlikely** – Given that the impact areas fall within land zone 12, rather than within the species' preferred zones of 3, 5, 7, or 10, and considering the absence of any

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				to Hughenden, Longreach and Charleville in Queensland. The southern distribution of this species subspecies is thought to be contracting northward (DCCEEW, 2023f). The subspecies inhabits open forests to sparse, open woodland and scrub mostly dominated in the overstorey *Eucalyptus*, *Corymbia*, *Acacia* or *Callitris* species and grassy understorey, on sandy or gravelly soils and usually within 3 km of seasonal or permanent water bodies or watercourses. It usually breeds within 1 km of permanent water sources. It is known to prefer habitats on land zones 3, 5, 7 and 10 and is less commonly found on heavier soils with dense grass (TSSC, 2015a; DCCEEW, 2023f). It often occurs in burnt areas and is sometimes found on tracks and roadsides (TSSC, 2015a).	watercourse within 1 km of the site, it is highly unlikely that this species will inhabit the area. Inspection into ALA's spatial portal, resulted in no sighting within a 10km radius.
Grantiella picta	Painted honeyeater	Vulnerable	Vulnerable	Predominantly dependent (a dietary specialist) upon fruits and nectar of mistletoe (almost exclusively of *Amyema* spp.). Nests in various Eucalyptus (black box, river red gum, box-ironbark-yellow gum) and Acacia forests and woodlands as well as *Melaleuca*, *Casuarina* and *Callitris* species as well as more disturbed/manicured environments. The species prefers habitats with a greater abundance of mature trees, as these tend to support greater abundance of mistletoes. An abundance of mistletoe is an important habitat characteristic as the species selection of nest sites has been found to be primarily influenced by abundance of mistletoe in close proximity (Barea, L., 2012; DoE, 2015b). A study by Barea in Binya State Forest, New South Wales, in 2004 and 2005 reported the mean distance between painted honeyeater nest sites and the nearest mistletoe-bearing host trees in each quadrant surrounding the central nest tree (with at least one mistletoe clump >0.3 m canopy) was 19.22 m and the mean abundance of mistletoe (with at least one mistletoe clump >0.3 m canopy) in the total of these four infected host-trees was 35.6 mistletoe (Barea, L., 2012). Queensland Distribution: Seasonally visits South-Central Queensland on the inland slopes of the Great Dividing Range from the southern states to Roma (DoE, 2015b).	**Unlikely** – The impact area is unlikely to contain the regional ecosystem requirements, such as matures trees containing mistletoes, given the area is already a highly disturbed area adjacent to the existing road. Further, the species was not identified through either incidental fauna or desktop survey via ALA.
Hirundapus caudacutus	White-throated needletail	Vulnerable	Vulnerable	This species migrates to eastern and south-eastern Australia during the non-breeding season (between October and April), extending to the western slopes of the Great Dividing Range and occasionally onto adjacent inland plains (DCCEEW, 2023g). This is an almost exclusively aerial species that forages from between 1 m to more than 1,000 m above the ground, over a range of habitats, e.g. open forests, rainforest, heathland, grasslands, swamps, mudflats, farmland, plantations and paddocks, although probably more so above wooded areas. The species travels as a flock ahead of or along the edges of low pressure systems in pursuit of swarms of insects. It rarely alights on roosts on structures (DCCEEW, 2023g).	**High** – Although the impact area consists mainly of closed forest and the species typically inhabits various types of woodland, it may be present and utilise the site. The Species Profile and Threats Database indicates that either the species or its habitat is likely to occur. A desktop analysis using ALA records revealed several sightings within a 1 km radius of the impact area (in 2016, 2017, 2019, and 2023), and surrounding suburbs support populations of the species. Furthermore, adjacent woodland areas may offer suitable habitat, potentially contributing to a biologically rich feeding environment.
Lathamus discolor	Swift Parrot	Critically Endangered		Swift parrots breed exclusively in Tasmania from September to January. They nest in tree hollows—typically in large, mature eucalypts such as Tasmanian blue gum (*Eucalyptus globulus*), black gum (*E. ovata*), and Brooker's gum (*E. brookeriana*). These hollows must be close to abundant nectar sources, as the parrots rely heavily on flowering gums for food during the breeding season . After breeding, swift parrots migrate to mainland Australia between March and October, dispersing across southeastern regions including Victoria, New South Wales, the Australian Capital Territory, and southeastern Queensland. Their winter habitat use is broader, with foraging occurring on a range of flowering Eucalyptus species across these regions. Non breeding foraging habitat includes inland box-ironbark forests and grassy	**Unlikely** - Considering the historical disturbance of the site and its broader geographic context, it is unlikely that the ecosystem supports a sufficient eucalyptus species for this species to persist. Historical records from the Atlas of Living Australia (ALA) indicate that the last documented sighting in the Margate area occurred in 1965 Atlas of Living Australia. Furthermore, suitable habitat is absent within and adjacent to the project area

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				woodlands, coastal swamp mahogany (*Eucalyptus robusta*) and spotted gum (*Corymbia maculata*) woodlands (DCCEEW, 2016).	
Rostratula australis	Australian painted snipe	Endangered	Endangered	Queensland Distribution: The species is considered to constitute a single, contiguous breeding population. It has been recorded in all states but is most common in eastern Australia. It is thought to be less widespread than it historically was. The species is possibly migratory or dispersive and this is likely related to local conditions an availability of wetland suitable habitats (DCCEEW, 2023h). Habitat: The species depends on shallow wetlands for feeding and breeding habitat, including; ephemeral and permanent waterbodies such as lakes, swamps, claypans, inundated or waterlogged grassland/saltmarsh, dams, rice crops, sewage farms, bore drains and usually with a good cover of grasses, rushes and reeds, low scrub and lignum (*Muehlenbeckia* spp.), open timber or samphire (DSEWPC, 2013). The species requires wetlands with bare, wet mud and upper and canopy cover nearby for breeding and almost all nest records are observed to be on or near small islands in freshwater wetlands (DCCEEW, 2023).	**Unlikely** - The impact areas contain very limited wetlands to suit the species. The impact area is therefore lacking the broader habitat requirements for feeding and breeding and as a result considered unlikely to find occurrence of this species.
Stagonopleura guttata	Diamond firetail	Vulnerable	Vulnerable	The species occurs from south-east Queensland to the Eyre Peninsula, South Australia and approximately 300 km inland from the coast. Their range within Queensland has contracted significantly south from Cardwell (DCCEEW, 2023i). Diamond firetails occur in eucalypt, Acacia or Casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover, where they feed predominantly at ground level on grass and herb seeds, green leaves and insects. It is thought the species is unable to persist in areas, which lack remnant of native vegetation larger than 200 ha (DCCEEW, 2023i).	**Low** – The areas surrounding the impact site consist of closed forest typical of Regional Ecosystem 12.5.3, in contrast to the species' preference for more open forest habitats. Although the site boundary may be lightly timbered, the main impact zone is historically disturbed, and remnants of native vegetation larger than 200 ha are absent. This suggests only marginal potential for suitable habitat. Moreover, no occurrence records for the species have been found on the ALA, either within the impact zone or in nearby communities
Turnix melanogaster	Black-breasted button-quail	Vulnerable	Vulnerable	The Black-breasted button-quail is restricted to south-east and central coastal Queensland and far northern New South Wales, mostly in areas with 770-1,200 mm rainfall per annum. In Queensland the species is known from near Byfield south to the border, west to Palm Grove National Park and Barakula State Forest. Although it was widespread in the Dawson and Fitzroy River catchments, it is now considered probably only present in Palm Grove in this region (DCCEEW, 2023j). The species occurs in dense vine thicket and rainforests, preferring drier, low closed forests, particularly semi-evergreen vine thicket, low microphyll vine forest, *Araucarian* microphyll vine forest and *Araucarian* notophyll vine forest, with emergent bottletrees (*Brachychiton rupestris*), Belah (*Casuarina cristata*), Brigalow (*Acacia harpophylla*) and eucalypts, as well as in mature hoop pine (*Araucaria cunninghamii*) plantations, where lantana (*Lantana camara*) is abundant in the understory. They may also be found in low, dense acacia thickets, and in littoral areas, in vegetation behind sand dunes, e.g. in the Great Sandy region. Fertile soils and deep leaf litter is important for foraging (DCCEEW, 2023j; TSSC, 2015b).	**Unlikely** - The impact areas adjacent to some closed forest (12. 5.3), this is not the dense, nor, drier, and low closed forest with thick leaf litter important to foraging for this species. The species profile and threat database suggest that habitat may occur, and not likely to occur. Given the impact sites context of historic disturbance is therefore likely going to offer limited suitable habitat.
Apus pacificus[1]	fork-tailed swift	Migratory	Special Least Concern	This species does not breed in Australia. It occurs across vast areas of Queensland, primarily east of the Great Dividing Range between Cooktown and Townsville, in south-east Queensland and commonly west of the of the Great Dividing Range, particularly west of a line between Chinchilla and Hughenden. This species is almost exclusively aerial, flying between 1 m and at least 300 m above ground. It overflies inland plains, foothills and coastal areas,	**Low** – Given that this species predominantly inhabits coastal areas and is adaptable to disturbed, open environments, such as riparian woodlands, tea-tree swamps, and low scrub, it is possible they could occur within the impact zone, particularly if suitable habitat is present. However, a desktop search of the Atlas of Living Australia (ALA) reveals that the species is notably sparse in the surrounding region, with few nearby records.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				often over cliffs and beaches and islands and sometimes built up areas, but mostly over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh, grasslands, sandplains covered with spinifex, open farmland and sand dunes. Less often above rainforests, wet sclerophyll forest or open forest. They very occasionally land to roost (DCCEEW, 2023t).	
Charadrius bicinctus	Double-banded plover		Special Least Concern	"This species is a migratory visitor to Australia, mainly found on the east coast of the mainland and Tasmania, preferring coastal beaches, mudflats, sewage farms, riverbanks, fields, dunes, upland tussock grasses and shingle (Birds in Backyards, 2025). This species migrates to breeding habitat in New Zealand and overwinters in Australia (Birds in Backyards, 2025). The double-banded plover mainly consumes molluscs, crustaceans, insects, and occasionally seeds and fruit (Birds in Backyards, 2025).	**Unlikely** - This species is unlikely to occur on site. Habitat for this species does not occur immediately within the impact area.
Pluvialis fulva	Pacific golden plover		Special Least Concern	This species breeds on the Arctic Tundra in western Alaska, returning to the Australian coastline to forage (Birds in Backyards, 2025). The Pacific golden plover occupies muddy, rocky and sandy wetlands, shores, paddocks, saltmarsh, coastal golf courses, estuaries and lagoons, feeding on molluscs, insects, worms, crustaceans, lizards and small fish (Birds in Backyards, 2025).	**Unlikely** - This species is unlikely to occur on site. Habitat for this species does not occur immediately within the impact area.
Hirundo rustica	Barn swallow		Special Least Concern	Barn swallows are a cosmopolitan species breeding throughout most of the northern hemisphere, migrating to Australian outside of the breeding season (DCCEEW, 2015). This species uses open vegetated areas including farmland, sports grounds, native grasslands, billabongs, lagoons, creeks, sewage treatment plants and airstrips as fly overs and areas of forage for flying insects (DCCEEW, 2015).	**Moderate** - it is possible that this species is present within the impact area. These individuals prefer open patches of land to forage for aerial prey and and areas adjacent to the impact area do offer these conditions. This species often perches in vegetation and powerlines when not hunting and will roost in vegetation, usually tall wetland grasses. The impact area has the potential to remove vegetation associated with wetlands however these wetlands are not dominated by tall wetland grasses and typically are not ideal for roosting of this species. This species has also been recorded in South East Queensland on ALA.
Chlidonias leucopterus	White-winged black tern		Special Least Concern	This species in found in coastal and sub-coastal mainland Australia and the north and east of Tasmania in wetlands including tidal wetlands, estuaries, lagoons, grassy swamps and sewage ponds (Birds in Backyards, 2025). This species is a non-breeding summer migrant to Australia feeding on insects, spiders and fish (Birds in Backyards, 2025).	**High** – This species inhabits coastal and sub-coastal wetlands along mainland Australia. With several wetlands found within the site it is possible that this species occurs on site. This species has been recorded 10 times within a 10 km radius of the impact area as recently as August 2025.
Hydroprogne caspia	Caspian tern		Special Least Concern	This species is found throughout Australasia near the coast in extensive wetlands on coastal and interior beaches and sheltered estuaries (Birds in Backyards, 2025). This species is reliant on fish, feeding in the shallows (Birds in Backyards, 2025).	**Unlikely** - It is unlikely that this species occurs within the impact area. The impact area, while it contains wetlands does not contain wetlands in sufficient condition to allow for large edible fish populations that this species would rely upon for foraging.
Sterna hirundo	Common tern		Special Least Concern	This species is a non-breeding visitor to Australia, occupying offshore waters, ocean beaches, estuaries and large lakes (Birds in Backyards, 2025). This species is also occasionally found in freshwater swamps, floodwaters, sewage farms and brackish or saline lakes (Birds in Backyards, 2025). Their diet consists of fish and aquatic insects and crustaceans (Birds in Backyards, 2025).	**Unlikely** - It is unlikely that this species occurs within the impact area. The impact area, while it contains wetlands does not contain wetlands in sufficient condition to allow for large edible fish populations that this species would rely upon for foraging.
Thalasseus bergii	Crested tern		Special Least Concern	This species can be found on islands and coastlines off Australia, South Africa and much of the Atlantic Coast (Birdlife, 2025). This tern species is sedentary, breeding in dense colonies or small groups but will forage singularly in the shallow waters of lagoons, coral reefs estuaries, bays, harbours and inlets (Birdlife, 2025). This species predates upon pelagic fish, cephalopods, crustaceans and prawns, hatchling turtles and insects (Birdlife, 2025).	**Low** - It is unlikely that this species will occur within the impact area. This species prefers to inhabit larger bodies of water such as bays, beaches and lagoons. There is not habitat that fits this description within the impact area. Despite this, 14 records of this species occur within 10 kms of the site on ALA, likely this species has used the area as a fly over and not directly using the vegetation within the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Calidris alba	Sanderling		Special Least Concern	A non-breeding visitor to Australia, the sanderling primarily inhabits coastal areas on low, firm-sand beaches, reefs, and inlets, as well as tidal mudflats and open coastal lagoons. It is rarely found in near-coastal wetlands. The birds are typically seen in small flocks or mixed with other wader species. They forage by running behind receding waves, darting after insects and other small invertebrates in the sand. Their diet also includes a variety of food items found around rotting kelp, such as plants, seeds, worms, and crustaceans. When not feeding, they roost on bare sand, behind kelp piles, or within coastal dunes.	**Unlikely** - Investigation of ALA's record suggest that the impact site would contain limited habitat for this species. All historic sighting date back to 1992. The species are limited to more coastal fringing habitats and therefore lacks broader habitat requirements.
Calidris falcinellus	Broad-billed sandpiper		Special Least Concern	"The broad-billed sandpiper favours sheltered coastal areas such as estuarine mudflats, sandflats, harbours, lagoons, and saltmarshes. It is also occasionally found in shallow freshwater lagoons and sewage farms. This species is an active forager, repeatedly jabbing its bill into soft, wet mud, often while wading in water deep enough to submerge its head (NSW Environment and Heritage, 2021). The bird roosts on sheltered banks on sand, shell, or shingle beaches. It is a highly migratory species and is often found alone or in small groups with other waders. Its diet consists of insects, crustaceans, molluscs, worms, and seeds."	**Unlikely** - An investigation of ALA's records suggests that the site contains limited suitable habitat for this species. All historic sightings date back to 1992 . The species is restricted to sandy shores or mudflats, neither of which are present on the site, it lacks the broader habitat requirements for this species.
Calidris melanotos	Pectoral sandpiper		Special Least Concern	The Pectoral Sandpiper is an omnivorous bird that primarily forages in freshwater habitats near the coast or occasionally inland. These areas include coastal lagoons, estuaries, swamps, lakes, creeks, floodplains, and artificial wetlands. They prefer wetlands with open, fringing mudflats and low vegetation. While feeding, they move slowly in shallow water or on grass, repeatedly probing small areas. Their diet consists of algae, seeds, crustaceans, spiders, and insects. They are rarely seen on open mudflats (Atas of Living Australia (n.d); Birds in Backyards (n.d. (i)).	**Unlikely** - An investigation of ALA's records suggests that the site contains limited suitable habitat for this species. All historic sightings date back to 1991,1992 and 1993. The species is restricted to sandy shores or mudflats, neither of which are present on the site, it lacks the broader habitat requirements for this species.
Calidris ruficollis	Red-necked stint		Special Least Concern	The red-necked stint is found in both inland and coastal wetlands and estuaries. Its habitat ranges from intertidal mudflats to sandy shores and other inland waters Atlas of Living Australia (n.d. (h)).	**Unlikely** -An investigation of ALA's records suggests that the site contains limited suitable habitat for this species. All historic sightings date back to 1992. The species is restricted to sandy shores or mudflat, neither of which are present on the site, it lacks the broader habitat requirements for this species.
Plegadis falcinellus	Gossy ibis		Special Least Concern	The Glossy Ibis primarily inhabits freshwater or brackish wetlands with tall, dense vegetation like reeds and rushes. It prefers marshes at the edges of lakes and rivers but can also be found in lagoons, floodplains, wet meadows, swamps, reservoirs, and irrigated farmlands. They are very adaptable and can live in city areas, sometimes inhabiting trees along roads Though less common, it may also use coastal areas such as estuaries, deltas, and salt marshes. The species feeds in very shallow water, and its roosting sites are typically in large trees, which can be far from its feeding grounds (Atlas of Living Australia, n.d. (f)).	**Unlikely** - An investigation of ALA's records suggests that the site contains limited suitable habitat for this species. All historic sightings date back to 1992. The species is restricted to shallow mangroves or wetlands with long grasses, and since this habitat type is not present on the site, it lacks the broader habitat requirements for this species.
Migratory birds					
Apus pacificus	Fork-tailed Swift	Migratory Marine Birds		The Fork-tailed swift typically inhabits wooded and open forests when roosting, they are however almost exclusively found inhabiting the skies (<1 m to 1000m) of areas near low pressure areas. T Most observed over inland plains in Australia but sometimes recorded over coastal cliffs and beaches as well as urban areas.	**Low** - Minimal sightings of the species have occurred of the species with an investigative desktop search showing 1 sighting in 1992 along the site boundary. ALA's records also displayed some more recent sightings within a 5km radius. Only marginal habitat occurs in the form of limited trees and aerial habitat. The site is therefore considered to be low chance of occurrence.
Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo	Migratory Terrestrial Species		The Oriental Cuckoo predominantly inhabits coniferous, deciduous, and mixed forests. Its diet consists mainly of insects and their larvae, which it forages from trees, shrubs, and the forest floor. It is a non-breeding visitor to Australia.	**Unlikely** - Investigation of ALA's record suggest that the impact site would contain limited habitat for this species. All historic sighting date back to 1994 and 1992. The species are limited to more coastal fringing habitat and therefore lacks broader habitat requirements.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Pandion haliaetus	Osprey	Migratory Wetlands Species	Special Least Concern	The eastern osprey is a largely sedentary and non-migratory, inhabiting coastal and estuarine areas with access to fishing, though it is occasionally found along open rivers and beyond tidal plains. During years of heavy rainfall, it may move inland. They occurs patchily along the coastline and is a non-breeding visitor to Australia (Atlas of Living Australia. (n.d. (a)).	**Unlikely** - Investigation of ALA's record suggest that the impact site would contain limited habitat for this species. All historic sighting date back to 1992. The species are limited to more coastal fringing habitat and therefore lacks broader habitat requirements.
Anseranas semipalmata	Magpie Goose	Listed - overfly marine area		This species inhabits freshwater wetlands, adjacent forests, grasslands, and occasionally mango plantations. In the late dry season, birds gather at shallow swamps to feed on tubers. During the wet season, they disperse throughout the region to feed on grass seeds and take advantage of mango fruits. At night, they roost in trees or along wetland shores and form colonies in densely vegetated swamps during the wet season (Atlas of Living Australia, n.d. (b)).	**Moderate** - There is a moderate likelihood of this species occurring within the site, particularly along areas where the site intersects with waterways, which may provide suitable habitat. Recent desktop analysis indicates three records from 2022 and one from 2013 within 200 meters of the boundary. Currently, the species may utilize the freshwater creek in the southern section of Old Gympie Road, especially to the west. The species, therefore may occur occasionally during its migratory season.
Bubulcus ibis	Cattle Egret	Listed - overfly marine area (as Ardea ibis)		The Western Cattle Egret primarily inhabits open, dry landscapes such as grasslands, pastures, farmlands, and wetlands. It often associates with grazing mammals like cattle, feeding on insects and small vertebrates disturbed by these animals. Nesting typically occurs in colonies within trees or shrubs near water bodies. This species is adaptable to both natural and human-modified environments, including paddocks and urban areas (Atlas of Living Australia, n.d. (c)).	**Low** -There is a distinct lack of suitable habitat in the form of open areas, which this species tends to prefer. There are some small waterways within the site boundary, but waterway habitat is scarce in the surrounding region. Additionally, after a desktop search, very minimal occurrences were recorded via ALA, with only one record in 2019 approximately 1 km outside of the site boundary, indicating limited local presence.
Haliaeetus leucogaster	White-bellied Sea-Eagle	Listed		This species is highly adaptable, inhabiting a wide range of aquatic and terrestrial environments.	**Unlikely** - Investigation of ALA's record suggest that the impact site would contain limited habitat for this species. All historic sighting date back to 1992. The species are limited to more coastal fringing habitat and therefore lacks broader habitat requirements.
Merops ornatus	Rainbow Bee-eater	Listed - overfly marine area		The Rainbow Bee-eater is a native Australian bird found in a variety of habitats, including open forests, woodlands, grasslands, and wetlands. They are insectivores that primarily catch their food in flight. Their diet includes bees and wasps, which they rub against a branch to remove the sting before eating. During the Australian winter, they migrate north to regions around New Guinea (Atlas of Living Australia, n.d. (d)).	**Low** - The site contains limited suitable habitat in the form of small waterways in the southern portion of the site. Desktop searches show minimal sightings, with only one recorded in both 2021 and 2022 within 500 meters of the site. This species infrequently disperses through the area; it is considered unlikely to occur.
Monarcha melanopsis	Black-faced Monarch	Listed - overfly marine area		The Black-faced Monarch inhabits a variety of forested areas, including rainforests, eucalypt woodlands, coastal scrub, and damp gullies. During migration, it may also be found in more open woodlands. This species forages for insects among foliage or catches them on the wing. It builds a deep, cup-shaped nest from casuarina needles, bark, roots, moss, and spiderwebs. Nests are typically located in a tree fork, 3 to 6 meters above the ground.	**Low** -The site contains some suitable habitat in the form of mixed woodland and open forest. However, a desktop investigation revealed that no sightings of this species have been recorded near the site or within a 5 km radius since 1992. It is therefore concluded that the species is unlikely to occur due to its infrequent visitation.
Myiagra cyanoleuca	Satin Flycatcher	Listed - overfly marine area		The Satin Flycatcher is found in tall forests, showing a strong preference for wetter habitats like heavily forested gullies. It does not, however, inhabit rainforests. For nesting, the species chooses high branches of various Eucalyptus trees, typically building its nest between 5 and 25 meters above the ground. They often return to the same general areas to nest in subsequent years (Atlas of Living Australia, n.d. (e)).	**Unlikely** - Even though there is suitable habitat in the form of eucalypt forest, there haven't been sightings of this species near the site since 1992. Given that the species often returns to similar sites for nesting, a population would likely be established in the area if they were present. As a result, the species is unlikely to occur within the site.
Rhipidura rufifrons	Rufous Fantail	Listed - overfly marine area		The Rufous Fantail primarily inhabits wet sclerophyll forests and rainforests in eastern and southeastern Australia. These forests are often in gullies with eucalypts like Tallow-wood and Mountain Ash, and have a dense, shrubby understory. In northern and northeastern Australia, they are found in tropical and monsoon rainforests and thickets of Paperbarks. During migration, they	**Low** -The site contains some suitable habitat in the form of mixed woodland and open forest. However, a desktop investigation revealed that few sightings of this species have been recorded near the site or within within a 1km radius, one each in 2017 and 2018. It is therefore concluded that the species is unlikely to occur due to its infrequent visitation.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				can be seen in a wider range of habitats, including drier eucalypt forests, woodlands, parks, and gardens (Department of Climate Change, Energy, the Environment and Water, n.d.).	
Symposiachrus trivirgatus	Spectacled Monarch	Listed - overfly marine area (as *Monarcha* trivirgatus)		Its natural habitat consists of subtropical and tropical forests, specifically moist lowland forests, mangrove forests, and moist montane forests.	**Unlikely** - An investigation of the ALA records suggests that the site contains limited suitable habitat for this species. All historic sightings date back to 1991. Since the species is limited to moist lowland forested areas, it is considered unlikely to occur at this site.
Threatened mammals					
Chalinolobus dwyeri	large-eared pied bat	Endangered	Endangered	The current distribution of this species is poorly known and despite its broad distribution from north of Rockhampton (around Shoalwater Bay) to southern New South Wales, it is thought to be restricted within this range. In Queensland it is mainly known from the Carnarvon and Expedition Ranges and Blackdown Tablelands, Cania Gorge and the Scenic Rim. There are no known maternity roost sites in Queensland (DCCEEW, 2023l). The species prefers vegetated habitats including dry and wet sclerophyll forest, Cypress pine (*Callitris glauca*) dominated forest, tall open eucalypt forest with a rainforest sub-canopy, sub-alpine woodland and sandstone outcrop country, although in Queensland it is known from higher altitude moist tall open forest adjacent to rainforest. Roosting habitat occurs within or near landscapes with relatively high relief, such as sandstone cliffs with fertile woodland or river/rainforest valley habitat in close proximity. In south-east Queensland rainforest and moist eucalypt forest on rhyolite, trachyte and basalt at high elevations are important to this species. The species has also been recorded roosting in mine shafts, caves, overhangs, disused fairy martin (*Petrochelidon ariel*) nests and tree hollows. Preferred roost habitat has specific characteristics – arch caves with dome roofs (that are deep enough to allow juvenile bats to learn to fly safely inside) and with indentations in the roof (DCCEEW, 2023l). The combination of roosting and foraging habitat must be present for this species to occur (DCCEEW, 2023m).	**Unlikely –** This species has been recorded roosting in moist Eucalyptus forest on rhyolite, trachyte and basalt at high elevations as well as mine shafts, caves, overhangs, old fairy martin nests (*Petrochelidon ariel*) and tree hollows. Preferred roosts must have the following attributes, arched caves or domed rooves to allow safe juvenile flight and indentations in the roof. Typically, nesting habitat and forage habitat must be present in proximity for this species to occur. The impact area is a lowland site without any significant nesting features or habitat close by, suggesting that the likelihood of this species occurring within the site is extremely low. No land zones supporting sedimentary rock are located near the impact area and it unlikely that nesting habitat is included within the area.
Dasyurus hallucatus	northern quoll	Endangered	Least Concern	Formerly widespread in South Central Queensland (SCQ) - has declined markedly and is now confined to rugged and remote areas in parts of its former range at Weipa, Mt Morgan south of Rockhampton, and into the Carnarvon Range area, and occasionally south to Maleny in the south-east Queensland hinterland (DCCEEW, 2023n). Habitat: The species shelters in crevices in rocky hills and escarpments and forages in nearby woodland and forest habitats. Rocky habitats and tree hollows are important for denning. Areas with high relief, shallower soils, greater cover of boulders, less fire impact and closer to permanent water are probably preferred by this species. The northern quoll also tends to favour habitats within 150 km of the coast (DCCEEW, 2023n).	**Unlikely –** This species is unlikely to occur within the impact area. The northern quoll (*Dasyurus hallucatus*) prefers rocky hills and escarpments, choosing to forage in nearby woodland and forest habitats. The land zones within the impact area are not considered rocky, but fine grained and alluvial in nature and would not be used by this species typically as shelter habitat. Additionally habitat fragmentation and disturbance within the impact area due to historic housing development and other urbanised development would preclude the impact area as a foraging area for this species.
Dasyurus maculatus maculatus *(SE mainland population)*	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Endangered	The Spotted-tailed Quoll occurs in fragmented and isolated patches in eastern Australia from south-east Queensland to western Victoria (TSSC, 2020). In Queensland it occurs from Bunderberg to the border and inland to Monto and Stanthorpe. The species historically occurred in the D'Aguilar Rang west of Brisbane and is now believed to be extinct (DoE, 2025). The species is predominantly a forest dependent species but occurs in a variety of habitats including closed forests (including temperate and sub-tropical rainforest), tall eucalypt forests, open woodlands, open forests, drier rainshadow woodlands and coastal heathlands (TSSC, 2020). Unlogged forest or forest that has been less disturbed by timber	**Unlikely –** This species is unlikely to occur within the impact area. This species prefers habitats with suitable den sites including caves, hollow logs, tree hollows, rocky outcrops and abundant food in the form of native mammals, amphibians and reptiles. This species also prefers habitat undisturbed by clearing practices, but this will not reliably preclude this species. The impact area is an alluvial soil type with very few caves, large rock cervices or places for this species to use as dens. Additionally, the highly disturbed nature of the impact area and the isolation of the remnant vegetation suggest that other den habitat including large hollow logs and tree hollows are unlikely to occur within the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				harvesting is also preferable. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves and abundant food (DoE, 2025).	
Macroderma gigas	Ghost Bat	Vulnerable		*Macroderma gigas* currently occurs as disjunct colonies in the Northern Territory, From Cape York to near Rockhampton, Qld, and western Queensland. However, historical fossil data shows the ghost bat once occurred over much of Australia, except for Victoria and Tasmania. Only 14 breeding sites are currently known (TSSC, 2016). The species occupy a range of habitats from the arid Pilbara to tropical savanna woodlands and rainforests. During the day they roost in caves, rock crevices and old mines (TSSC, 2016).	**Unlikely –** This species is unlikely to occur within the impact area. This species occurs as disjunct populations outside of South East Queensland with the most southern confirmed population occurring near Rockhampton. Additionally,, this species preferentially nests in caves, rock crevices and old mines. No roost habitat is located near the impact area, and it is unlikely that this species will occur within the impact area or use it as transient foraging habitat.
Petauroides volans	Greater glider (central and southern)	Endangered	Endangered	The Greater glider occurs along the eastern coast of Australia, south from around Proserpine to central Victoria from sea level to 1,200 m (DCCEEW, 2022c). Mainly restricted to eucalypt forests and woodlands where they typically occur in highest abundance in taller, montane, moist eucalypt forests on fertile soils, with relatively old trees and abundant hollows but can occur in drier habitats in south-eastern Queensland. Its distribution is likely to be patchy within potential habitat areas due to structural attributes and forage quality preferences. The species requires tree hollows (particularly >10 cm in diameter) in large, old trees for denning/shelter during the day and numerous denning trees may be used by one individual. Suitable tree hollows are considered a key limited resource for this species. A density of 2-4 live den trees for every 2 ha of habitat has been recorded in southern Queensland. In the Brigalow Belt Bioregion, the species was shown to have a strong affinity for narrow-leaved red-ironbark (*Eucalyptus crebra*), Queensland blue gum (*E. tereticornis*), Spotted gum (*Corymbia citriodora*), Moreton Bay ash (*C. tessellaris*), Clarkson's bloodwood (*C. clarksoniana*) (Eyre et al., 2022), Foraging resources include primarily eucalypt leaves, supplemented by buds and flowers of a range of eucalypt species, which is likely to vary regionally (DCCEEW, 2022c).	**Unlikely –** This species occurs within Eucalyptus forests and woodlands in montane areas with fertile soils. This species prefers remnant or old growth forest with a significant number of large hollows with a density of 2-4 live den trees for every 2 ha of habitat in Southern Queensland. The vegetation presents within and adjacent to the impact area are unlikely to play host to a significant number of hollows that would support this species and the connectivity of the vegetation across the site is unlikely to provide sufficient habitat to support this species. Additionally, this species prefers to forage on the leaves of Eucalyptus species and supplement their diet with buds and flowers.
Petaurus australis australis	yellow-bellied glider (south- eastern)	Vulnerable		The species is restricted to coastal eastern Australia from sea level to 1,400 m above sea level, from north of Mackay in Queensland south to South Australia and inland to the western slopes of the Great Dividing Range, although its distribution is patchy. It is known from coastal areas of Queensland and further inland with isolated subpopulations in the Blackdown and Carnarvon Ranges (DAWE, 2022a). Contiguous tracts of thousands of hectares comprising tall, mature old-growth eucalypt forest, especially dominated by smooth- and gum-barked species with high, deep hollows are preferred by this species. In southern Queensland include Queensland blue gum (*Eucalyptus tereticornis*), Spotted gum (*Corymbia citriodora*), and Gum topped box (*Eucalyptus moluccana*) are particularly favoured. Large, older hollow-bearing smooth-barked eucalypts are a critical habitat feature for denning for this species as are sap feed trees in any given habitat area (DAWE, 2022a).	**Unlikely –** This species is unlikely to occur within the impact area. This species typically occurs in areas of mature, old-growth Eucalypt forest dominated by smooth barked gum species. These species include Queensland blue gum (*Eucalyptus tereticornis*), Spotted gum (*Corymbia citriodora*), and Gum topped box (*Eucalyptus moluccana*). These smooth barks species that are likely to flower in winter are critical habitat features for this species. The impact area does not support significant areas of vegetation meeting these criteria and it is unlikely this species will occur within the impact area.
Phascolarctos cinereus	koala	Endangered	Endangered	The Koala is known from eastern Australia eucalypt woodland and forests in Queensland, New South Wales, the Australian Capital Territory, Victoria and South Australia, although its distribution is patchy and several subpopulations occur within this range. Regions of suitable habitat tend to align with mean maximum summer temperatures of between 23-26oC and mean annual rainfall of between 700 and 1,500 mm (DAWE, 2022b). In Queensland the species occupies moist coastal forests, southern and central western subhumid woodland, eucalypt woodlands near	**Known –** koalas (*Phascolarctos cinereus*) is an obligate foliovore that feeds on the Myrtaceae family (*Eucalyptus, Corymbia, Angophora, Melaleuca*). The species preferred by the koala (*Phascolarctos* cinereus) change regionally, with species such as Queensland blue gum (*Eucalyptus tereticornis*) and Narrow-leaved red ironbark (*Eucalyptus crebra*). In addition with the potential for these species to occur on site the REs within the impact area are dominated by other species belonging to the Myrtaceae family which they rely on. In addition to this the koala (*Phascolarctos cinereus*) has been recorded more than 10000 times within 10 km of the site confirming their presence within the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				waterbodies in semi-arid western parts of its range. The koala is an obligate folivore (leaf eater), with a limited diet of *Eucalyptus*, *Corymbia* and *Angophora* species. The koala feeds on hundreds of tree species across its range, however, has a preference of only a handful of species in any given location, which is likely to be dependent on regional variations in chemical profiles, water content and nutrient value of foliage. Climate refugia, such as drainage lines, riparian zones and patches resilient to drying conditions (through favourable hydrological systems) are considered habitat critical to this species (DAWE, 2022b).	
Potorous tridactylus tridactylus	Long-nosed Potoroo (northern)	Vulnerable		*Potorous tridactylus tridactylis* has a broad and fragmented distribution between Many Peaks Range near Gladstone, QLD and the north of Sydney, NSW (DAWE, 2022). The species generally occurs up to 800 m above sea level, although may occur up to 1000 m in the Main and Border Ranges on Queensland. Queensland habitats generally include high altitude ranges of wet sclerophyll forest and rainforests, however a few populations occur in lowland heath and coastal areas. The optimum habitat has a dense understorey layer to provide cover, but with sufficient open space beneath the sub-canopy to allow foraging. They are often recorded in gullies and near creeks (DAWE, 2022). At low altitudes associated flora communities include Eucalyptus signata (scribbly gum) woodlands with a heathy understory (Andren et al. 2013). Other community members in the coastal heathlands are Wallum banksia (*Banksia aemula*), Blackbutt (*Eucalyptus pilularis*), Coastal cypress pine (*Callitris columellaris*), Heath-leaved banksia (*Banksia ericifolia*), and Broadleaved paperbark (*Melaleuca quinquenervia*), often with dense ground covers of Grass tree (*Xanthorrhoea* sp.), sedges, ferns, forbs and heath species. Habitat size is important, as the long-nosed potoroo rarely occurs in remnant vegetation patches smaller than 0.1 km², a minimum patch size is suggested at 0.41 km² (DAWE, 2022).	**Low –** This species typically occurs in rainforest, wet sclerophyll forests and some scattered populations in closed heathland and coastal areas. This species, when in low altitudes, prefer Wallum banksia (*Banksia aemula*) and coastal blackbutt (*Eucalyptus pilularis*) forests along with Broad-leaved paperbarks (*Melaleuca quinquenervia*) canopy and dense ground stratums with sedges, ferns, forbs and heath species. Additionally, a minimum patch size is estimated to be 0.41 km^2. The remnant vegetation within and adjacent to the impact area is greater than this threshold. It is unlikely that this species will occur within the impact area due to significant previous disturbance removing habitat and its poor connection to existing populations of this species found 10 km to the west of the impact area.
Pteropus poliocephalus	grey-headed flying-fox	Vulnerable		The species occurs in coastal areas from Rockhampton in central Queensland to Melbourne in Victoria, although it uses small areas within this range at any given time depending on availability of food resources and roosting habitats (DCCEEW, 2023o). Foraging habitat includes rainforests, open eucalypt forests, woodlands, Melaleuca swamps and Banksia woodlands where it feeds on the fruit and flowers of a range of tree species. It can also feed on commercial fruit crops and ornamental trees in urban areas. However, the species moves throughout its range in response to seasonal food resources. Roosts are commonly within dense vegetation close to water, primarily rainforest patches, stands of Melaleuca, mangroves or riparian vegetation (DCCEEW, 2023o).	**Known –** Grey-headed flying fox (*Pteropus poliocephalus*) feed on the fruit and flowers of a variety of trees from the *Eucalyptus, Corymbia, Angophora* and *Melaleuca* genera, often travelling 40 km or more to feed (DCCEEW, 2023o).This species is likely to utilise this habitat as a foraging habitat, visiting this site due to the abundance of Broad-leaved paperbarks (*Melaleuca quinquenervia*) and the variety of Eucalyptus (*Eucalyptus* sp.) and Bloodwood (*Corymbia* sp.) present within the site. In addition to a significant food source two camps have known to occur within 2 km of the impact area.
Xeromys myoides	Water Mouse, False Water Rat, Yirrkoo	Vulnerable	Vulnerable	Xeromys myoides occurs across an extensive, yet disjunct coastal and near coastal range in Queensland and the northern territory. In south east Queensland it occurs from the Gold Coast and Morton Bay area to the Great Sandy Straight, and inland to Beerwah State Forest (DAWE, 2021). The species inhabits aquatic environments, including coastal saltmarsh, sedgelands, clay pans, heathlands, samphire shrublands, saline reed-beds and saline grasslands, mangroves, and coastal freshwater wetlands, and wet heathlands (DAWE, 2021; DoE, 2025). Associated flora species include: *Avicenna marina var. australasica*, *Rhizophora stylosa*, *Bruguiera gymnorrhiza*, *Aegiceras corniculatum* and *Ceriops tagal var. australis* in mangrove communities. Uppertidal species include *Juncus kraussii*, *Baumea juncea*, *B. rubiginosa*, *Fimbristylis ferruginea* and *Sporobolus virginicus.* While *Melaleuca quinquenervia*, *Corymbia intermedia*, *Casuarina*	**Unlikely –** This species is associated with aquatic environments including coastal saltmarsh, sedgelands, clay pans, heathlands and mangroves. These REs correspond with land zones 1 and 2 or tidal flats and beaches and coastal dunes. Neither of these land zones are found within the site. Additionally, crossings across the tributaries of the Little Burpengary Creek and Saltwater Creek that run through the impact area are not far enough downstream to play host to significant habitat vegetation such as mangroves and salt pan vegetation. It is unlikely that this species would be found on within the impact area despite a record 10 km to the southeast.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				glauca, *Eucalyptus robusta*, *Leptospermum liversidgei*, *Gahnia sieberiana* and *Caustis blakei* in adjacent terrestrial communities are associated with the species (DoE, 2025). Habitat attributes include: intact hydrology; prey resources (crustaceans, polyclad worms, pulmonated snails and bivalves); a defined supralittoral bank (enabling nest construction above high tide level); and structures (such as (tidal pools, channels, crab holes, pneumatophores, crevices in bark and around roots, hollows in standing and fallen timber/mangroves, suspended drifts of twigs and leaves and driftwood) (DAWE, 2021). The species has been identified within 300 m from a waterway in south east Queensland. The water mouse may nest or forage in the following Queensland Regional Ecosystems: 8.1.1, 11.1.1, 11.1.2, 11.1.4, 12.1.1, 12.1.2, 12.1.3, 12.2.5, 12.2.7, 12.2.11, 12.2.12 and 12.2.14 (DoE, 2025).	
Ornithorhynchus anatinus	platypus	Not listed	Special least concern	*Ornithorhynchus anatinus* has a distribution from near Cooktown, QLD, to Tasmania and west to Adelaide. They occur is rivers and streams which flow to the east and south coasts of eastern Australia (Grant & Temple-Smith, 1998). The species is completely dependent on permanent fresh water (Hawkins & Battaglia, 2009). Habitat includes both riverine and riparian features which maintain a supply of benthic prey species and consolidated banks into which resting and nesting burrows can be excavated (Grant & Temple-Smith, 1998).	**Moderate -** There have been reports of local population declines in metropolitan areas of Melbourne, Sydney and Brisbane; However, individuals have been located in highly degraded streams near human settlement in Melbourne (Grant & Temple-Smith, 1998), thus not eliminating the possibility of occurrence in degraded Brisbane waterways. CMB has records (environmental DNA (eDNA)) and observational field records for records within Freshwater Creek, 1.3 km downstream of the Project Area (i.e. the bridge over Old Gympie Road).
Threatened reptiles					
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	Vulnerable		*Coeranscincus reticulatus* occurs on the coast and in the ranges from the Macleay Valley in NSW to Cooloola in south-eastern Queensland (TSSC, 2008). The species inhabits rainforest and occasionally moist eucalypt forest, on loamy or sandy soils, utilising leaf litter, often immediately adjacent to fallen tree trunks (TSSC, 2008).	**No –** This species is known to inhabit rainforests and occasionally moist eucalypt forest on loamy or sandy soils in leaf litter (TSSC, 2008). The habitat within the impact area does not correspond to any REs that are analogous with rainforests making the impact area unsuitable for this species.
Delma torquata	Adorned Delma, Collared Delma	Vulnerable		This species is very patchily distributed in south-eastern Queensland, west of Rockhampton south to the Scenic Rim. It has been recorded from the Bunya Mountains, Blackdown Tablelands National Park, Expedition National Park, Western Creek, near Millmerran, the Toowoomba Range and most commonly from the western suburbs of Brisbane (DEWHA, 2008b; DCCEEW, 2023q). The species occupies eucalypt woodlands and open forests on a range of soil types (including sandy loams, grey and black cracking clays, stony lithosols and basalt derived Podzolics) and lives under surface rock, logs, and woody debris and leaf litter (30-100 mm thick) is a key microhabitat feature of this species. It is associated with exposed rocky outcrops and a predominantly native grassy ground cover (including Kangaroo grass (*Themeda triandra*), Barbed-wire grass (*Cymbopogon refractus*), Wiregrass (*Aristida* spp.) and Matrush (*Lomandra* spp.). It tends to occur on land zones 3, 9 and 10 and has been associated with REs 11.3.2, 11.9.10, 11.10.1 and 11.10.4. In the east of its range, it is known to occur in Narrow-leaved red ironbark (*Eucalyptus crebra*) within exposed rocky outcrops on ridge or slopes, or communities dominated by Spotted gum (*Corymbia citriodora*). In its most western distribution it was found in Poplar box (*Eucalyptus populnea*) open woodland on alluvial plains (DEWHA, 2008b; DCCEEW, 2023q).	**Low –** This species has a low potential to occur within the impact area. This species is known to occur on a variety of soil types including sandy loams, black cracking clays, stony lithosols and basalt derived soils (DEWHA, 2008b, (DEWHA, 2008b; DCCEEW, 2023q). The site does have sandy loams and alluvial soils recorded within the site (land zones 3 and 5) which have the potential to play host to this species. Additionally, if the ground layer of the impact area is dominated by native species with significant amounts of woody debris and leaf litter there is the potential for this species to occur within the impact area.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
Furina dunmalli	Dunmall's snake	Vulnerable	Vulnerable	This species is distributed in Queensland between Yeppoon and Expedition Range in the north to Oakey, Glenmorgan and Inglewood in the south between 200 and 500 m above sea level (DoE, 2014). The species has been recorded in a wide range of habitats, including forests and woodlands dominated by brigalow (*Acacia harpophylla*) and other *Acacia* spp. (*A. burowii*, *A. deanii*, *A. leiocalyx*), cypress (*Callitris* spp.) or bulloak (*Allocasuarina leuhmannii*) on black alluvial cracking clay and clay loams as well as blue spotted gum (*Corymbia citriodora*), ironbark (*Eucalyptus crebra* and *E. melanophloia*), white cypress pine (*Callitris glaucophylla*) and bulloak open forest and woodland associated on sandstone derived soils. The species has also been observed on the edge of dry vine scrub and in hard ironstone country (i.e. land zone 7) (DCCEEW, 2023s).	**Unlikely –** This species inhabits a wide array of habitats that are typically dominated by wattles (*Acacia*), Cypress pines (*Callitris*), Spotted gums (*Corymbia citriodora*), ironbarks (*Eucalyptus crebra* and *Eucalyptus melanophloia*) and Bulloaks (*Allocasuarina luehmannii*) on black alluvial cracking clays and clay loams (DCCEEW, 2023s). The soil within the impact area do not correspond to these soil types and the vegetation within the impact area is unlikely to occur within the impact area.
Hemiaspis damelii	grey snake	Endangered	Endangered	The species is mapped as having a broad distribution from south-eastern Queensland into central New South Wales to the southern border, however, it distribution is likely to be patchy within this range. In Queensland it is known primarily from the Macintyre and Condamine Rivers and floodplains of the southern Brigalow Belt from Goondiwindi and Dalby west to Glenmorgan, on the Darling Downs and western Lockyer Valley, near Rockhampton on the central Queensland coast and on the Darling Riverine Plains near Currawinya in south-western Queensland. It has been recorded at elevations between 70 and 540 m above sea level, although usually from regions below 300 m (DCCEEW, 2022d). It inhabits dry eucalypt forest and occasionally pasture e.g. brigalow (*Acacia harpophylla*) and belah (*Casuarina cristata*) woodlands, favouring areas of heavy, dark brown to black cracking, flood-prone, clay soils along floodplains and in floodplain wetlands near watercourses within the Brigalow Belt. This snake shelters beneath logs, rock and in soil cracks. It is also known to occupy Queensland blue grass (*Dichanthium sericeum*) and or Mitchell grass (*Astrebla* spp.) grasslands on alluvial plains with cracking clay soils in Queensland. There is a strong association of this species with red sodosol soils, with a strong texture contrast between the A horizon and sodic B horizon, and which are often dense and coarsely structured (DCCEEW, 2022d).	**Unlikely –** This species prefers areas of heavy, dark brown to black cracking, flood-prone, clay soils along floodplains and in floodplain wetlands near watercourses within the Brigalow Belt. This snake shelters beneath logs, rock and in soil cracks. It is also known to occupy Queensland blue grass (*Dichanthium sericeum*) and or Mitchell grass (*Astrebla* spp.) grasslands on alluvial plains with cracking clay soils in Queensland. None of the land zones or soils mapped within the impact area meet these criteria and it is unsuitable for this species.
Threatened Amphibians					
Adelotus brevis	Tusked frog	Not listed	Vulnerable	The species distribution is relatively concentrated in the South-east Queensland region, with scattered records occurring north and south along the east coast of Australia. The species typically inhabits flooded habitats associated with dams, ditches, grasslands, and creeks in rainforest wet sclerophyll forest and woodland (ALA, 2025). Suitable habitat within the Project Area generally occurs as coastal swamp sclerophyll forest. Field surveys confirmed the presence of presumably permanent flooded areas within directly adjacent swamp habitats, as well as areas of seepage and drainage lines which intersect the Project Area.	**Moderate** - While not detected during surveys, the presence of tusked frog cannot be discounted owing to the species low detectability during winter surveys and presence of potentially suitable habitat within and/or adjacent the project Area. Further surveys in spring and early summer are needed to determine whether the species is present or not within the Project Area.
Mixophyes fleayi	Fleay's Frog	Endangered	Endangered	*Mixophyes fleayi* occurs in a patchy distribution in montane areas from far south-east Queensland to far northeast NSW. Records occur from the Conondale Range, QLD, to Yabbra National Park, NSW and west to Tooloom National Park, NSW. It is known from 30 scattered sites, mostly within National Parks. (TSSC, 2021). The species is a ground-dwelling amphibian inhabiting montane rainforest and adjoining wet sclerophyll forest habitat. It generally occurs at higher altitudes above 400m, although has been found between 100-1000m. Its habitat is usually defined in terms of stream environments, but terrestrial habitat may be of greater importance to species recovery, with females	**Unlikely** - This species is a ground-dwelling amphibian that inhabits montane rainforests and adjacent wet sclerophyll forest at altitudes ranging from 100-100 m above sea level (TSSC, 2021). This species is an obligate stream breeder that relies on permanent water and permanent areas of deep leaf litter for shelter. The vegetation within the impact area is not rainforest vegetation, but lowland sclerophyll forestry. In addition to an unsuitable plant assemblage the elevation of the site is significantly lower than their typical distribution. This species will not occur on site and is fundamentally unsuitable for this species.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				spending most of their time away from stream breeding sights (TSSC, 2021).	
Mixophyes iteratus	Giant Barred Frog, Southern Barred Frog	Vulnerable		*Mixophyes iteratus* occurs in a sparse distribution from Doongul Creek near Hervey Bay, south-east Queensland, south to Warrimoo in the Blue Mountains, New South Wales (TSSC, 2021). The species occurs in elevations ranging from 100-1000m. Queensland subpopulations are generally restricted to lower elevations, although some individuals have been found at 500m. 65 % of the Queensland population occurs in the Mary River catchment. Further south the species occurs in the headwaters of the Brisbane River (e.g. Stanley River, Byron Creek) and in coastal streams (e.g. Caboolture River, Burpengary Creek), all north of Brisbane (TSSC, 2021).	**Unlikely** – The habitat present is fundamentally unsuitable for this species. This rainforest to wet sclerophyll specialist is unlikely to occur within this coastal swamp and sclerophyll dominated vegetation within the impact area. Additionally, the water features within the impact area are not rocky streams or slower moving water bodies and are not suitable breeding habitat.
Crinia tinnula	Wallum froglet	Not listed	Vulnerable	The Wallum froglet occurs in lowland coastal areas of subtropical eastern Australia from Littabella National Park, south-east Queensland, south to Kurnell, central New South Wales, including the sand islands off the Queensland coast (Fraser, Bribie, Moreton and North Stradbroke Islands) (WildNet). The Wallum froglet can be found in acidic wetlands (pH 4.3-5.2) within Melaleuca swamps, sedgeland, wet or dry heathland and wallum/woodland areas in the sandy coastal lowlands (<100m asl) of south-east Queensland. Occasionally animals occur in adjacent forests with a heathy understorey, and are known to persist in disturbed wallum habitat such as 4WD-impacted sites, roadsides, quarry site, and exotic pine plantations and partly cleared areas (WildNet).	**Moderate** – This species occurs in acid paperbark (*Melaleuca*) swamps, sedgelands and drainage lines in wet heath, disturbed wallum habitat and other disturbed sites such as burnt heathland and quarry sites(Queensland Herbarium, 2025). The REs within the impact area is dominated by Broad-leaved paperbarks (*Melaleuca quinquenervia*) which have the potential to create acidic habitats within flooded locations. However, due to the significant urbanisation which alter the drainage dynamics of the site and introduce diluting, basic run off it is unlikely that the habitat is in sufficient condition for this species to remain within the area.
Threatened fish					
Epinephelus daemelii	Black Rockcod, Black Cod, Saddled Rockcod	Vulnerable	Not listed	*Epinephelus daemelii* is distributed from southern Queensland through NSW to northern Victoria, however are rare in Queensland and Victoria (DSEWPC, 2012). The species range includes warm temperate and subtropical near shore and off shore waters. Juvenile black cod are often found in estuary systems (DSEWPC, 2012).	**Unlikely** – The impact areas is fundamentally unsuitable for habitat, the surrounding region does contain subtropical near shore and off shore waters, but not within the project boundary.
Threatened insects					
Argynnis hyperbius inconstans	Australian Fritillary	Critically Endangered	Endangered	Argynnis hyperbius inconstans has a scattered records primarily between Gympie, south-eastern Queensland, and Port Maquarie, north-eastern New South Wales. There are some records beyond this range reaching north to Mt Bellenden Ker, Queensland, and south to the Hunter Valley, NSW (TSSC, 2017). The species is restricted to areas where its larval food plant, Viola betonicifolia (the arrowhead violet), occurs. Viola betonicifolia is widespread throughout QLD and NSW, however Australian Fritillary occurs only below 600 m altitude, usually around river estuaries or open, swampy coastal regions (TSSC, 2017).	**Unlikely** – Although the vegetation within the impact area has the potential to host this species obligate host plant the Arrowhead violet (*Viola betonicifolia*) no Arrowhead violet were found. There are 5 records of this plant within 10 km of the impact area and 3 individuals found within 5 km of the site on the Atlas of Living Australia.
Threatened invertebrates					
Tenuibranchiurus glypticus	swamp crayfish	Not listed	Endangered	Suitable habitat for the species (areas of Melaleuca wetland containing shallow, ephemeral water and areas of shallow, ephemeral water along drainage depressions and, to a lesser extent, under culverts) is also present within and adjacent the Project Area, including to the near south and north of Goodwin Avenue and southeast of Hughes Road East. The species is uncommon and very few public records are available for interrogation in consideration of the species potential to occur within the	**Moderate** - Given the presence of suitable habitat to the species, and difficulties detecting the species (owing to its small size and cryptic nature), the presence of swamp crayfish within and adjacent the Project Area cannot be ruled out.

Scientific Name	Common Name	EPBC Act status	NC Act status	Habitat description	Likelihood of occurrence
				Project Area. Twelve spatial records are known within South-east Queensland, however, precise locations are kept private with an approximate 2km generalisation of spatial data. These records are available through the Queensland Museum provider for OZCAM (online Zoological Collections of Australian Museums). Majority of records date back to the 1990s, or do not contain date information. A single relatively recent record, from 2019, does occur within the Caloundra region approximately 60 km north of the Project Area.	

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28ºS ENVIRONMENTAL

Attachment 4 – Fauna Survey Technical Memo

48 Streeton Parade,
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Technical Note/Memo

To: Andrew Dickinson, 28South

From: Mark Sanders

Date: 11 August 2025

Re: Old Gympie Rd corridor upgrade – Fauna Assessment

Background

Moreton Bay Regional Council (MBRC) is planning to upgrade a 4.7 km section of the Old Gympie Rd corridor to manage increased traffic and congestion on Old Gympie Rd between Boundary Road, Dakabin and Anzac Avenue, Kallangur. 28South has been engaged by MBRC to assist with planning and approvals for this project (hereafter 'the Project') and have engaged EcoSmart Ecology to investigate faunal values potentially impacted by the upgrade and also evaluate the proposed siting/efficacy of green infrastructure facilitating movement of fauna across the Project Area. The desktop and field investigations undertaken for this assessment and findings of these investigations are detailed in this brief technical memo.

Methods

Desktop review

Prior to undertaking field work, a desktop review was undertaken to identify fauna matters of national, state and local environmental significance known to occur or potentially occurring within and/or adjacent the Project Area (a 4.8 km section of Old Gympie Rd between Boundary Road and Anzac Avenue). This review included information from the following sources:

- The Atlas of Australia database (ALA), which includes records from state and national herbaria, iNaturalist, Birdlife, WildNet and other sources ,
- Queensland WildNet flora and fauna records database (accessed via https://wildnet.science-data.qld.gov.au/),
- The EPBC Act Protected Matters Search Tool for Matters of National Environmental Significance (MNES), and

- Spatial data/mapping of Matters of State Environmental Significance (MSES) published by the Department of Environment, Tourism, Science and Industry (DETSI), including but not limited to:
    - Essential Habitat mapping
    - MSES wildlife habitat for endangered, vulnerable wildlife and special least concern wildlife (including SEQ koala habitat mapping)
    - Watercourse and wetland mapping,
    - Regional Ecosystem (RE) mapping, and
    - Regulated vegetation mapping.

The desktop review identified the following conservation significant fauna species as occurring or potentially occurring within and/or immediately adjacent the Project Area:

- grey-headed flying-fox (*Pteropus poliocephalus*),
- koala (*Phascolarctos cinereus*),
- wallum froglet (*Crinia tinnula*),
- swamp crayfish (*Tenuibranchiurus glypticus*),
- powerful owl (*Ninox strenua*),
- glossy black-cockatoo (south-eastern subspecies) (*Calyptorhynchus lathami lathami*),
- tusked frog (*Adelotus brevis*), and
- platypus (*Ornithorhynchus anatinus*).

Field surveys

Field surveys to investigate the presence and potential occurrence of conservation significant fauna species within the Project Area were undertaken by a team of two ecologists on the 24th and 29th of July 2025. Surveys undertaken at this time included:

- Assessment of habitat suitability for target species, having regard to: the presence of feed and shelter trees, prey, native vegetation cover, invasive weeds and pest animal species, water quality, and existing anthropogenic impacts (e.g., noise and light pollution);
- Diurnal counts of grey-headed flying fox at a permanent flying fox camp within Ross Reserve (on Freshwater Creek);
- Systematic (SAT) and opportunistic searches for koala scats and scratches;
- Nocturnal spotlighting and dipnet surveys for swamp crayfish and wallum froglet;
- Call playback/aural census surveys for wallum froglet;
- Spotlighting surveys targeting koala, grey-headed flying fox, powerful owl and platypus, and;

- Opportunistic surveys for diurnal bird and reptile species and fauna signs (e.g., scats, diggings and scratches).

Whilst undertaking field surveys, the proposed location/siting of green infrastructure facilitating safe passage of fauna across the Project Area was also investigated at the following locations:

- Road crossing at Ann Street, north of Penson Park
- Road crossing at Saltwater Creek on Old Gympie Rd, to the south of Boundary Rd, and
- Road crossing at Freshwater Creek on Old Gympie Rd.

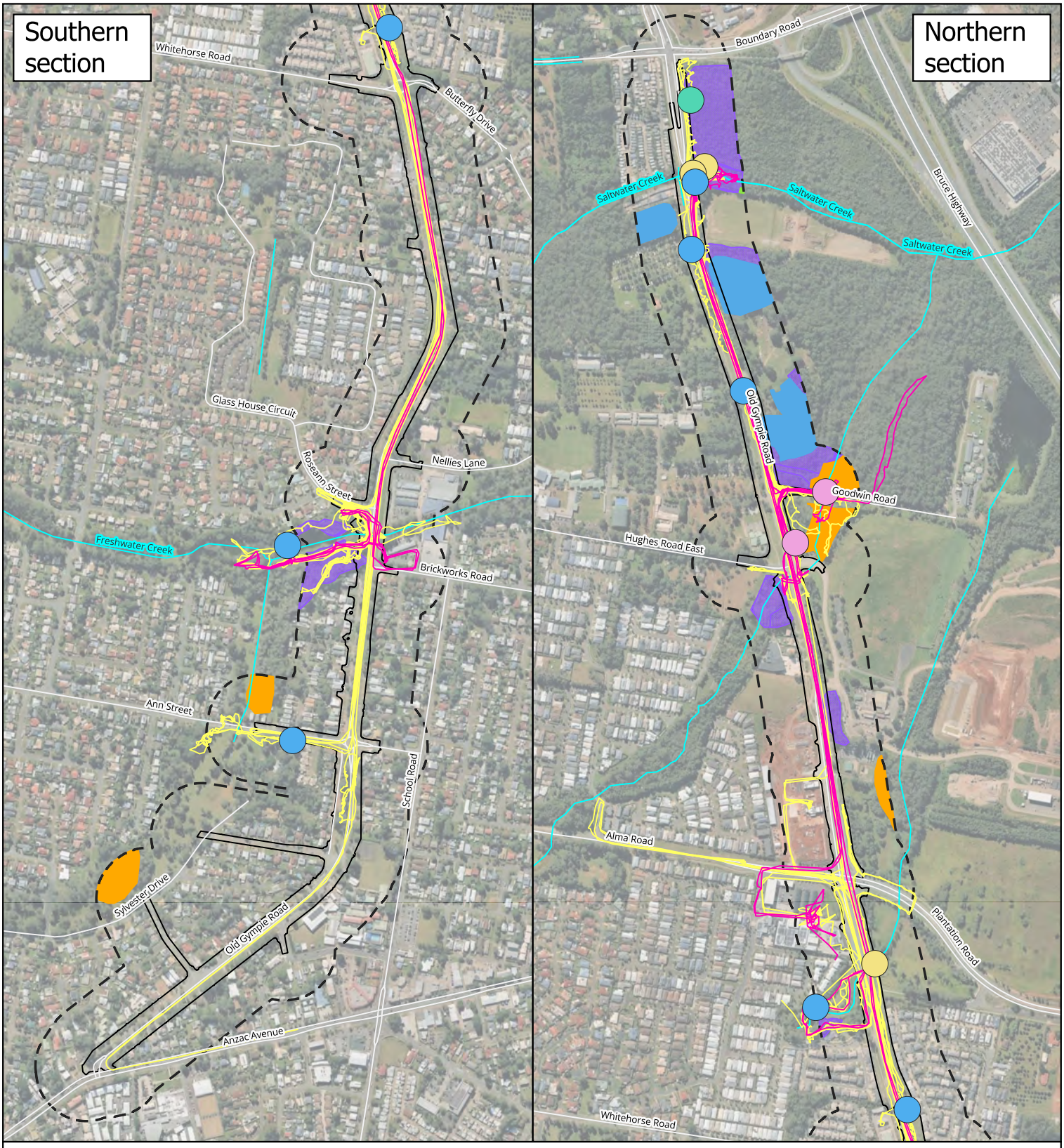
Survey locations and traverses are shown in Figure 1, with reference to mapped Regional Ecosystems and High Value Regrowth.

Limitations

Field surveys were subject to a number of limitations, as detailed below.

- Areas of potential habitat for MNES/MESE species on private land adjacent Old Gympie Rd (to the north and south of Hughes Rd East and north of Goodwin Road) could not be accessed during surveys.
- Survey timing and conditions were suboptimal for the detection of migratory species visiting south-east Queensland during spring/summer and fauna species generally active during warmer months (i.e., most reptile and frog species [excluding the wallum froglet but including the tusked frog]).
- Surveys did not include active searches for platypus burrows or call playback for tusked frog.
- Owing to limited temporal replication, survey results may not accurately reflect a species' occurrence or usage of habitat within and/or adjacent the Project Area.

Given the above, a precautionary approach has been adopted when assessing the potential occurrence and habitat values for MNES/MSES species within and adjacent the Project Area.



Legend

- Project area
- 100 m buffer

Regional Ecosystem

- 12.3.5
- 12.3.6
- 12.5.3
- HVR

Survey locations

- Dipnet
- Ort search
- Playback
- SAT

Survey traverses

- Diurnal traverses
- Nocturnal traverses

Figure 1

Regional Ecosystem and High Value Regrowth mapping, and survey methods within 100 m of the project area.

0 0.2 0.4 km

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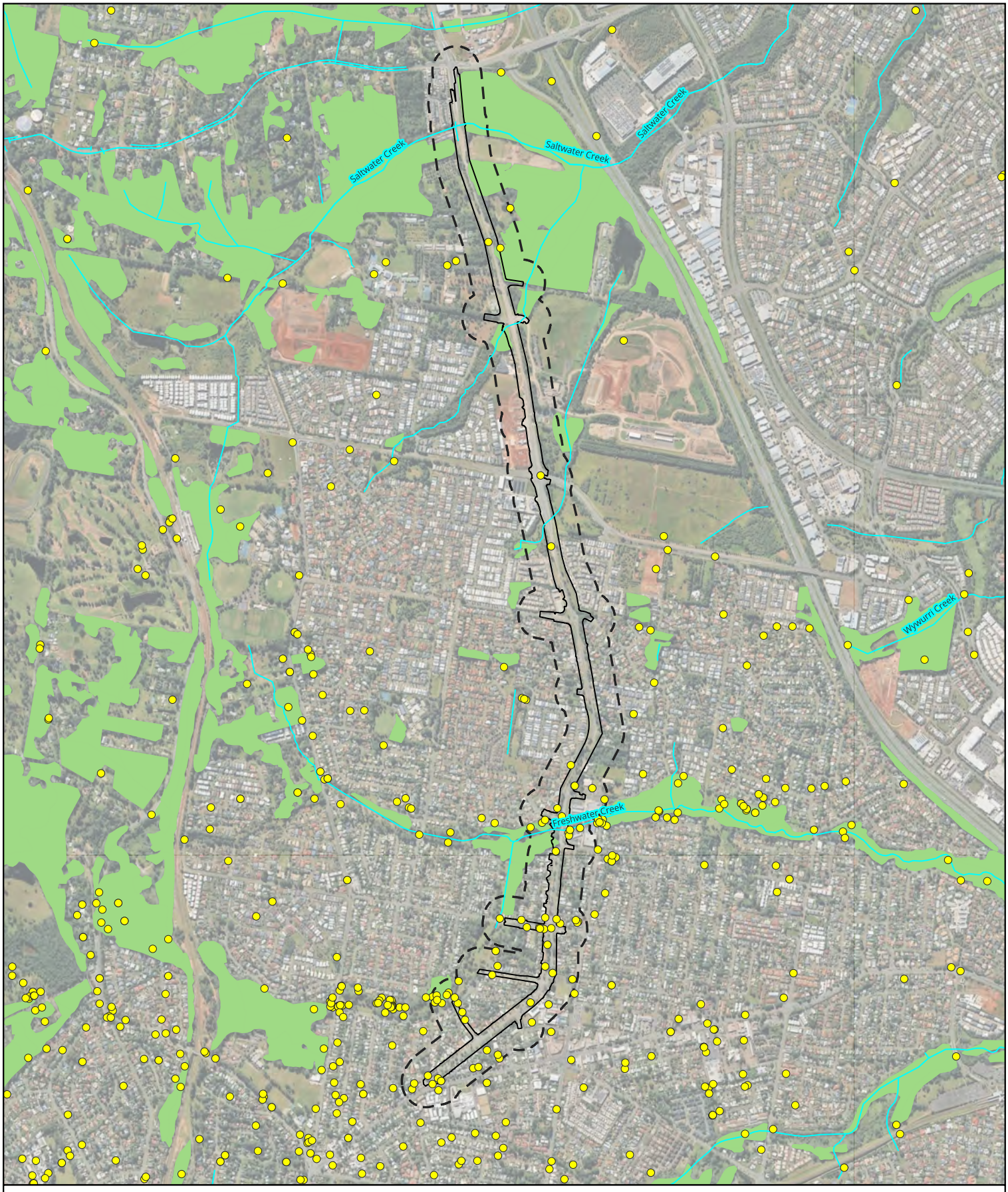
Results

A total of 64 animal species (46 bird, 2 amphibian, 6 mammal, 4 reptile, 4 and 2 decapod crustacean species) were recorded within and/or adjacent the Project Area during surveys (Appendix A). Included in this tally are three conservation significant species: grey-headed flying-fox (*Pteropus poliocephalus*), koala (*Phascolarctos cinereus*), and powerful owl (*Ninox strenua*). Details regarding the occurrence of these and other potentially occurring MNES and MSES species identified in the desktop assessment are provided below.

Koala

Areas of state-mapped remnant (Category B) vegetation and high value regrowth (Category C vegetation) containing koala habitat trees within and adjacent the Project Area are currently mapped as Core Koala Habitat under the Nature Conservation (Koala) Plan 2017, as are several smaller areas of vegetation cover containing koala habitat trees currently mapped as non-remnant (Category X) vegetation. Core Koala Habitat within and adjacent the Project Area comprising remnant and high value regrowth RE 12.5.3, 12.3.6 and 12.3.5 to the near east and west of and adjoining Old Gympie Rd (south of Boundary Rd and along Freshwater Creek) is also mapped as Essential Habitat for koala under the Vegetation Management Act 1999. There are also numerous contemporary (post-2010) ALA records of koala from within and adjacent the Project Area, including numerous records from roadside vegetation/trees lining Old Gympie Rd. Mapping showing contemporary records of koala and the extent of State mapped koala habitat (i.e., Core Koala Habitat and Essential Habitat for Koala) within the Project Area and near surrounds is provided in Figure 2.

During surveys, scats attributable to koala were located at a number of locations within and immediately adjacent the Project Area, including: within Ross Reserve (along Freshwater Creek, to the near west of Old Gympie Rd), at Penson Park on Ann Street (to the near east of Old Gympie Rd) and alongside Old Gympie Rd (to the south of Boundary Road and north of Goodwin Rd). Scratches potentially attributable to koala were also observed within remnant eucalypt forest to the near south of Goodwin Road. The location of these records is shown in Figure 3.



Legend

- Project area
- OldGympiedRd_100mBuffer
- Koala core habitat areas (QLD Government mapping)
- Koala

Figure 2

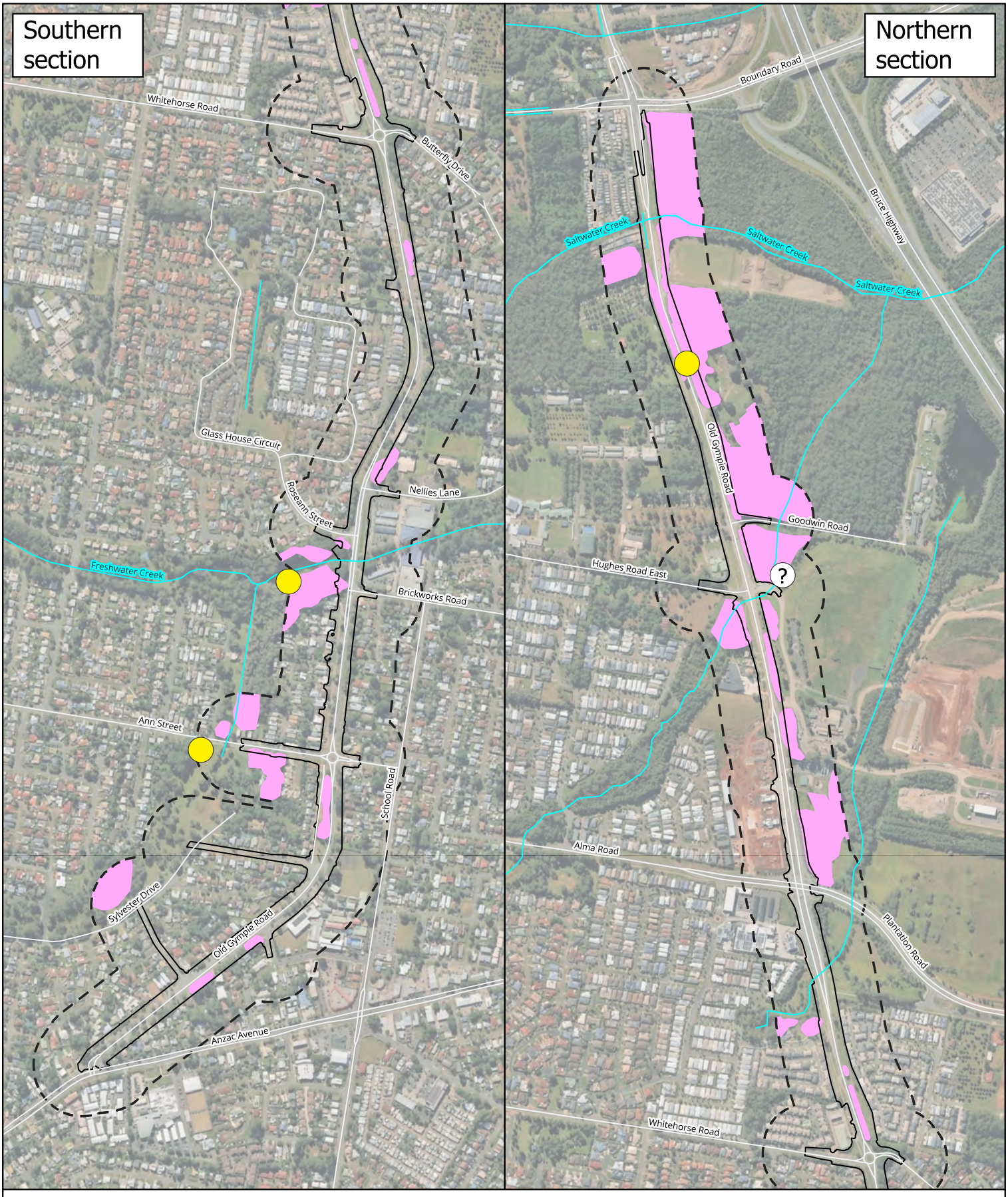
Mapped core koala habitat and contemporary (≥2010) records within the project area and broader landscape.

0 0.5 1 km

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Legend

- Project area
- 100 m buffer
- Suitable habitat for koala
- Koala scat
- ? Koala scratch (potential)

Figure 3

Suitable koala habitat and signs (scats and scratches) recorded during surveys within 100 m of the project area.

0 0.2 0.4 km

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Locally important koala feed trees (LIKTs) and ancillary habitat trees (sensu Youngentob et al., 2021) occur as dominant or co-dominant canopy species within areas of remnant forest and also as scattered trees fringing Old Gympie Rd, both within and adjacent the Project Area. LIKTs and ancillary koala habitat trees (AHTs) recorded within and/or adjacent the Project Area are listed in Table 1.

Table 1. Koala habitat trees recorded within and immediately adjacent the Project Area

Tree species	LIKT/AHT	Occurrence within Project Area
Eucalyptus tereticornis	LIKT	Common. Scattered trees growing on road verge and in areas of parkland; subdominant canopy species in areas of remnant vegetation.
Eucalyptus microcorys	LIKT	Common. Scattered trees growing on road verge and in areas of parkland; subdominant or co-dominant canopy tree in areas of remnant vegetation.
Eucalyptus crebra	LIKT	Common. Scattered trees growing on road verge and in areas of parkland; subdominant or co-dominant canopy tree in areas of remnant vegetation
Eucalyptus racemosa	LIKT	Scarce. Small number of trees in remnant vegetation near boundary road
Eucalyptus propinqua	LIKT	Scarce. Scattered trees in areas of remnant vegetation and parkland.
Eucalyptus seeana	LIKT	Scarce. Scattered trees in areas of remnant vegetation
Corymbia intermedia	AHT	Common. Scattered trees growing on road verge and in areas of parkland; subdominant or co-dominant canopy tree in areas of remnant vegetation.
Lophostemon suaveolens	AHT	Scarce. Scattered trees in areas of remnant vegetation.
Melaleuca quinquenrvia	AHT	Common. Scattered trees growing on road verge and in areas of parkland; co-dominant canopy species in some areas of remnant vegetation.
Corymbia tessellaris	AHT	Scarce. Scattered trees growing on road verge and in areas of parkland.
Syncarpia glomulifera	AHT	Scarce. Scattered trees growing on road verge and in areas of parkland.
Angophora woodsiana	AHT	Scarce. Scattered trees in areas of remnant vegetation.
Angophora leiocarpa	AHT	Scarce. Scarce. Scattered trees growing on road verge
Allocasuarina littoralis	AHT	Common. Scattered trees growing on road verge; dominant understory species in some areas of remnant vegetation.

Habitat trees fringing Old Gympie Rd (within the Project Area) are likely important for the movement/dispersal of koalas within and across the project Area and, along with areas of green space/remnant vegetation containing LIKTs, are considered critical habitat for koala (consistent with

the National Recovery Plan for the Koala [DAWE, 2022]). Suitable habitat for koala within the project area and immediate surrounds is shown in Figure 3.

Grey-headed flying fox

During surveys on the 24th and 29th of July, between 50 and 60 grey-headed flying-fox were seen roosting in the company of 500 to 600 black flying foxes within Ross Reserve to the near west of the Project Area. At this time, grey-headed flying-foxes were observed roosting in paperbark (*Melaleuca*) and eucalypt trees between 30 and 150 m from Old Gympie Rd, with black flying foxes were observed roosting as close as 10 m from the road edge. The location of roosting animals within Ross Reserve is shown in Figure 4.

According to the National Recovery Plan for the Grey-headed Flying Fox (DAWE, 2021), nationally important camps are 'those that have contained ≥ 10,000 Grey-headed Flying Foxes in more than one year in the last 10 years or have been occupied by more than 2,500 Grey-headed Flying foxes permanently or seasonally every year for the last 10 years'. The numbers of grey-headed flying fox recorded roosting at Ross Reserve during surveys in July 2025 and previous surveys undertaken at this site as part of the National Flying-fox Management Program data set are well below this threshold and, as such, the Ross Reserve camp site is not considered nationally important.

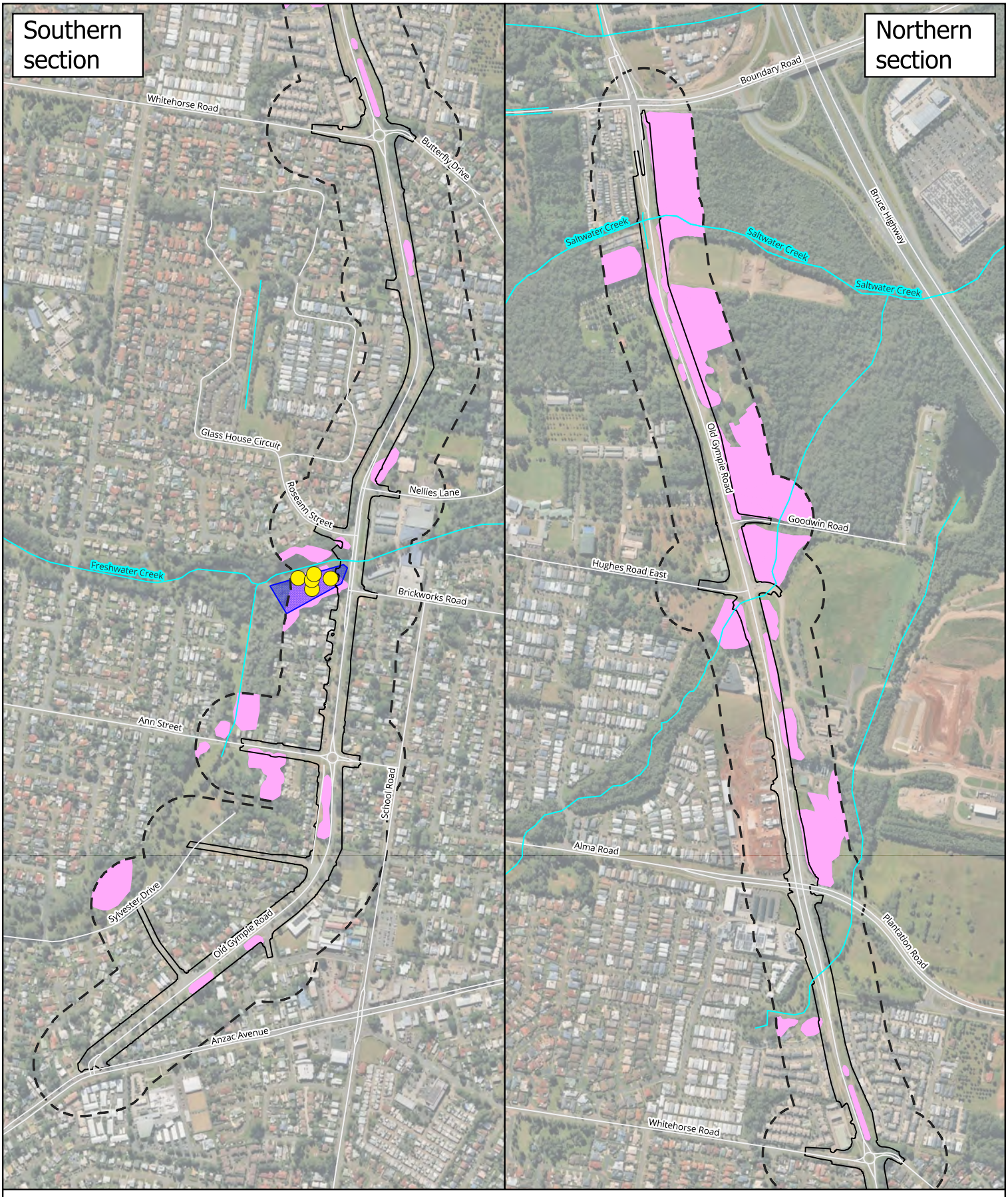
While no flying foxes were observed foraging during surveys, the Project Area contains numerous important winter and spring-flowering trees which the species relies upon during periods of resource scarcity over winter and early spring, including *Eucalyptus tereticornis, E. crebra, E. robusta, E. seeana, E. siderophloia, Melaleuca quinquenervia* and *Syncarpia glomulifera*. These tree species occur as scattered trees and in isolated stands along Old Gypmie Rd and also as canopy/subcanopy trees in areas of adjoining remnant and high value regrowth vegetation. Areas of vegetation containing these tree species are considered critical habitat for the species.

Additional native myrtaceous trees species present within the Project that could also serve as an important food source for grey-headed flying fox at other times (i.e., the final weeks of gestation, birth and during conception and lactation) are also present within the project Area and include spring and summer-flowering *Corymbia*, *Angophora* and *Eucalyptus* spp. (including *C. intermedia*, *C. trachyphloia*, *A. woodsiana*, *A. leiocarpa*, and *E. carnea*). Areas of vegetation containing these species are also considered critical habitat for the species. Suitable habitat for grey-headed flying-fox within the project area and immediate surrounds is shown in Figure 4.

Powerful owl

There are multiple contemporary (post-2020) ALA records of powerful owl from the Dakabin area and the species was observed within Ross Reserve (Figure 5), in close proximity to the Project Area (approximately 70 m west of Old Gympie Rd) during surveys.

Suitable foraging habitat for the species (remnant eucalypt forest with avian and mammalian prey, including possums) is present adjacent (to the near east and west) of the Project Area with areas of denser vegetation associated with Freshwater and Saltwater Creeks likely suitable for roosting as well. No trees containing suitable nest hollows for powerful owl were observed within or immediately adjacent the Project Area during surveys. Suitable habitat for Powerful Owl is shown in Figure 5.



Legend

- Project area
- 100 m buffer
- Suitable foraging habitat for grey-headed flying-fox
- Grey-headed flying-fox record
- Grey-headed flying-fox roost

Figure 4

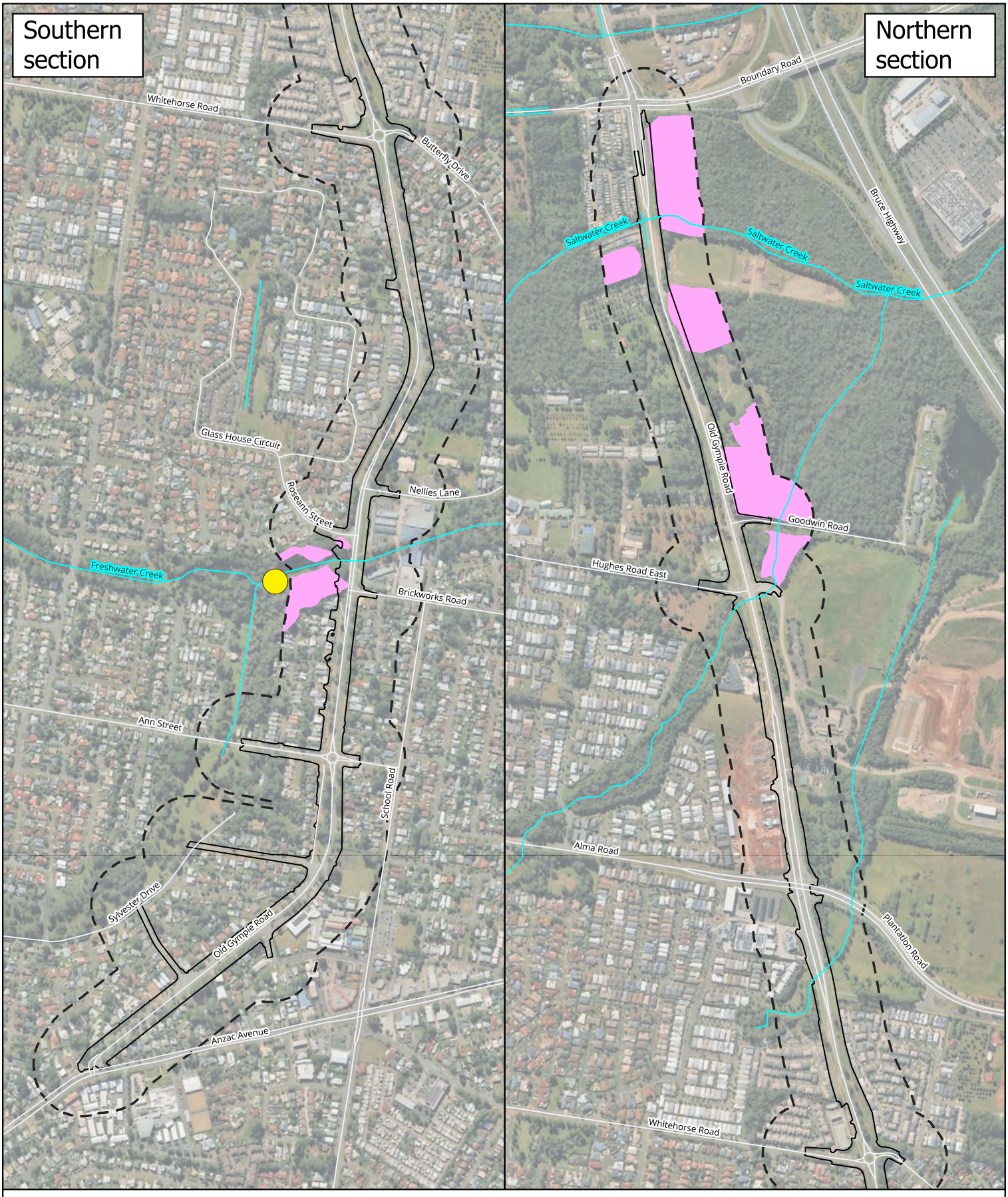
Suitable foraging and roosting habitat for grey-headed flying-fox and observations within 100 m of the project area.

0 0.2 0.4 km

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Legend

- Project area
- 100 m buffer
- Suitable roosting/foraging habitat for powerful owl
- Powerful owl record

Figure 5

Suitable foraging and roosting habitat for powerful owl and observations within 100 m of the project area.

0 0.2 0.4 km

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Swamp Crayfish

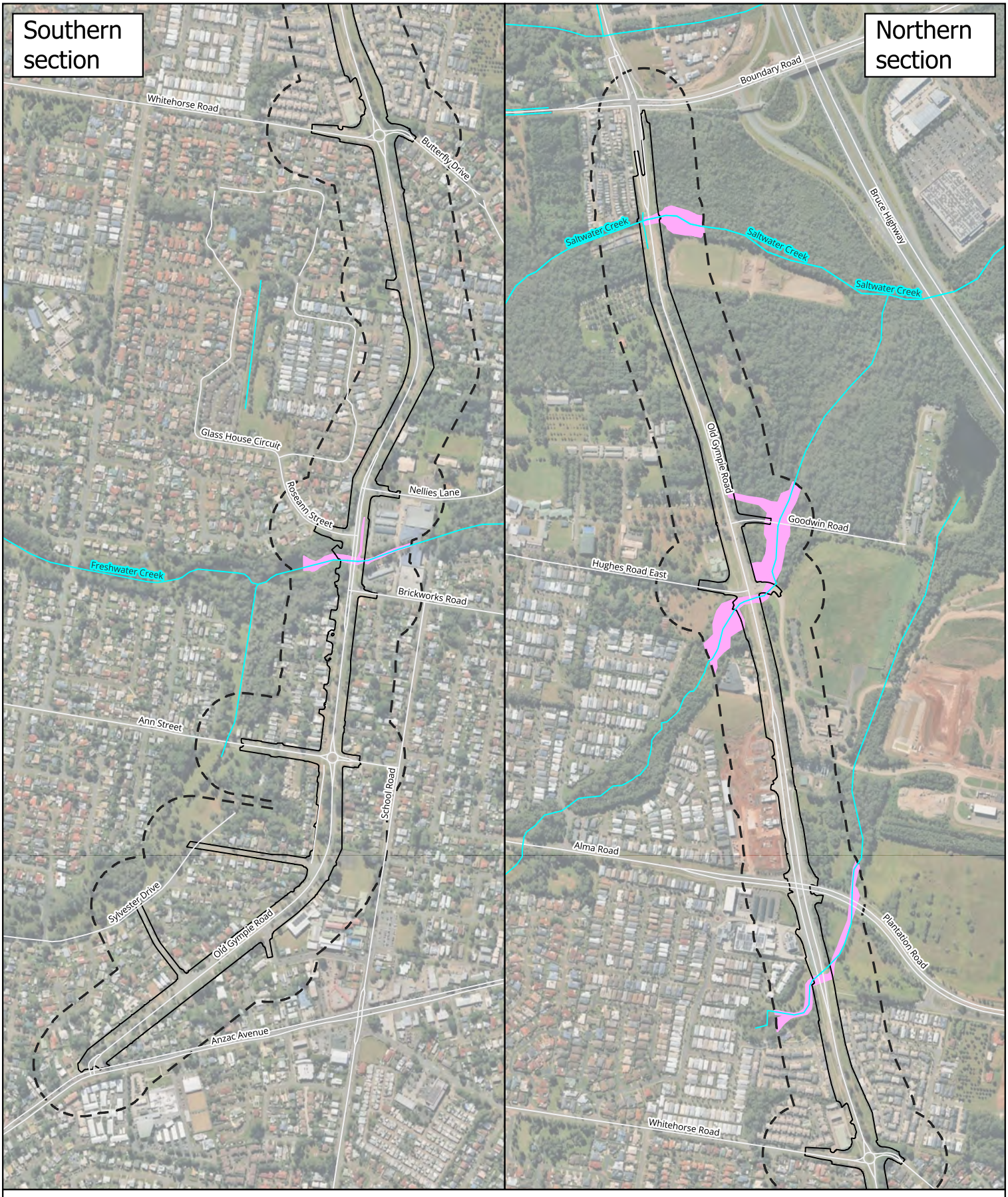
While not recorded within or adjacent the Project Area during surveys, the swamp crayfish is known from scattered locations around Narangba and Burpengary, including Lagoon Creek to the near north of the Project Area (E. Meyer, pers. obs.). Suitable habitat for the species (areas of Melaleuca wetland containing shallow, ephemeral water and areas of shallow, ephemeral water along drainage depressions and, to a lesser extent, under culverts) is also present within and adjacent the Project Area, including to the near south and north of Goodwin Avenue and southeast of Hughes Road East. Given difficulties detecting the species (owing to its small size and cryptic nature), the presence of swamp crayfish within and adjacent the Project Area cannot be ruled out. Areas of likely suitable habitat for the swamp crayfish are shown in Figure 6.

Wallum Froglet

While known to occur at nearby Lagoon Creek, to the near north of the Project Area (E. Meyer, pers. obs.), the wallum froglet was not recorded within or adjacent the Project Area during surveys; and, while the Project Ara and surrounds contain areas of potentially suitable Melaleuca wetland habitat, the amenity of these areas for wallum froglet appears low owing to high densities of predatory pest fish, (including platy, mosquitofish and swordfish). The vegetation and water chemistry in these areas, moreover, is atypical of wetland habitats frequented by wallum froglet, with the ground stratum dominated by grass species (as opposed to sedges and/or bungwall fern more typical of wetland habitat occupied by the wallum froglet) and water pH levels >5. Tannin-staining levels in these wetland areas are also lower than areas normally frequented by wallum froglet with areas of surface water clear and largely colourless. Water chemistry conditions within and adjacent the Project Area are therefore likely to favour less acid-tolerant competitor species such as the beeping froglet (*C. parinsignifera*). It is therefore unlikely that species occurs within or immediately adjacent the Project Area.

Tusked frog

While not detected during surveys, the presence of tusked frog cannot be discounted owing to the species low detectability during winter surveys and presence of potentially suitable habitat within and/or adjacent the project Area. Potentially suitable habitat for the species is shown in Figure 7 and includes areas of denser tree cover associated with Freshwater Creek and an unnamed watercourse intersecting Goodwin Avenue, in the north-east of the Project Area. Further surveys in spring and early summer are needed to determine whether the species is present or not within the Project Area.



Legend

- Project area
- 100 m buffer
- Potential suitable habitat for swamp crayfish

Figure 6

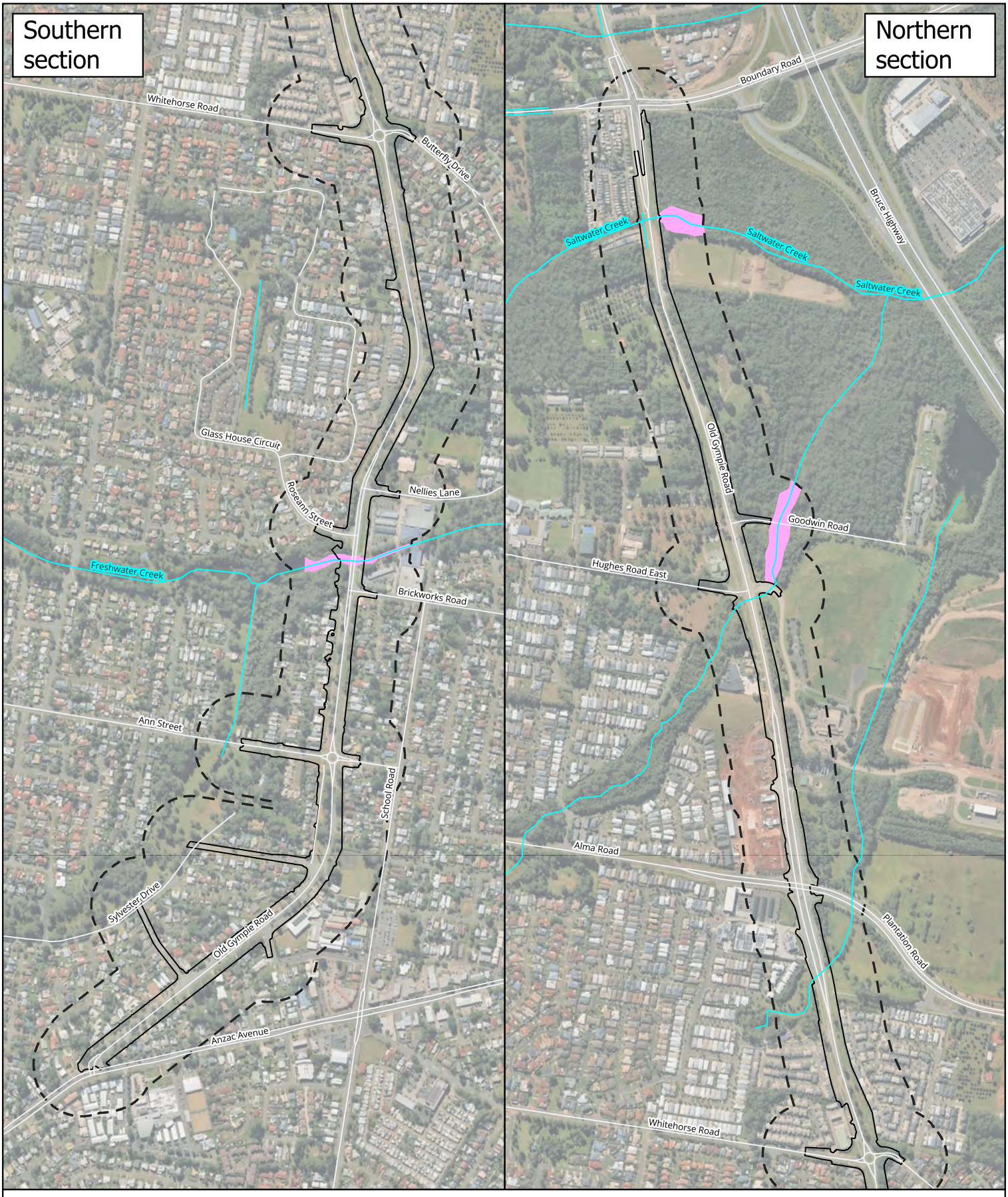
Potential suitable habitat for swamp crayfish within 100 m of the project area.

0 0.2 0.4 km

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Legend

- Project area
- 100 m buffer
- Potential suitable habitat for tusked frog

Figure 7

Potential suitable habitat for tusked frog within 100 m of the project area.

0 0.2 0.4 km

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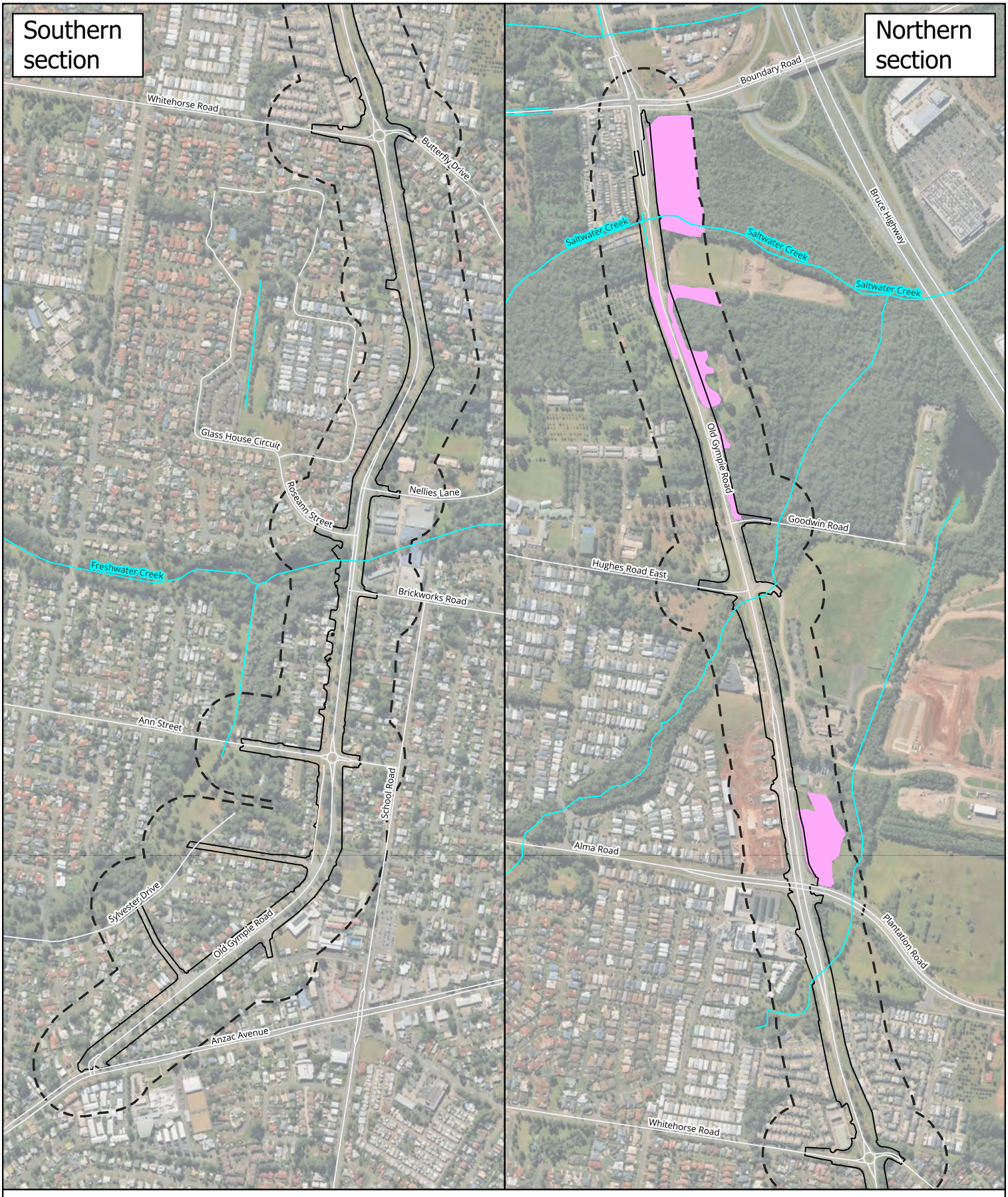
Glossy black-cockatoo (south-eastern subspecies)

Though not recorded during surveys, the glossy black-cockatoo has previously been recorded within the Project Area and wider surrounds: with a single ALA record from Old Gympie Rd from the 1990s and more recent (post-2010) records from Narangba, North Lakes and Griffin to the near north and east of Dakabin. Suitable foraging habitat (comprising stands of female *Allocasuarina littoralis*) is also present in the north of the Project Area; however, the Project Area and immediate surrounds do not appear to contain suitable breeding habitat for the species. Given the paucity of records within the wider surrounds, the species is likely to utilise habitat within and adjacent the Project Area intermittently/opportunistically. Areas of vegetation containing feed trees (female *A. littoralis*) with the potential to support foraging birds is shown in Figure 8.

Given the paucity of glossy black-cockatoo records within the Project Area surrounds and the species' ability access foraging resources elsewhere within the wider landscape, it is doubtful whether feed trees within and adjacent the Project would be considered critical habitat for the species.

Platypus

Though not recorded during surveys, platypus have previously been recorded immediately adjacent the Project Area, with a single ALA record from 2024 near Dakabin Refuse Transfer Station (on the east side of Gympie Rd) and another, low precision record from 2002 at Freshwater Creek, east of the shopping complex south of Nellie's Lane (to the east of Old Gympie Rd). Potentially suitable habitat for the species is present within and/or adjacent the Project Area to the immediate south and north of Goodwin Avenue (east of Old Gympie Rd) and along Freshwater Creek (east and west of Old Gympie Rd). Areas of potentially suitable habitat for platypus are shown in Figure 9.



Legend

- Project area
- 100 m buffer
- Suitable foraging habitat for glossy black cockatoo

Figure 8

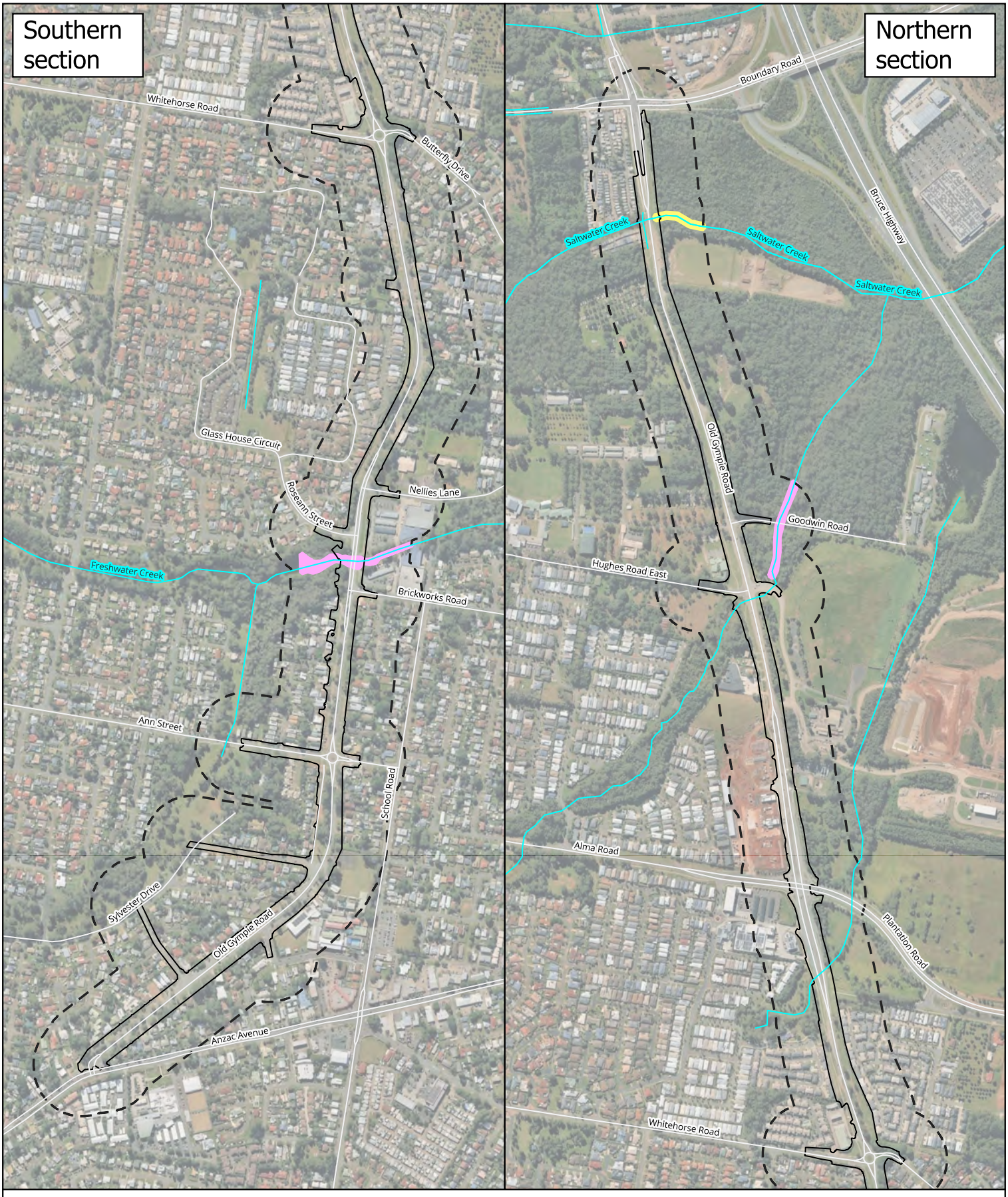
Suitable foraging habitat for glossy black cockatoo within 100 m of the project area.

0 0.2 0.4 km

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Legend

- Project area
- 100 m buffer
- Suitable habitat for platypus
- Potential suitable habitat for platypus

Figure 9

Suitable and potential suitable habitat for platypus within 100 m of the project area.

0 0.2 0.4 km

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Green infrastructure facilitating fauna movement across the Project Area

To facilitate fauna movement across the Project Area, MBRC is proposing to install green infrastructure at a number of locations on Old Gympie Rd and nearby Ann Street (to the immediate west of Old Gympie Rd). Limitations and suggested improvements to green infrastructure at these crossing points are discussed below.

Green infrastructure at Ann Street

Green infrastructure proposed for Ann Street (including fauna exclusion fencing, a box rope bridge and escape poles) is unlikely to facilitate the passage/movement of koalas, with research showing koalas are unlikely to use rope bridge crossings (see Goldingay and Taylor, 2016). To better facilitate koala movement north-south across Ann Street, a log bridge needs to be installed inside the culvert at this crossing point. It is recommended that this bridge be installed on the west side of the culvert crossing under Ann Street to facilitate koala movement between trees growing to the immediate south and north. Additional plantings of LIKTs linking koala habitat trees south of Ann Street (within Penson Reserve) with the log bridge at this crossing bridge would also be helpful in this regard.

Green infrastructure at Freshwater Creek crossing

The installation of fencing, escape poles, rope bridge and a log bridge where Old Gympie Rd intersects Freshwater Creek is likely to facilitate the safe passage of arboreal fauna, including koala across Old Gympie Road. To better facilitate movement of koala across Old Gympie Rd at this crossing point, it is recommended that a second log bridge be installed on the south side of Freshwater Creek (so that koalas on the south side of Freshwater Creek can cross over Old Gympie Rd more easily).

Green infrastructure at Saltwater Creek crossing

Green infrastructure proposed to facilitate fauna movement in the north of the Project Area (including fauna fencing and escape poles, a box rope bridge, and 'dry culvert crossing' under Old Gympie Rd) may have limited amenity for koala, given (1) koalas are unlikely to use rope bridges (see Goldingay and Taylor, 2016) and (2) the likely persistence of surface water within the culvert crossing at Saltwater Creek (with surface water currently persisting well into the dry season). To better facilitate koala movement at this crossing point, log bridges should be installed inside the culvert under this section of road on both the northern and southern side of Saltwater Creek. It is also recommended that additional koala habitat trees are planted along Saltwater Creek on the west (upstream) side of Old Gympie Rd to facilitate movement of koalas to/from areas of remnant vegetation east and west of the Project Area.

References

DAWE 2021, National Recovery Plan for the Grey-headed Flying-fox 'Pteropus poliocephalus', Department of Agriculture, Water and the Environment, Canberra, March. CC BY 4.0.

DAWE 2022, National Recovery plan for the Koala: Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory). Department of Agriculture, Water and the Environment, Canberra. March 2022. CC BY 4.0.

Youngentob, K.N, Marsh, K.F., Skewes, J., A review of koala habitat assessment criteria and methods, report prepared for the Department of Agriculture, Water and the Environment, Canberra, November. CC BY 4.0.

Goldingay , R.L and Taylor, B.D (2016). Targeted field testing of wildlife road-crossing structures: koalas and canopy rope-bridges. Australian Mammology 39(1) 100-104 https://doi.org/10.1071/AM16014

Appendix A. Fauna species detected during surveys

Class	Scientific name	Common name	Status	
			NCA	EPBC
Actinopterygii	*Gambusia holbrooki*	Mosquitofish	I	I
	Oreochromis mossambica	Mozambique mouthbrooder	I	I
	Xiphophorus hellerii	Swordtail	I	I
	Xiphophorus maculatus	Platy	I	I
Amphibia	*Litoria fallax*	Eastern sedgefrog	LC	-
	Rhinella marina	Cane toad	I	I
Aves (Birds)	*Accipiter fasciatus*	Brown goshawk	LC	-
	Acridotheres tristis	Common myna	I	I
	Alectura lathami	Australian brush-turkey	LC	-
	Anas superciliosa	Pacific black duck	LC	-
	Anhinga novaehollandiae	Australasian darter	LC	-
	Cacatua galerita	Sulphur-crested cockatoo	LC	-
	Caligavis chrysops	Yellow-faced honeyeater	LC	-
	Chalcophaps longirostris	Pacific emerald dove	LC	-
	Cisticola exilis	Golden-headed cisticola	LC	-
	Coracina novaehollandiae	Black-faced cuckoo-shrike	LC	-
	Corvus orru	Torresian crow	LC	-
	Cracticus nigrogularis	Pied butcherbird	LC	-
	Cracticus torquatus	Grey butcherbird	LC	-
	Dacelo novaeguineae	Laughing kookaburra	LC	-
	Egretta garzetta	Little egret	LC	-
	Eopsaltria australis	Eastern yellow robin	LC	-
	Gallinula tenebrosa	Dusky moorhen	LC	-
	Grallina cyanoleuca	Magpie-lark	LC	-
	Gymnorhina tibicen	Australian magpie	LC	-
	Hirundo neoxena	Welcome swallow	LC	-
	Macropygia phasianella	Brown cuckoo-dove	LC	-
	Malurus cyaneus	Superb fairy-wren	LC	-
	Malurus melanocephalus	Red-backed fairy-wren	LC	-
	Manorina melanocephala	Noisy miner	LC	-
	Meliphaga lewinii	Lewin's honeyeater	LC	-
	Melithreptus albogularis	White-throated honeyeater	LC	-
	Merops ornatus	Rainbow bee-eater	LC	-
	Milvus migrans	Black kite	LC	-
	Myzomela sanguinolenta	Scarlet honeyeater	LC	-
	Ninox strenua	Powerful owl	VU	-
	Pachycephala rufiventris	Rufous whistler	LC	-
	Pelecanus conspicillatus	Australian pelican	LC	-

	Philemon corniculatus	Noisy friarbird	LC	-
	Podargus strigoides	Tawny frogmouth	LC	-
	Porphyrio melanotus	Purple swamphen	LC	-
	Rhipidura albiscapa	Grey fantail	LC	-
	Rhipidura leucophrys	Willie wagtail	LC	-
	Sphecotheres vieilloti	Australasian figbird	LC	-
	Spilopelia chinensis	Spotted dove	I	I
	Threskiornis molucca	Australian white ibis	LC	-
	Todiramphus macleayii	Forest kingfisher	LC	-
	Trichoglossus chlorolepidotus	Scaly-breasted lorikeet	LC	-
	Trichoglossus moluccanus	Rainbow lorikeet	LC	-
	Tyto javanica	Eastern barn owl	LC	-
	Vanellus miles	Masked lapwing	LC	-
	Zosterops lateralis	Silvereye	LC	-
Decapoda	*Cherax* sp.	Yabby	LC	-
	Paratya sp.	Freshwater shrimp	LC	-
Mammalia	*Phascolarctos cinereus*	Koala	EN	EN
	Pseudocheirus peregrinus	Common ringtail possum	LC	-
	Pteropus alecto	Black flying-fox	LC	-
	Pteropus poliocephalus	Grey-headed flying-fox	LC	VU
	Trichosurus vulpecula	Common brushtail possum	LC	-
	Wallabia bicolor	Swamp wallaby	LC	-
Reptilia	*Carlia pectoralis*	Open-litter rainbow skink	LC	-
	Cryptoblepharus pulcher pulcher	Elegant snake-eyed skink	LC	-
	Intellagama lesueurii	Eastern water dragon	LC	-
	Lampropholis delicata	Dark-flecked garden sunskink	LC	-

28ºS
ENVIRONMENTAL

Attachment 5 – TEC Assessment Results

Coastal swamp sclerophyll forest of New South Wales and south east Queensland TEC site categorisation

TEC Assessment Site	TEC Status	Justification
1	**TEC present**	**Criteria met**
2	TEC absent	*Imperata cylindrica* absent
3	TEC absent	*Imperata cylindrica* and tall sedges absent
4	**TEC present**	**Criteria met**
5	**TEC present**	**Criteria met**
6	TEC absent	*Imperata cylindrica* and tall sedges absent
7	TEC absent	*Imperata cylindrica* and tall sedges absent
8 (Ground cover plot)	**TEC present**	**Criteria met and is located adjacent to TEC 1 with similar canopy conditions**

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 1

Key Diagnostics - Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Alluvial soils with waterlogged dark soils in inundated low patches. Shallow trickling stream within the site.
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	70% canopy cover
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	▪ *Melaleuca quinquenervia* ▪ *Eucalyptus tereticornis*

Diagnostic considerations	Response
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Glochidion ferdinandi* ▪ *Corymbia intermedia (edge of patch)* ▪ *Eucalyptus microcorys (edge of patch)* ▪ *Eucalyptus tindaliae* (edge of patch) *edge of patch near ecotone changing to different RE
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Hypolepis muelleri* ▪ *Leersia hexandra* ▪ *Paspalum mandiocanum** ▪ *Typha orientalis* ▪ *Persicaria strigosa* ▪ *Ageratum houstonianum** ▪ *Rhynchospora corymbosa* *invasive
% composition of ground cover	**Total cover** 95% groundcover ▪ *Native fern-50%* ▪ *Native forb-10%* ▪ *Native tall sedges-5%* ▪ *Native grass-10%* ▪ *Non-native forb-10%* ▪ *Non-native grasses-10%* 5% litter
Parsonsia straminea presence	Present within canopy
Eucalyptus robusta presence	Present (uncommon)
Weed shrubs	*Senna pendula* *Urena lobata* *Solanum torvum* *Archontophoenix alexandrae* *Scheffleura actinophylla*

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 2

Key Diagnostics – Not Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes

Diagnostic considerations	Response
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Hydric soils, dark alluvial waterlogging uncommon with shallow stream
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	Tall closed forest with greater than 80% cover.
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	▪ *Melaleuca quinquenervia* ▪ *Eucalyptus tereticornis ** ▪ *Glochidion ferdinandi* ▪ *Lophostemon suaveolens*
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Cupaniopsis anacardioides* ▪ *Archontophoenix alexandrae (non endemic)* ▪ *Ficus coronata* *Tall shrub layer* 2.5m 15% cover
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Paspalum mandiocanum** ▪ *Hypolepis muelleri* ▪ *Crinum pedunculatum* ▪ *Dyschoriste depressa * dominant* *denotes invasive species
% composition of ground cover	**Total cover** 95% groundcover ▪ *Native forbs-0%* ▪ *Native grasses- 0%* ▪ *Native ferns-40%* ▪ *Non-native grass- 20%* ▪ *Non-native forbs-30%* ▪ *Other- 5%* 5% Litter
Parsonsia straminea presence	Parsonsia present in ground layer and climbing tree
Eucalyptus robusta presence	Not present
Invasive shrubs	▪ *Senna pendula var. glabrata* ▪ *Archontophoenix alexandrae* ▪ *Schefflera actinophylla* ▪ *Ligustrum sinense* ▪ *Viburnum odoratissimum var. awabuki* ▪ *Celtis sinensis*

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 3

Key Diagnostics – Not Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Hydric soils, water feature to 50cm running through site. Periodic inundation.
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	▪ *T1 = more open. Eucalyptus seeana, Melaleuca quinquenervia 25-30%.* ▪ *T2 = 50% Glochidion ferdinandi and Melaleuca quinquenervia.* ▪ *T3 = 10 % Senna pendula and Glochidion ferdinandi* *Semi-closed tall forest
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	▪ *Eucalyptus seeana* ▪ *Melaleuca quinquenervia* ▪ *Glochidion ferdinandi* ▪ *Eucalyptus robusta.*
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Lophostemon suaveolens* ▪ *Corymbia intermedia*
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Sphagneticola trilobata** ▪ *Dyschoriste depressa** ▪ *Ageratum houstonianum** ▪ *Hypolepis muelleri* ▪ *Megathyrsus maximus** ▪ *Urochloa decumbens** ▪ *Baccharis halimifolia* (WoNS)* ▪ *Sorghum halepense** **denotes invasive species*

Diagnostic considerations	Response
% composition of ground cover	**Total Cover** 80% live ▪ *Native ferns-20%* ▪ *Native forbs-0%* ▪ *Native grasses-0%* ▪ *Non-native grass-20%* ▪ *Non-native forbs-20%* ▪ *Other (wood and debris)-10%* 20% litter
Invasive species	▪ *Vigna luteola* ▪ *Pinus elliottii*
Parsonsia straminea presence	Yes
Eucalyptus robusta presence	Yes

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 4

Key Diagnostics - Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Waterlogged to periodically waterlogged soil with drainage feature through the site
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	▪ T1 *canopy cover = greater than 60%* ▪ *Tall to 2*5m closed -> semi-closed forest
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	Dominant *Melaleuca quinquenervia*

Diagnostic considerations	Response
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Lophostemon suaveolens* ▪ *Eucalyptus seeana* ▪ *Glochidion ferdinandi* ▪ *Ficus benjamina** * denotes invasive species
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Megathyrsus maximus** ▪ *Centella asiatica* ▪ *Ageratum houstonianum** ▪ *Polygala paniculata** ▪ *Stachytarpheta cayennensis** ▪ *Solanum seaforthianum** ▪ *Oplismenus aemulus* ▪ *Archontophoenix alexandrae** ▪ *Ipomoea carica** ▪ *Persicaria strigosa* ▪ *Parsonsia straminea* ▪ *Hypolepis muelleri* ▪ *Carex maculata* ▪ *Cyperus involucratus** ▪ *Sphagneticola trilobata** ▪ *Eleocharis dulcis* ▪ *Urochloa decumbens** * denotes invasive species Lack of *Imperata cylindrica* No tall sedges
% composition of ground cover	**Total Cover** 80% live ▪ *Carex-10%* ▪ *Native ferns (Hypolepis muelleri)-10%* ▪ *Non-native grasses (Megathyrsus maximums*) – 15%* ▪ *Weedy forbs-20%* ▪ *Native forbs-10%* ▪ *Native grasses*-5% 70% Litter
Parsonsia straminea presence	Yes
Eucalyptus robusta presence	No

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 5

Key Diagnostics - Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Shallow running creek (0.2-0.8 m deep). Abundant shallow pools of water – area is swampy and hydric soils
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	Semi-closed tall forest 60% cover
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	*Melaleuca quinquenervia* dominant
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Lophostemon suaveolens* ▪ *Glochidion ferdinandi* ▪ *Eucalyptus tereticornis* ▪ *Pinus elliottii** **denotes invasive*
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Nymphoides exiliflora* ▪ *Cuphea carthagenensis** ▪ *Persicaria strigosa* ▪ *Carex maculata* ▪ *Commelina cyanea* ▪ *Hypolepis muelleri* ▪ *etaria incrassata** ▪ *Gomphocarpus frutescens** ▪ *Sphagneticola trilobata** ▪ *Ageratum houstonianum** ▪ *Carex appressa* ▪ *Schoenoplectiella mucronata* ▪ *Eleocharis dulcis* **denotes invasive*

Diagnostic considerations	Response
% composition of ground cover	**Total Cover** 90% live ▪ *Native sedges-24%* ▪ *Aquatic plant-10%* ▪ *Native forb-10%* ▪ *Non-native sedge-10%* ▪ *Native grass-10%* ▪ *Non-native grasses-20%* ▪ *Non-native forb-15%* 10% Litter = 10
Parsonsia straminea presence	Present in trees
Eucalyptus robusta presence	Not present

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 6

Key Diagnostics – Not Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Hydric soils – area is wet with dark muddy soil profile
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	Tall open disturbed woodland 16-21 m 30 % cover
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	*Melaleuca quinquenervia* and *Eucalyptus tereticornis* (co-dominant)
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including	▪ *Lophostemon suaveolens* ▪ *Eucalyptus microcorys*

Diagnostic considerations	Response
Casuarina glauca, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Corymbia intermedia (mixed woodland)* ▪ *Glochidion ferdinandi* ▪ *Alphitonia excelsa*
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	▪ *Urochloa decumbens* ▪ *Megathyrsus maximus* ▪ *Hypolepis muelleri*
% composition of ground cover	**Total cover** 92% live ▪ *Non-native grasses = 90%* ▪ *Native fern = 2%* 8% litter
Parsonsia straminea presence	Present in the canopy
Eucalyptus robusta presence	Not present
Weed shrubs	▪ *Senna pendula* ▪ *Baccharis halimifolia* (WoNS) ▪ *Lantana camara* (WoNS)

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 7

Key Diagnostics – Not Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ); NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	Yes
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Hydric soils – dark damp soil. No water feature within plot
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	▪ T1 = 15-20 m cover 40% ▪ T2= 8-12 COVER 30% 70% combined cover
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the	*Melaleuca quinquenervia*

Diagnostic considerations	Response
canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	Canopy lacks *Eucalyptus robusta*. Ground layer is weedy and lacks water and large sedges.
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Glochidion ferdinandi* ▪ *Ficus coronata* ▪ *Ficus sp.* ▪ *Archontophoenix alexandrae** ▪ *Schefflera actinophylla** ▪ *Eucalyptus tereticornis* **denotes invasive species*
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	*Hypolepis muelleri* *Dyschoriste depressa** *Ageratum houstonianum** *Paspalum mandiocanum** **denotes invasive species*
% composition of ground cover	**Total cover** *90% Live* ▪ *Native grasses-0%* ▪ *Native forbs (Hypolepis muelleri)-25%* ▪ *Non-native grass (Paspalum mandiocanum*)-15%* ▪ *Non-native forbs (Dyschoriste depressa, Ageratum houstonianum)-50%* **n.b.:** No sedges or other aquatic to semi-aquatic plants 10% Litter
Eucalyptus robusta presence	Not present
Parsonsia straminea presence	Parsonsia straminea present

Coastal swamp sclerophyll forest of New South Wales and south east Queensland - TEC Assessment Site 8

Key Diagnostics - Present

Diagnostic considerations	Response
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW specifically within these IBRA Bioregions: South Eastern Queensland (SEQ);	Yes

Diagnostic considerations	Response
NSW North Coast (NNC); Sydney Basin (SYB) and the Bateman sub-region of the South East Corner (SEC).	
Occurs in coastal catchments typically below 20 m ASL, but occasionally up to 220 m ASL.	Yes
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.	Occurs on hydric soils with inundation patterns ranging from intermittent to episodic.
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest. Minimum crown cover (see footnote 5, p. 4) is at least 10%, but it is more typically in the range 50% to 70%.	▪ T1 = 15-20 m cover 40% ▪ T2= 8-12 COVER 30% 70% combined cover
From South East Queensland to the Sydney Basin Bioregion, the canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta*. In some areas, the canopy may be locally dominated by other melaleuca species including *M. dealbata* (SEQ bioregion) (rarely); *M. biconvexa* (mid-NSW coast to south of Sydney); *M. decora* (north of Shoalhaven), frequently with *Parsonsia straminea* climbing on the trunks of canopy species. In the SEC bioregion, *M. ericifolia* may occur as a dominant canopy or sub-canopy species.	*Melaleuca quinquenervia* Canopy lacks *Eucalyptus robusta*. Ground layer is weedy and lacks water and large sedges.
Other tree species may occur in the canopy (or sub-canopy) in some areas, but they are not dominant across a patch, including *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia* (Pink Bloodwood), *E. tereticornis*, (forest red gum/Queensland blue gum), *E. longifolia* (woollybutt), *E. botryoides* (southern mahogany/bangalay), *E. ovata* (swamp gum), *Livistona australis* (cabbage palm) and/or *Lophostemon* spp.	▪ *Glochidion ferdinandi* ▪ *Ficus coronata* ▪ *Ficus sp.* ▪ *Archontophoenix alexandrae** ▪ *Schefflera actinophylla** ▪ *Eucalyptus tereticornis* **denotes invasive species*
The understorey typically includes a variable ground layer, depending on the canopy cover and inundation rate/period. Tall sedges (typically *Gahnia* spp.) and/or ferns often dominate the ground layer, mixed with graminoids and other herbs, especially *Imperata cylindrica* (blady grass).	**Native forbs –** *Persicaria strigosa, Typha orientalis, Hypolepis muelleri, Rhynchospora corymbosa, Telmatoblechnum indicum, Melicope elleryana, Alphitonia excelsa, Parsonsia straminea, Cyperus gracilis* **Native grasses –** N/A **Non-native forb –** *Ageratum houstonianum, Senna pendula* **Non-native grass-** *Paspalum mandiocanum*
% composition of ground cover	**Total cover** 85% Live ▪ *Native forb = 25%* ▪ *Native fern - 30* ▪ *Non-native forb – 30* ▪ *Non-native grass – 10%* 15% Litter
Parsonsia straminea presence	Present
Eucalyptus robusta presence	Not present

28ºS ENVIRONMENTAL

Attachment 6 – Flora Species Lists

Table 1: Native flora species list

Common name	Scientific name	EPBC Act Threat Category	Nature Conservation Act Threat Category
Black wattle	*Acacia leiocalyx*	n/a	C
Maiden's wattle	*Acacia maidenii*	n/a	C
Red cluster heath	*Acrotriche aggregata*	n/a	C
Aotus	*Aotus*	n/a	C
Flame tree	*Brachychiton acerifolius*	n/a	SL
Coffee bush	*Breynia oblongifolia*	n/a	C
Tall sedge	*Carex appressa*	n/a	C
Maculate sedge	*Carex maculata*	n/a	C
Swamp she-oak	*Casuarina glauca*	n/a	C
Kidney weed	*Centella asiatica*	n/a	C
Wandering Jew	*Commelina cyanea*	n/a	C
Pink bloodwood	*Corymbia intermedia*	n/a	C
River lily	*Crinum pedunculatum*	n/a	SL
Tuckeroo	*Cupaniopsis anacardioides*	n/a	C
Iron weed	*Cyanthillium cinereum*	n/a	C
Slender flat-sedge	*Cyperus gracilis*	n/a	C
Rusty trefoil	*Desmodium rhytidophyllum*	n/a	C
Small-flowered finger grass	*Digitaria parviflora*	n/a	C
Chinese water cress	*Eleocharis dulcis*	n/a	C
Wiry panic	*Entolasia stricta*	n/a	C
Tallowwood	*Eucalyptus microcorys*	n/a	C
Scribbly gum	*Eucalyptus racemosa*	n/a	C
Red mahogany	*Eucalyptus resinifera*	n/a	C
Narrow-leaved red gum	*Eucalyptus seeana*	n/a	C
Forest red gum	*Eucalyptus tereticornis*	n/a	C
Tindall’s stringybark	*Eucalyptus tindaliae*	n/a	C
Wombat berry	*Eustrephus latifolius*	n/a	C
Sandpaper fig	*Ficus coronata*	n/a	C
Cheese tree	*Glochidion ferdinandi*	n/a	C
Goodenia	*Goodenia rotundifolia*	n/a	C
Guinea flower	*Hibbertia*	n/a	C
Swamp bracken	*Hypolepis muelleri*	n/a	C

Common name	Scientific name	EPBC Act Threat Category	Nature Conservation Act Threat Category
Blady grass	*Imperata cylindrica*	n/a	C
Swamp rice grass	*Leersia hexandra*	n/a	C
Sword sedge	*Leptospermum laterale*	n/a	C
White root	*Lobelia purpurascens*	n/a	SL
Many-flowered matrush	*Lomandra multiflora*	n/a	C
Swamp box	*Lophostemon suaveolens*	n/a	C
Macaranga	*Macaranga tanarius*	n/a	C
Swamp paperbark	*Melaleuca quinquenervia*	n/a	C
Pink euodia	*Melicope elleryana*	n/a	C
n/a	*Nymphoides exiliflora*	n/a	SL
Creeping shade grass	*Oplismenus aemulus*	n/a	C
Panicum sp.	*Panicum*	n/a	-
Monkey rope	*Parsonsia straminea*	n/a	C
Corky passion flower	*Passiflora suberosa*	n/a	-
Spotted knotweed	*Persicaria strigosa*	n/a	C
Broad-leaved geebung	*Persoonia stradbrokensis*	n/a	C
Common bracken	*Pteridium esculentum*	n/a	C
Golden beaksedge	*Rhynchospora corymbosa*	n/a	C
Bog bulrush	*Schoenoplectiella mucronata*	n/a	C
Tape vine	*Stephania japonica*	n/a	C
Small-leaved lilly pilly	*Syzygium luehmannii*	n/a	C
Swamp water fern	*Telmatoblechnum indicum*	n/a	SL
Kangaroo grass	*Themeda triandra*	n/a	C
Broad-leaved cumbungi	*Typha orientalis*	n/a	C
Broad-leaved cumbungi	*Typha orientalis*	n/a	C
Tie bush	*Wikstroemia indica*	n/a	C
Coastal grasstree	*Xanthorrhoea latifolia*	n/a	C

Table 2: Invasive flora species

Common name	Scientific name	WoNS	Biosecurity Act Designation
Alexandra palm	*Archontophoenix alexandrae*	no	n/a
blue billygoat weed	*Ageratum houstonianum*	no	n/a
Brazilian cherry	*Eugenia uniflora*	no	n/a
broad-leaved paspalum	*Paspalum mandiocanum*	no	n/a
broad-leaved pepper tree	***Schinus terebinthifolius***	**no**	**Restricted Category 3**
bubblegum plant	*Polygala paniculata*	no	n/a
dyschoriste	*Dyschoriste depressa*	no	n/a
cadagi	*Corymbia torelliana*	no	n/a
cat's claw creeper	***Dolichandra unguis-cati***	**yes**	**Restricted Category 3**
Chinese celtis	***Celtis sinensis***	**no**	**Restricted Category 3**
climbing asparagus	*Asparagus plumosa*	no	n/a
climbing nightshade	*Solanum seaforthianum*	no	n/a
coco's plam	*Syagrus romanzoffiana*	no	n/a
cotton balloon bush	*Gomphocarpus frutescens*	no	n/a
cuphea	*Cuphea carthagenensis*	no	n/a
devil's fig	*Solanum torvum*	no	n/a
Easter cassia	*Senna pendula var glabra*	no	n/a
emerald lustre	*Viburnum odoratissimum var. awabuki*	no	n/a
golden rain tree	*Koelreuteria elegans subsp. formosana*	no	n/a
groundsel bush	***Baccharis halimifolia***	**yes**	**Restricted Category 3**
Guinea grass	*Megathyrsus maximus*	no	n/a
Johnson's grass	*Sorghum halepense*	no	n/a
creeping lantana	***Lantana montevidensis***	**no**	**Restricted Category 3**
lantana	***Lantana camara***	**yes**	**Restricted Category 3**
leopard tree	*Libidibia ferrea*	no	n/a
mile-a-minute vine	*Ipomoea carica*	no	n/a
Ochna	*Ochna serrulata*	no	n/a
signal grass	*Urochloa decumbens*	no	n/a
Singapore daisy	***Sphagneticola trilobata***	**no**	**Restricted Category 3**
slash pine	*Pinus elliottii*	no	n/a
small-leaved privet	*Ligustrum sinense*	no	n/a
South African pigeon grass	*Setaria incrassata*	no	n/a

Common name	Scientific name	WoNS	Biosecurity Act Designation
umbrella sedge	*Cyperus involucratus*	no	n/a
umbrella tree	*Scheffleura actinophylla*	no	n/a
urena burr	*Urena lobata*	no	n/a
vigna	*Vigna luteola*	no	n/a
water primrose	*Ludwigia peruviana*	no	n/a
wild tobacco bush	*Solanum mauritianum*	no	n/a
yellow bells	***Tecoma stans***	**no**	**Restricted Category 3**
zig zag wattle	*Acacia macradenia*	no	n/a

APPENDIX D SIGNIFICANT IMPACT ASSESSMENTS

D1. MNES SIGNIFICANT IMPACT ASSESSMENTS

D1.1 THREATENED FLORA SPECIES

D1.1.1 THREATENED FLORA SPECIES POTENTIAL TO OCCUR

D1.1.1.1 AUSTRAL TOADFLAX

The Project is unlikely to result in a significant impact to austral toadflax (*Thesium australe*).

Austral toadflax is listed as vulnerable under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify austral toadflax within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely. The nearest record of the species is located 18 km from the Project Area, recorded in 2021.

Potential habitat within the Project Area has been mapped within:

- Native woodland dominated by Casuarina and Acacia species with weedy ground cover; and
- Mixed riparian forest and broad-leaved paperbark (*Melaleuca quinquenervia*) and/or forest red gum (*Eucalyptus tereticornis*).

The Project Area contains 4.1 ha of potential habitat for austral toadflax; of which, 1.6 ha is expected to be impacted by the Project.

As austral toadflax is vulnerable under the EPBC Act, an assessment against the important population criteria is discussed in Table D1-1, while the significant impact assessment against SIG1.1 is provided in Table D1-2.

TABLE D1-1: IMPORTANT POPULATION ASSESSMENT – AUSTRAL TOADFLAX

Criterion	Assessment against criteria
Key source population for breeding or dispersal	There are no recent records of the species within the Project Area or Locality, and the species has not been detected during any of the three surveys conducted within the Project Area. It is considered unlikely that there would be an important population of the species within the Project Area. Therefore the Project Area does not contain a key source population for breeding or dispersal or populations that are necessary for maintaining genetic diversity.
Populations that are necessary for maintaining genetic diversity	
Populations that are near the limit of the species' range	The Project Area is not located near the limit of the species range.
Assessment as an important population	**The Project Area does not contain an important population of austral toadflax.**

TABLE D1-2: SIGNIFICANT IMPACT ASSESSMENT – AUSTRAL TOADFLAX

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** The population of austral toadflax has been suggested at hundreds of thousands to a million across Australia (DCCEEW, 2026). As per the important population assessment in Table D1-1, the Project Area does not support an important population of austral toadflax; and therefore the Project will not lead to a long-term decrease in the size of a population and therefore, a significant impact is unlikely to occur.
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy for austral toadflax has not been estimated. As per the important population assessment in Table D1-1, the Project Area does not support an important population of grey-headed flying-fox; and therefore the Project will not reduce the area of occupancy of an important population and therefore, a significant impact is unlikely to occur.
Fragment an existing important population into two or more populations	**Unlikely** There are no desktop or field survey records of the austral toadflax within the Project Area and thus, the Project Area does not support an important population of the species (refer to Table D1-1). The Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of austral toadflax has not been defined or officially adopted. For the purpose of this impact assessment, the SIG1.1 definition of habitat critical to the survival of the species is used. The Project Area contains 4.1 ha of potential habitat for austral toadflax. As the species has not been recorded within the Project Area (the nearest record being 18 km from the Project Area) this habitat is not considered critical. Therefore, impacts to 1.6 ha of this habitat will not adversely affect habitat critical to the survival of a species and a significant impact is unlikely to occur.
Disrupt the breeding cycle of an important population	**Unlikely** The Project Area does not support an important population of the species (refer to Table D1-1) and therefore, the Project will not disrupt the breeding cycle of an important population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project Area contains 4.1 ha of potential habitat for austral toadflax. As the species has not been recorded within the Project Area (the nearest record being 18 km from the Project Area) this habitat is not considered critical. The Project will not reduce the species dispersal mechanisms and ability to occupy the Project Area. Therefore, impacts to 1.6 ha of this habitat will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that is harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** Austral toadflax is threatened by weed invasion (e.g., blackberry (*Rubus* spp.). This species was not recorded within the Project Area during the field survey. The Project will implement appropriate mitigation and management measures to reduce any risks of invasive weeds. Therefore, with the appropriate management and mitigation measures applied, the

Criteria	Description
	Project will not introduce invasive species that is harmful to a vulnerable species, and a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with austral toadflax and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made Recovery Plan for this species and a recovery plan is not required. The species conservation advice lists regional and local priority actions for the species. A review of these actions has concluded that the Project will not interfere with the recovery of the species.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to austral toadflax**

D1.1.1.2 LESSER SWAMP ORCHID

The Project is unlikely to result in a significant impact to lesser swamp orchid (*Lepidium peregrinum*).

Lesser swamp orchid is listed as endangered under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify the species within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely. The nearest historically relevant record is from 2023, located 34 km to the south, with an additional historic record from 1992 located 1.8 km to the northeast.

Suitable habitat occurs within and adjacent to the Project Area, including poorly drained soils and vegetated swamp conditions. Potential habitat within the Project Area has been mapped within:

- Native woodland dominated by Casuarina and Acacia species with weedy ground cover; and
- Mixed riparian forest and broad-leaved paperbark (*Melaleuca quinquenervia*) and/or forest red gum (*Eucalyptus tereticornis*).

The Project Area contains 4.1 ha of potential habitat for the lesser swamp orchid; of which, 1.6 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for lesser swamp orchid is provided in Table D1-3.

TABLE D1-3: SIGNIFICANT IMPACT ASSESSMENT – LESSER SWAMP ORCHID

Criteria	Description
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	**Unlikely** Determining the size of a swamp-orchid population in the field is difficult; however, the species is estimated to occur in 14 populations (DCCEEW, 2026). The Project Area does not a population of lesser swamp orchid, with the nearest record occurring 34 km from the Project Area. Impacts to 1.6 ha will not lead to a long-term decrease in the size of a population and therefore, a significant impact is unlikely to occur.
Reduce the area of occupancy of the species	**Unlikely** The area of occupancy for lesser swamp orchid has not been estimated. As per the important population assessment in Table D1-1, the Project Area does not support a population of the species; and therefore the Project will not reduce the area of occupancy of an important population and therefore, a significant impact is unlikely to occur.
Fragment an existing population into two or more populations	**Unlikely** There are no desktop or field survey records of the lesser swamp orchid within the Project Area and thus, the Project Area does not support an existing population of the species. The Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of lesser swamp orchid has not been defined or officially adopted. For the purpose of this impact assessment, the SIG1.1 definition of habitat critical to the survival of the species is used. The Project Area contains 4.1 ha of potential habitat for the species. As the species has not been recorded within the Project Area (the nearest record being 34 km from the Project Area) this habitat is not considered critical. Therefore, impacts to 1.6 ha of this habitat will not adversely affect habitat critical to the survival of a species and a significant impact is unlikely to occur.
Disrupt the breeding cycle of a population	**Unlikely** The Project Area does not support a population of the species and will not impact the species dispersal mechanisms. Therefore, the Project will not disrupt the breeding cycle of an important population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project Area contains 4.1 ha of potential habitat for lesser swamp orchid. The species has not been recorded within the Project Area, with the nearest record being 34 km from the Project Area. The Project will not reduce the species dispersal mechanisms and ability to occupy the Project Area. Therefore, impacts to 1.6 ha of this habitat will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant ipact is unlikely to occur.

Criteria	Description
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**Unlikely** Lesser swamp orchid is threatened by weed invasion, including Lantana (*Lantana camara*), Umbrella Tree (*Schefflera actinophylla*), Groundsel (*Baccharis halmifolia*) and Brazilian Cherry (*Eugenia uniflora*). The Project will implement appropriate mitigation and management measures to reduce any risks of invasive weeds. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce invasive species that is harmful to a vulnerable species, and a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with lesser swamp orchid and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made Recovery Plan for this species and a recovery plan is not required. The species conservation advice lists regional and local priority actions for the species. A review of these actions has concluded that the Project will not interfere with the recovery of the species.
Significant Impact:	**The Project is unlikely to result in a significant impact to wandering peppercress.**

D1.2 THREATENED FAUNA SPECIES

D1.2.1 THREATENED FAUNA SPECIES KNOWN TO OCCUR

D1.2.1.1 KOALA

The Project is unlikely to result in a significant impact to koala (*Phascolarctos cinereus*).

Koala is listed as endangered under the EPBC Act and is assessed as known to occur within the Project Area.

A large number of records for the species occur within the Project Area and Locality. During the field surveys conducted by EcoSmart in July 2025, scats attributable to koala were located at a number of locations within and immediately adjacent the Project Area. Scratches potentially attributable to koala were also observed within remnant eucalypt forest to the near south of Goodwin Road (28 South, 2025).

Koala habitat within the Project Arear includes all trees mapped by the *Arboricultural Impact Assessment* greater than 4 m in height and a DSH > 10 cm. Koala habitat occurs across 7.6 ha of the Project Area; of which, 1.9 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the koala is provided in Table D1-4.

TABLE D1-4: SIGNIFICANT IMPACT ASSESSMENT – KOALA

Criteria	Description
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	**Unlikely** The koala is widely distributed along the eastern Australian coastline, from Far North Queensland, and south through New South Wales, the Australian Capital Territory, Victoria and South Australia (DAWE, 2022a). There are numerous records of the species within the Project Area and surrounding locality, and a recognised local koala population persists throughout the local government area, including within urban environments. The Project Area contains 7.6 ha of koala habitat. The quality of koala habitat within the Project Area is variable, with much of the mapped habitat comprising isolated street trees or small clusters of trees that are not directly connected to larger areas of intact habitat. Vegetation within the more intact northern portion of the Project Area was also observed to be degraded by weed encroachment and was frequently dominated by Acacia and Casuarina species. The Project is expected to directly impact up to 1.9 ha of koala habitat, with the removal of 737 koala trees. Approximately 20% of the trees proposed for removal comprise species that provide foraging resources for koala, while the remaining 80% consist of species that are suitable only for shelter and dispersal functions. A total of 518 trees will be avoided and retained within the Development Footprint. The Project will incorporate integrated green infrastructure to maintain and enhance koala connectivity across the corridor, including dedicated crossing structures. This is complemented by targeted mitigation measures such as exclusion fencing to guide safe movement and reduce road-related mortality, as well as pre-clearance surveys, staged clearing, and fauna management protocols to minimise the risk of direct impacts during construction (Arup, 2026c). Fauna exclusion fencing and crossing infrastructure will be installed along key sections of Old Gympie Road to maintain connectivity for koala movement throughout the Project Area. The Project will result in the removal of a relatively small and localised portion of koala habitat within an already highly modified suburban landscape, where habitat is typically fragmented, disturbed, and of variable quality. Given the availability of intact foraging resources within the broader landscape, the retention of existing trees where practicable within the Development Footprint, the limited fragmentation effects associated with the Project, and the implementation of mitigation and management measures, the Project is considered unlikely to result in a significant impact on Koala.
Reduce the area of occupancy of the species	**Unlikely** The area of occupancy of the koala is estimated at 19,400 km^2 (being 1,940,000 ha). The Project Area contains 7.6 ha of koala habitat, of which, 1.9 ha will be directly impacted, being 737 koala habitat trees (of which 80% are only suitable for dispersal and shelter). It is noted that koala habitat within the Project Area does not occur as one large, continuous patch, and instead, comprises

Criteria	Description
	isolated street trees or small clusters of trees that are not directly connected to larger areas of intact habitat. Based on the relatively small quantum of disturbance to koala habitat in comparison to the species' estimated range of distribution, it is considered unlikely that the Project will significantly reduce the species' area of occupancy.
Fragment an existing population into two or more populations	**Unlikely** The koala population was estimated in 2021 at 92,184 individuals (DAWE, 2022). There are numerous records of the species within the Project Area and surrounding locality, and a recognised local koala population persists throughout the local government area, including within urban environments. A total of 1.9 ha (of the available 7.6 ha) will be impacted by the Project; however, it is noted that majority of the habitat consist of isolated street trees or small clusters of trees that are not directly connected to larger areas of intact habitat. Additionally, habitat within the northern section of the Project Area is degraded by weed encroachment and is dominated by Acacia and Casuarina species. The Project will implement koala connectivity structures, such as dedicated crossing structures, to maintain and enhance koala connectivity across the corridor; as well as exclusion fencing to guide safe movement and reduce road-related mortality. These measures will provide a targeted value add by creating safe, functional movement pathways across the road corridor, effectively reconnecting habitat on either side of the Project Area. By funneling koalas toward purpose-built crossings and away from traffic, the design will materially reduce vehicle strike risk while maintaining ecological connectivity at a local scale. With the management and mitigation measures, and dedicated crossing structures, the Project will not fragment an existing population into two or more populations, and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** The following factors and other relevant factors are considered when identifying habitat that is critical to the survival of the koala: • Whether the habitat is used during periods of stress (e.g., flood, drought or fire); • whether the habitat is used to meet essential life cycle requirements (e.g., foraging, breeding, nesting, roosting, social behaviour patterns or seed dispersal processes); • the extent to which the habitat is used by important populations; • whether the habitat is necessary to maintain genetic diversity and long-term evolutionary development; • whether the habitat is necessary for use as corridors to allow the species to move freely between sites used to meet essential life cycle requirements; • whether the habitat is necessary to ensure the long-term future of the species or ecological community through reintroduction or re-colonisation; and • any other way in which habitat may be critical to the survival of a listed threatened species or a listed threatened ecological community.

Criteria	Description
	Koala habitat within the Project Area does support foraging, breeding and dispersal movements for the species, and as such, is considered habitat critical to the survival of the species. A total of 7.6 ha of koala habitat is mapped within the Project Area, occurring in small clusters of trees, or isolated street trees which are both not connected to larger areas of intact habitat. Of the available habitat. A total of 1.9 ha will be impacted by the Project, with the removal of 737 koala habitat trees. Approximately 20% of the trees proposed for removal comprise species that provide foraging resources for koala, while the remaining 80% consist of species that are suitable only for shelter and dispersal functions. Additionally, the Project will implement integrated green infrastructure to maintain and enhance koala connectivity across the corridor, including dedicated crossing structures. Management and mitigation will also be implemented to reduce direct and indirect impacts on the species and species' habitat, including exclusion fencing to guide safe movement and reduce road-related mortality, as well as pre-clearance surveys, staged clearing, and fauna management protocols to minimise the risk of direct impacts during construction (Arup, 2026c). Given the nature of the Project, being widening an existing road corridor, and the implementation of connectivity structures and mitigation measures, the Project will not adversely affect habitat critical to the survival of a species to the point the species is significantly impacted.
Disrupt the breeding cycle of a population	**Unlikely** The species conservation advice suggests that local factors, including population density, food quality and availability, soil type and climate, influence the timing of breeding and koalas may not breed every year if conditions are not favourable (DAWE, 2022). An increase in koala movement occurs during the breeding season, typically between September and February between food and shelter trees (DAWE, 2022). The Project Area contains koala habitat in the form of small clusters of trees, or isolated street trees, or a patch of habitat degraded by weed encroachment and dominated by non-koala food trees. The Project will implement dedicated koala crossing structures, to maintain and enhance koala movement across the corridor. Therefore, by maintaining and enhancing koala connectivity, despite impacting 1.9 ha of habitat, the Project will not disrupt the breeding cycle of a population. A significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project has largely avoided higher-quality koala habitat through the design process, with at least 518 existing trees that are >4 m in height and have a DSH of >10 cm to be retained. In addition, revegetation is proposed across several areas within the Development Footprint, including the planting of tree and shrub species consistent with existing REs, which will contribute to the gradual establishment of koala habitat over time (Arup, 2026c). The Project incorporates integrated green infrastructure to maintain and enhance koala connectivity across the corridor, including dedicated crossing structures. This is complemented by targeted mitigation measures such as exclusion fencing to guide safe movement and reduce road-related mortality, as well as pre-clearance surveys, staged clearing, and fauna management

Criteria	Description
	protocols to minimise the risk of direct impacts during construction (Arup, 2026c). Fauna exclusion fencing and crossing infrastructure will be installed along key sections of Old Gympie Road, including continuous fencing between Hughes Road East and Boundary Road and targeted treatments around Freshwater Creek. These works include 1.2 m to 1.8 m high fauna exclusion fencing integrated with escape structures, rope cage crossings at Freshwater Creek and south of Boundary Road, and fauna movement shelves within culverts to facilitate safe passage beneath the road corridor. Collectively, these measures will effectively exclude koalas and other fauna from the carriageway and direct movement to safe crossing points along approximately 0.8 km of the Project Area, corresponding to the extent of continuous fencing between Hughes Road East and Boundary Road and associated localised treatments, thereby removing the potential for direct vehicle collision across these sections and substantially reducing the overall road mortality risk to koala. The Project will result in the removal of a relatively small and localised portion of koala habitat within an already highly modified suburban landscape, where habitat is typically fragmented, disturbed, and of variable quality. Given the availability of intact foraging resources within the broader landscape, the retention of existing trees where practicable within the Development Footprint, the limited fragmentation effects associated with the Project, and the implementation of mitigation and management measures, the Project is considered unlikely modify decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**Unlikely** Koalas are threatened by wild dogs. The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** Koalas are known to be threatened by both koala retrovirus (KoRV) and chlamydia (*Chlamydia percorum*). Koala retrovirus (KoRV) is known to leave infected koalas more susceptible to infectious disease and cancer; while chlamydia causes infertility, blindness and death in the species (DAWE, 2022a). There is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures, to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** The *National Recovery Plan for the Koala (Phascolarctos cinereus) (combined populations of Queensland, New South Wales and the Australian Capital Territory)* (DAWE, 2022) lists the following recovery goal for the species:

Criteria	Description
	• To stop the trend of decline in population size of the listed Koala, by having resilient, connected, and genetically healthy metapopulations across its range, and to increase the extent, quality and connectivity of habitat occupied. To meet this goal, the National Recovery Plan further lists the following recovery objectives: • The area of occupancy and estimated size of populations that are declining, suspected to be declining, or predicted to decline are instead stabilised then increased; • The area of occupancy and estimated size of populations that are suspected and predicted to be stable are maintained or increased; • Metapopulation processes are maintained or improved; and • Partners, communities, and individuals have a greater role and capability in listed Koala monitoring, conservation, and management. The koala is known to occur within the Project Area, and habitat has been mapped across 7.6 ha of the Project Area, noting that this consists of small clusters of trees, or isolated street trees, or a patch of habitat degraded by weed encroachment and dominated by non-koala food trees. A total of 1.9 ha will be directly impacted by the Project; however, dedicated connectivity measures have been implemented and designed to maintain and enhance koala movement throughout the Project Area to areas of higher quality in the surrounding landscape. With the implementation of dedicated crossing structures, and exclusion fencing to guide the species to safe movement corridors leading to higher quality habitat outside the Project Area, clearing is unlikely to interfere with the recovery goal of the species and a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the koala.**

D1.2.1.2 GREY-HEADED FLYING-FOX

The Project is unlikely to result in a significant impact to grey-headed flying-fox (*Pteropus poliocephalus*).

Grey-headed flying-fox is listed as vulnerable under the EPBC Act and is assessed as likely to occur within the Project Area.

There are three desktop records within the locality dated 2025, 2022 and 2021, located <1 km to the west of the Project Area. During the July 2025 survey conducted by EcoSmart, between 50 to 60 grey-headed flying fox were observed roosting within Ross Reserve to the near west of the Project Area. The grey-headed flying-fox was also recorded during the field survey at a known roosting camp, located at Ross Reserve.

It is noted that the known camp at Ross Reserve is not located within the Project Area, and therefore, the Project Area does not contain breeding habitat for this species.

Grey-headed flying-fox habitat within the Project Area includes all trees mapped by the *Arboricultural Impact Assessment* greater than 4 m in height and a DSH > 10 cm. The Project Area contains 7.6 ha of foraging habitat for grey-headed flying-fox; of which, 1.9 ha is expected to be impacted by the Project.

As grey-headed flying-fox is vulnerable under the EPBC Act, an assessment against the important population criterion is discussed in Table D1-5, while the significant impact assessment against SIG1.1 is provided in Table D1-6.

TABLE D1-5: IMPORTANT POPULATION ASSESSMENT – GREY-HEADED FLYING-FOX

Criterion	Assessment against criteria
Key source population for breeding or dispersal	The species is known to occur within the Project Area, due to direct sightings during field surveys. There is a known camp located at the Ross Reserve, adjacent to the Project Area; however, this camp does not comprise a nationally important camp. Thus, the Project Area does not contain a key source population for breeding or dispersal, or populations that are necessary for maintaining genetic diversity.
Populations that are necessary for maintaining genetic diversity	
Populations that are near the limit of the species' range	The Project Area is not located near the limit of the species range.
Assessment as an important population	**The Project Area does not contain an important population of grey-headed flying-fox.**

TABLE D1-6: SIGNIFICANT IMPACT ASSESSMENT – GREY-HEADED FLYING-FOX

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** Grey-headed flying-foxes occur in the coastal belt from Rockhampton (Queensland) to Melbourne (Victoria), with the species abundance differing seasonally and yearly, in response to the availability of food sources (TSSC, 2001). The species has been recorded within the Project Area due to the adjacent known camp located in Ross Reserve. This camp is not located within the Project Area, and is not considered a

Criteria	Description
	nationally important camp, and as such, the Project Are does not contain an important population of the species (refer to Table D1-5). Impacts to 1.9 ha of habitat, of the available 7.6 ha, will therefore not lead to a long-term decrease in the size of an important population of a species and a significant impact is unlikely to occur. This is further supported by the conservative habitat mapping, which represents an upper-bound estimate of suitable foraging habitat, with the vegetation proposed for removal comprising relatively low quality and fragmented resources of limited importance to the species.
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy for grey-headed flying-fox has not been estimated. As per the important population assessment in Table D1-5, the Project Area does not support an important population of grey-headed flying-fox; and therefore the Project will not reduce the area of occupancy of an important population and therefore, a significant impact is unlikely to occur.
Fragment an existing important population into two or more populations	**Unlikely** There are no desktop or field survey records of the grey-headed flying-fox within the Project Area and thus, the Project Area does not support an important population of the species (refer to Table D1-5). The Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Likely/Unlikely** Habitat critical to the survival of the grey-headed flying fox is determined by the presence of winter and spring vegetation communities (as per the species listed in the National Recovery Plan; as well as vegetation communities not containing the tree species but which: • Contain native species that are known to be productive as foraging habitat during the final weeks of gestation, and during the weeks of birth, lactation and conception (August to May); • Contain native species used for foraging and occur within 20 km of a nationally important camp as identified on the Department's interactive flying-fox web viewer; or • Contain native and or exotic species used for roosting at the site of a nationally important grey-headed flying-fox camp as identified on the Department's interactive flying-fox web viewer. Important winter and spring vegetation communities are those that contain *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe*, *Corymbia citriodora citriodora, C. eximia, C. maculata*, *Grevillea robusta*, *Melaleuca quinquenervia* or *Syncarpia glomulifera* DAWE, 2021). The grey-headed flying-fox camp located at Ross Reserve adjacent to the Project Area is not listed as nationally important, and there are no nationally important camps within 20 km of the Project Area. Field surveys identified the presence of winter and spring flowering vegetation including *Eucalyptus tereticornis* and *Melaleuca quinquenervia* across the Project Area; however, as the Project Area is not located within 20 km of a nationally important camp, the Project

Criteria	Description
	Area does not contain habitat critical to the survival of the species. This conclusion is further reinforced by the conservative habitat mapping, which represents an upper bound estimate of foraging habitat, with the vegetation proposed for removal comprising predominantly low quality and fragmented resources that do not meaningfully contribute to critical seasonal foraging requirements at a population scale.Impacts to 1.9 ha of habitat for grey-headed flying-fox is not considered significant to the species based on the availability of foraging habitat in the surrounding landscape, and a significant impact is unlikely to occur.
Disrupt the breeding cycle of an important population	**Unlikely** The Project Area does not support an important population of the species (refer to Table D1-5) and therefore, the Project will not disrupt the breeding cycle of an important population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project is expected to directly impact up to 1.9 ha of grey-headed flying fox foraging habitat. This includes the trees proposed to be removed and those that are pending determination of removal. Habitat within the Project Area is generally degraded as a result of edge effects, disturbance associated with the existing road corridor and weed encroachment. Grey-headed flying foxes are known to be sensitive to disturbance associated with construction activities, including increased noise, artificial lighting and dust generation. In some circumstances, where such impacts have not been appropriately mitigated, construction activities have resulted in temporary avoidance of affected foraging areas and, in more severe cases, disturbance to nearby roost sites(Arup, 2026c). However, the existing camp occurs within a highly modified suburban environment that is already subject to ongoing road traffic noise and anthropogenic disturbance. The Project is therefore not expected to substantially alter existing baseline disturbance conditions in the Locality. Furthermore, mitigation and management measures will be implemented to minimise potential direct and indirect impacts, including pre-clearance surveys, population monitoring and avoidance of major construction activities during sensitive periods where practicable. With these measures and the existing disturbances to nearby roosts, the Project will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that is harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** There are no known invasive fauna associated with grey-headed flying-fox (DAWE, 2021). The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.

Criteria	Description
Introduce disease that may cause the species to decline	**Unlikely** There is little information available on the impact of disease on grey-headed flying-foxes (DAWE, 2021). There is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** The *National Recovery Plan for the Grey-headed Flying-fox (Pteropus poliocephalus)* (DAWE, 2021) lists the following recovery objectives for the species: • Improve the grey-headed flying-foxes national population trend by reducing the impact of the threats outlined in this plan on grey-headed flying-foxes through habitat identification, protection, restoration and monitoring; and • Assist communities and grey-headed flying-foxes to coexist through better education, stakeholder engagement, research, policy and continued support to fruit growers. The Proposed Development will implement appropriate management and mitigation measures during the construction and operation phases to reduce impacts to threatened species, including the grey-headed flying fox. With the implementation of appropriate management and mitigation measures, the Proposed Development will not interfere with the recovery of the species and a significant impact is unlikely to occur.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to grey-headed flying-fox**

D1.2.2 THREATENED FAUNA SPECIES LIKELY TO OCCUR

D1.2.2.1 LATHAM'S SNIPE

The Project is unlikely to result in a significant impact to Latham's snipe (*Gallinago hardwickii*).

Latham's snipe is listed as vulnerable and migratory under the EPBC Act and is assessed as likely to occur within the Project Area.

Latham's snipe was not recorded during the field survey; however, there are four desktop records of the species within 1 km of the Project Area. Of these records, two are recent, recorded from 2015 and 2017 (ALA, 2026).

Potential habitat for Latham's snipe includes all waterbodies within the Project Area. It is noted that the Project Area does not contain substantial waterbodies. Potential habitat occurs across 0.1 ha of the Project Area, of which, less than 1 ha is expected to be impacted by the Project.

As Latham's snipe is vulnerable and migratory under the EPBC Act, an assessment against the important population criterion is discussed in Table D1-7, while the significant impact assessment against SIG1.1 is provided in Table D1-8 (threatened status) and Table D1-9 (migratory status).

TABLE D1-7: IMPORTANT POPULATION ASSESSMENT – LATHAM'S SNIPE

Criterion	Assessment against criteria
Key source population for breeding or dispersal	Latham's snipe is a non-breeding visitor in Australia, and therefore Australia does not contain suitable breeding habitat for the species. The Latham's snipe has a global population of 25,000 – 100,000 individuals, which are all through to migrate along the East Asian – Australasian Flyway to Australia annually. There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys; and therefore, the Project Area does not contain a key source population for breeding or dispersal.
Populations that are necessary for maintaining genetic diversity	Nationally important habitat for migratory shorebirds can be defined by if the area regularly supports: • 0.1 percent of the flyway population of a single species of migratory shorebird; or, • 2,000 migratory shorebirds; or • 15 migratory shorebird species (DCCEEW, 2024). The Project Area does not support the above criteria for nationally important habitat for migratory shorebirds and therefore, is unlikely to sustain a population necessary for maintaining genetic diversity.
Populations that are near the limit of the species' range	The Project Area is not located at the limit of the species' range.
Assessment as an important population	**The Project Area does not contain an important population of Latham's snipe.**

TABLE D1-8: SIGNIFICANT IMPACT ASSESSMENT – LATHAM'S SNIPE

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** Latham's snipe has a global population of 25,000 – 100,000 individuals, which are all through to migrate along the East Asian – Australasian Flyway to Australia annually. There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys Latham's snipe. As per the important population assessment in Table D1-7, the Project Area does not contain an important population of the species. Therefore, the expected impact to less than 0.1 ha of potential habitat will not lead to a long-term decrease in the size of an important population of a species and a significant impact is unlikely to occur.
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy for the Latham's snipe is estimated at 13,000 km^2 (1,300,000 ha) (DCCEEW, 2024). As per the important population assessment in Table D1-7, the Project Area does not support an important population of Latham's snipe; and therefore the Project will not reduce the area of occupancy of an important population and therefore, a significant impact is unlikely to occur.

Criteria	Description
Fragment an existing important population into two or more populations	**Unlikely** Latham's snipe has not been recorded within the Project Area, based on desktop searches and field surveys. The Project Area does not contain an existing important population of the species (Table D1-7) and therefore will not fragment an existing population into two or more populations. A significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Nationally important habitat for migratory shorebirds can be defined by if the area regularly supports: • 0.1 percent of the flyway population of a single species of migratory shorebird; or, • 2,000 migratory shorebirds; or • 15 migratory shorebird species (DCCEEW, 2024). If any of the above criteria are exceeded within a specific area, the associated habitat is automatically classified as habitat critical to the survival of the species (DCCEEW, 2024). Latham's snipe has not been recorded within the Project Area, and thus, the Project Area does not support the above criteria for nationally important habitat for migratory shorebirds. Subsequently, the Project Area does not contain habitat critical to the survival of the species and a significant impact is unlikely to occur.
Disrupt the breeding cycle of an important population	**Unlikely** Latham's snipe does not breed in Australia, and therefore, the Project will not disrupt the breeding cycle of an important population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** Latham's snipe inhabits permanent and ephemeral shallow wetlands located up to 2,000 m above sea level, and particularly favours open, freshwater wetlands lined with low, dense vegetation (DCCEEW, 2024). Given the species global distribution and ability to occupy a variety of habitat types, an impact of less than 0.1 ha will not decrease the availability or quality of habitat to the extent that the species is likely to decline, and a significant impact is unlikely to occur.
Result in invasive species that is harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** Latham's snipe is threatened by feral cats and European red foxes, both of which have were not recorded during the field survey. The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with Latham's snipe, and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.

Criteria	Description
Interfere with the recovery of the species	There is no adopted or made recovery plan for this species, and a recovery plan is not required; however, the conservation advice lists the following primary conservation objectives: • Latham's snipe populations are stable or increasing within the Australian jurisdiction; • Ensure no further loss of habitat critical to the survival of Latham's snipe throughout Australia; and • Protect and manage important feeding and roosting areas in Australia and staging and breeding areas throughout the East Asian - Australasian Flyway for Latham's snipe (DCCEEW 2024). The Project Area does not contain habitat critical to the survival of the species, or known important feeding and roosting areas for Latham's snipe. Latham's snipe was not recorded during the field survey and there are no records of the species within the Project Area. An impact to less than 0.1 ha of potential habitat for the species will not interfere with the recovery of the species and a significant impact is unlikely to occur.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to Latham's snipe.**

TABLE D1-9: SIGNIFICANT IMPACT ASSESSMENT – LATHAM'S SNIPE (MIGRATORY STATUS)

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Areas of national importance within Queensland are defined in the Australian National Directory of Important Migratory Shorebird Habitat (Birdlife Australia, 2025). The Project Area is not listed as an important site for the species, and the species is not known to occur within the Project Area. Therefore, impacts to less than 0.1 ha will not substantially modify, destroy or isolate an area of important habitat and a significant impact is unlikely to occur.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** Latham's snipe is threatened by feral cats and European red foxes, both of which have been recorded within the Project Area. The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The Latham's snipe does not breed in Australia and there are no records of the species within the Project Area. Therefore, the Project Area does not contain an ecologically significant proportion of the population, and impacts to less than 0.1 ha are considered insignificant.
Significant Impact:	**The Project is unlikely to result in a significant impact to the Latham's snipe.**

D1.2.2.2 WHITE-THROATED NEEDLETAIL

The Project is unlikely to result in a significant impact to white-throated needletail (*Hirundapus caudacutus*).

White-throated needletail is listed as vulnerable and migratory under the EPBC Act and is assessed as likely to occur within the Project Area.

There are several records of the species within the Locality, with the nearest record located less than 100 m north of the Project Area, recorded in 2016.

Potential foraging habitat for white-throated needletail over dry open habitats is present across the entirety of the Project Area, where the species would forage aerially. The aerial environment does not constitute habitat, and therefore no applicable habitat for the white-throated needletail has been mapped.

As white-throated needletail is vulnerable and migratory under the EPBC Act, an assessment against the important population criterion is discussed in Table D1-10, while the significant

impact assessment against SIG1.1 is provided in Table D1-11 (threatened status) and Table D1-12 (migratory status).

TABLE D1-10: IMPORTANT POPULATION ASSESSMENT – WHITE-THROATED NEEDLETAIL

Criterion	Assessment against criteria
Key source population for breeding or dispersal	White-throated needletail does not breed in Australia, and therefore Australia does not contain suitable breeding habitat for the species. A nationally important population of white-throated needletail in Australia is 10 individuals, being 0.1% threshold. There are no desktop records of the species within the Project Area and the species was not recorded during the field survey; and therefore, the Project Area does not contain a key source population for breeding or dispersal.
Populations that are necessary for maintaining genetic diversity	A nationally important population of white-throated needletail is 10 individuals, being 0.1% threshold. The species has not been recorded within or flying above the Project Area based on desktop records, and the species was not recorded during the field survey. Therefore, the Project Area is unlikely to sustain a population necessary for maintaining genetic diversity.
Populations that are near the limit of the species' range	The Project Area is not located at the limit of the species' range.
Assessment as an important population	**The Project Area does not contain an important population of the white-throated needletail.**

TABLE D1-11: SIGNIFICANT IMPACT ASSESSMENT – WHITE-THROATED NEEDLETAIL

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** The white-throated needletail has a global distribution and is a non-breeding visitor to Australia; however, the population size of the species in Australia is currently not quantified. As the species is almost exclusively aerial in Australia, foraging aerial at heights up to cloud level, above a wide range of habitats, from open areas (i.e., farm lands, mudflats etc.) to woodlands (TSSC, 2019). While the Project Area does not contain roosting habitat for the species and no land-based habitat has been mapped, the white-throated needletail has the potential to occur aerially over the entirety of the Project Area. As per the important population assessment in Table D1-10, the Project Area does not contain an important population of the species. As the Project Area does not contain an important population of the species, and the species forages aerially, and the Proposed Development is not expected to impact the aerial foraging nature of this species, the Project will not lead to a long-term decrease in the size of an important population of a species and a significant impact is unlikely to occur.
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy for the white-throated needletail is estimated at 126,200 km^2 (12,600,000 ha) (TSSC, 2019).

Criteria	Description
	The Project Area does not contain an important population of the species (Table D1-10). The Project Area does not contain any land-based habitat for this species, and thus, the Project will not reduce the area of occupancy of an important population, and a significant impact is unlikely to occur.
Fragment an existing important population into two or more populations	**Unlikely** The white-throated needletail has a global distribution which migrates annually along the East Asian - Australasian Flyway (TSSC, 2019). There are no records of the white-throated needletail within or flying above the Project Area, and the Project Area does not contain an important population of the species (Table D1-10). Therefore, the Project will not fragment and existing important population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of white-throated needletail has not been defined or officially adopted (TSSC, 2019). For the purpose of this impact assessment, the SIG1.1 definition of habitat critical to the survival of the species is used. The Project Area does not contain roosting habitat or important foraging habitat (updrafts) for the species. The white-throated needletail is almost exclusively aerial, foraging aerially at cloud heights, and as such, has the potential to occur over the entirety of the Project Area. The Project Area does contain an ecologically significant proportion of the population (being 10 individuals; 0.1% threshold) (DoE, 2015) as the species has not been recorded within the Project Area. Additionally, the Project Area does not contain roosting habitat or updrafts. Therefore, the Project will not adversely affect habitat critical to the survival of a species and a significant impact is unlikely to occur.
Disrupt the breeding cycle of an important population	**Unlikely** The white-throated needletail does not breed within Australia, and the Project Area does not contain an important population of the species (refer to Table D1-10). Therefore, the Project will not disrupt the breeding cycle of a population, and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The white-throated needletail forages aerially at cloud level and required updrafts to be considered important foraging habitat. The field surveys noted that the Project Area does not contain significant landscape features associated with large updrafts. Despite the Project Area lacking significant landscape features to be considered foraging habitat, the species may still occur aerially over the Project Area. Additionally, the Project Area does not contain roosting habitat suitable for the species. As significant landscape features associated with large updrafts were not recorded within the Project Area, the Project will not interfere with white-throated needletail aerial foraging habitat. Therefore, the Project will not decrease the availability or quality of habitat to the extent that the species is likely to decline, and a significant impact is unlikely to occur.
Result in invasive species that is harmful	**Unlikely**

Criteria	Description
to a vulnerable species becoming established in the vulnerable species' habitat	The white-throated needletail is not known to be threatened by invasive species (TSSC, 2019). The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no diseases known to be associated with the white-throated needletail (TSSC, 2019) and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made recovery plan for this species, and a recovery plan is not required; however, the conservation advice (TSSC, 2019) lists the following primary conservation objectives: • "*Work with governments in East Asia to minimise destruction of key breeding habitats; and* • *Important habitats in Australia are identified and protected*." The Project Area does not contain roosting habitat or important foraging habitat (updrafts) for the species, and therefore, the Project will not interfere with the recovery of the species and a significant impact is unlikely to occur.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to the white-throated needletail.**

TABLE D1-12: SIGNIFICANT IMPACT ASSESSMENT – WHITE-THROATED NEEDLETAIL (MIGRATORY STATUS)

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** The Referral Guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015) defines important habitat for the white-throated needletail as "*non-breeding habitat only, found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites*". The Project Area does not contain any land-based habitat for the species; however, provides aerial foraging space across the entire Project Area. The species has not been recorded over the Project

Criteria	Description
	Area. As the species is an aerial visitor and no land-based habitat is mapped, the Project will not substantially modify, destroy or isolate an area of important habitat for a migratory species and a significant impact is unlikely to occur.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The white-throated needletail is not known to be threatened by invasive species and the Project Area does not contain important habitat for the species. Therefore, the Project will not result in establishing a harmful species in an area of important habitat. A significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** In Australia, the white-throated needletail is almost exclusively aerial, foraging during flight (DCCEEW, 2026). The species is a non-breeding visitor to Australia. The Project Area does not contain any land-based habitat (i.e., roosting habitat) for the species; however, the species may occur aerially. Additionally, an ecologically significant proportion of the population of white-throated needletail is 10 individuals (0.1% as nationally important) (DoE, 2015), and as no individuals are known to occur within or flying above the Project Area, the Project Area does not contain an ecologically significant proportion of the population. Therefore, a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the white-throated needletail.**

D1.2.3 THREATENED FAUNA SPECIES POTENTIAL TO OCCUR

D1.2.3.1 AUSTRALASIAN BITTERN

The Project is unlikely to result in a significant impact to Australasian bittern (*Botaurus poiciloptilus*).

Australasian bittern is listed as endangered under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify Australasian bittern within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely. The nearest recent record of the species is located 5.0 km to the east of the Project Area, recorded in 2022 (ALA, 2026).

Potential habitat for Australasian bittern includes all waterbodies within the Project Area. It is noted that the Project Area does not contain substantial waterbodies. Potential habitat occurs across 0.1 ha of the Project Area, of which, less than 1 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the Australasian bittern is provided in Table D1-14.

TABLE D1-13: SIGNIFICANT IMPACT ASSESSMENT – AUSTRALASIAN BITTERN

Criteria	Description
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	**Unlikely** There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys. The Project Area contains 0.1 ha of habitat for the Australasian bittern, in the form of old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. Less than 0.1 ha of potential foraging habitat will be impacted by the Project. The Project will not lead to a long-term decrease in the size of an important population of a species and a significant impact is unlikely to occur.
Reduce the area of occupancy of the species	**Unlikely** The area of occupancy for the Australasian bittern is not publicly available. The Project Area does not support a population of the species; and therefore, the Project will not reduce the area of occupancy of the species. A significant impact is unlikely to occur.
Fragment an existing population into two or more populations	**Unlikely** There are no existing populations for the Australasian bittern within the Project Area, with the nearest recent record of the species located 5 km east of the Project Area. The Project will impact less than 0.1 ha of habitat for the species, which is considered relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The species is also considered highly mobile. Therefore, the Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of the Australasian bittern can be considered to include any natural wetland habitat where the species is known or likely to occur (breeding or foraging habitat) within the indicative distribution map (DCCEEW, 2022). The Project Area contains 0.1 ha of habitat for the species; however, this is in the form of farm dams rather than wetlands. Therefore, habitat within the Project Area is not considered habitat critical to the survival of the Australasian bittern, and impacts of less than 0.1 ha are insignificant.
Disrupt the breeding cycle of a population	**Unlikely** The Australasian bittern breeds from October to February in solitary pairs, or polygamously with up to three nesting females per booming male. The species breeds in densely vegetated freshwater wetlands, which are not present within the Project Area. Additionally, the species has not been recorded within the Project Area. Therefore, impacts of less than 0.1 ha of habitat will not disrupt the breeding cycle of a population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of	**Unlikely** The Project Area contains 0.1 ha of habitat for the Australasian bittern, in the form of old farm dam that is considered to provide

Criteria	Description
habitat to the extent that the species is likely to decline	relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The Project will impact less than 0.1 ha of potential foraging habitat and this impact is considered negligible. Mitigation and management measures can be implemented to minimise the potential for any direct and indirect impacts to the species. Given the limited extent and low quality of habitat affected, and the species not occurring within the Project Area, the Project will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**Unlikely** Australasian bittern is threatened by feral cats and European red foxes. The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with Australasian bittern, and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** The *National Recovery Plan for the Australasian Bittern* (Botaurus poiciloptilus) lists the following recovery objective: • Demonstrate, by 2032, an increasing trend (compared to 2020 baseline counts) in the number of mature individuals being recorded in annual surveys at key locations, and to ensure that habitat critical to the survival of the Australasian Bittern is protected and managed to meet the ecological requirements of the species. The Project Area does not contain a population of Australasian bittern, or habitat critical to the survival of the species. Therefore, impacts of less than 0.1 ha will not interfere with the recovery of the species. A significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the Australasian bittern.**

D1.2.3.2 AUSTRALIAN PAINTED SNIPE

The Project is unlikely to result in a significant impact to Australian painted snipe (*Rostratula australis*).

Australian painted snipe is listed as endangered under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify Australian painted snipe within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential

habitat, their presence cannot be ruled out entirely. The nearest recent record of the species is located 3.5 km to the south-east from 2013.

The Project Area does not contain breeding habitat for this species. The Project Area contains 0.1 ha of potential foraging habitat for Australian painted snipe; of which, less than 0.1 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the Australian painted snipe is provided in Table D1-14.

TABLE D1-14: SIGNIFICANT IMPACT ASSESSMENT – AUSTRALIAN PAINTED SNIPE

Criteria	Description
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	**Unlikely** The population of Australian painted snipe is estimated at 2,500 mature individuals (DSEWPC, 2013). There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys. The Project Area contains 0.1 ha of habitat for the Australian painted snipe, in the form of old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. Additionally, the Project Area does not contain breeding habitat for the species. Impacts of less than 0.1 ha will not lead to a long-term decrease in the size of a population of a species and a significant impact is unlikely to occur.
Reduce the area of occupancy of the species	**Unlikely** The area of occupancy for the Australian painted snipe is estimated at 2,000 km^2 (200,000 ha). The Project Area does not support a population of the species; and therefore, the Project will not reduce the area of occupancy of the species. A significant impact is unlikely to occur.
Fragment an existing population into two or more populations	**Unlikely** There are no existing populations for the Australian painted snipe within the Project Area, with the nearest recent record of the species located 3.5 km south-east of the Project Area. The Project will impact less than 0.1 ha of habitat for the species, which is considered relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The species is also considered highly mobile. Therefore, the Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.

Criteria	Description
Adversely affect habitat critical to the survival of a species	**Unlikely** The habitat, or biophysical environment, of the Australian Painted Snipe varies across its range, so it is not possible to generate one detailed description or definition of habitat critical to survival (DCCEEW, 2022). The Project Area does not contain breeding habitat for the species, and foraging habitat consists of an old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. This habitat is not utilised by the species as there are no records of the species within the Project Area. This suggests the Project Area does not contain habitat critical to the survival of the species, and impacts of less than 0.1 ha are considered insignificant.
Disrupt the breeding cycle of a population	**Unlikely** Australian painted snipe breeding habitat requirements are quite specific, being shallow wetlands with areas of bare wet mud and both upper and canopy cover nearby. Nest records are all, or nearly all, from or near small islands in freshwater wetlands (DCCEEW, 2026). The Project Area does not contain breeding habitat for the species, and the species is not known to occur. Impacts to less than 0.1 ha will not disrupt the breeding cycle of a population. A significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project Area contains 0.1 ha of habitat for the Australian painted snipe, in the form of old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The Project will impact less than 0.1 ha of potential foraging habitat and this impact is considered negligible. The Project Area does not contain breeding habitat for the species. The species is also not known to occur within the Project Area. Mitigation and management measures can be implemented to minimise the potential for any direct and indirect impacts to the species. Given the limited extent and low quality of habitat affected, and the species not occurring within the Project Area, the Project will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**Unlikely** Nest predation by foxes (*Vulpes vulpes*) or cats (*Felis catus*) may be a threat to the Australian painted snipe, however there is no evidence for this. The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with Australian painted snipe, and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease

Criteria	Description
	that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	Unlikely The *National Recovery Plan for the Australian Painted Snipe* (Rostratula australis) (DCCEEW, 2022) lists the following recovery objective: • By 2032, sustain a positive population trend (compared to 2020 baseline counts) in the number of mature individuals of the Australian painted snipe. The Project Area does not contain a population of the Australian painted snipe, and impacts of less than 0.1 ha will not interfere with the recovery of the species. A significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the Australian painted snipe.**

D1.2.3.3 CURLEW SANDPIPER

The Project is unlikely to result in a significant impact to curlew sandpiper (*Calidris ferruginea*).

Curlew sandpiper is listed as critically endangered and migratory under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify curlew sandpiper within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely.

The Project Area does not contain breeding habitat for this species. The Project Area contains 0.1 ha of potential foraging habitat for curlew sandpiper; of which, less than 0.1 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the curlew sandpiper is presented in Table D1-15 (threatened status) and Table D1-16 (migratory status).

TABLE D1-15: SIGNIFICANT IMPACT ASSESSMENT – CURLEW SANDPIPER

Criteria	Description
An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of a population	**Unlikely** The population of the curlew sandpiper was estimated at 90,00 individuals in 2016, with 45,500 individuals migrating to Australia annually. The estimated population in Australia in 2020 was 40,100 mature individuals. There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys. There are three historic records (1993 and older) within 1 km of the Project Area, and the most recent record (2016) is located 5.3 km from the Project Area.

Criteria	Description
	The Project Area contains 0.1 ha of habitat for the Australian painted snipe, in the form of old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The curlew sandpiper does not breed in Australia, and thus, the Project Area does not contain breeding habitat for the species. Impacts of less than 0.1 ha will not lead to a long-term decrease in the size of a population of a species and a significant impact is unlikely to occur.
Reduce the area of occupancy of the species	**Unlikely** The area of occupancy for the Australian painted snipe is estimated at 8,000 km^2 (800,000 ha). The Project Area does not support a population of the species as the species has not been recorded previously. Impacts of less than 0.1 ha will not reduce the area of occupancy of the species. A significant impact is unlikely to occur.
Fragment an existing population into two or more populations	**Unlikely** There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys. There are three historic records (1993 and older) within 1 km of the Project Area, and the most recent record (2016) is located 5.3 km from the Project Area. The species is considered highly mobile, and the Project Area contains relatively low-quality foraging habitat when compared to aquatic habitats available within the broader landscape. Therefore, impacts of less than 0.1 ha of habitat will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of the curlew sandpiper includes a mosaic of feeding and roosting habitat and the species is considered highly selective about foraging environments due to its specialised feeding techniques. Critical foraging habitat consists of exposed sandy or soft mud substrates on intertidal flats and beaches, particularly the upper tidal flats. Whereas, roosting habitat consists primarily of large intertidal sandflats, spits, and banks. The Project Area does not contain critical foraging or roosting habitat for the species, as foraging habitat is restricted to an old farm dam with relatively low-quality foraging function. Therefore, the Project does not contain habitat critical to the survival of the species, and a significant impact is unlikely to occur.
Disrupt the breeding cycle of a population	**Unlikely** The curlew sandpiper does not breed in Australia, and therefore, the Project will not disrupt the breeding cycle of a population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project Area contains 0.1 ha of habitat for the curlew sandpiper, in the form of old farm dam that is considered to provide relatively low-quality foraging function when compared to aquatic habitats available within the broader landscape. The Project will impact less than 0.1 ha of potential foraging habitat

Criteria	Description
	and this impact is considered negligible. The Project Area does not contain breeding habitat for the species. The species is also not known to occur within the Project Area. Mitigation and management measures can be implemented to minimise the potential for any direct and indirect impacts to the species. Given the limited extent and low quality of habitat affected, and the species not occurring within the Project Area, the Project will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**Unlikely** Curlew sandpiper habitat (e.g., mudflats and coastal saltmarshes) is threatened by the invasion of mangroves and cordgrass, which are not known to occur within the Project Area. The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with curlew sandpiper, and there is no evidence to suggest the Project will introduce diseases. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made recovery plan for this species and a recovery plan is not required. The species' conservation advice lists the following primary conservation objectives: • Minimise further loss of habitat critical to the survival of curlew sandpiper throughout Australia (including habitat predicted to become habitat critical in the future because of climate change). • Prevent further declines in curlew sandpiper populations by working with relevant Range States to address threats in the East Asian-Australasian Flyway. The Project Area does not contain habitat critical to the survival of the species, and the old farm dam is not expected to be considered habitat critical in the future due to its low-quality foraging function. Additionally, the Project Area does not contain a population of curlew sandpiper. Therefore, the Project will not interfere with the recovery of the species and a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the curlew sandpiper.**

TABLE D1-16: SIGNIFICANT IMPACT ASSESSMENT – CURLEW SANDPIPER (MIGRATORY STATUS)

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Nationally important habitat for the curlew sandpiper is defined in the species conservation advice as areas regularly supporting: • 0.1 percent of the flyway population of a single species of migratory shorebird or • 2,000 migratory shorebirds or • 15 migratory shorebird species. The curlew sandpiper has not been recorded within the Project Area, and the nearest recent record (within the past 20 years) is located 5.3 km from the Project Area. Potential foraging habitat within the Project Area is restricted to an old dam with relatively low quality foraging function, and thus, impacts to less than 0.1 ha of this habitat will not result in a significant impact.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** Curlew sandpiper habitat (e.g., mudflats and coastal saltmarshes) is threatened by the invasion of mangroves and cordgrass, which are not known to occur within the Project Area. The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The curlew sandpiper does not breed in Australia and there are no records of the species within the Project Area. Therefore, the Project Area does not contain an ecologically significant proportion of the population, and impacts to less than 0.1 ha are considered insignificant.
Significant Impact:	**The Project is unlikely to result in a significant impact to the curlew sandpiper.**

D1.2.3.4 SHARP-TAILED SANDPIPER

The Project is unlikely to result in a significant impact to sharp-tailed sandpiper (*Calidris acuminata*).

Sharp-tailed sandpiper is listed as vulnerable and migratory under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify sharp-tailed sandpiper within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely. The nearest recent record of the species is located 2.3 km to the east from 2023.

The Project Area does not contain breeding habitat for this species. The Project Area contains 0.1 ha of potential foraging habitat for sharp-tailed sandpiper; of which, less than 0.1 ha is expected to be impacted by the Project.

As sharp-tailed sandpiper is vulnerable and migratory under the EPBC Act, an assessment against the important population criterion is discussed in Table D1-17, while the significant impact assessment against SIG1.1 is provided in Table D1-18 (threatened status) and Table D1-19 (migratory status).

TABLE D1-17: IMPORTANT POPULATION ASSESSMENT – SHARP-TAILED SANDPIPER

Criterion	Assessment against criteria
Key source population for breeding or dispersal	Sharp-tailed sandpiper is a non-breeding visitor in Australia, and therefore Australia does not contain suitable breeding habitat for the species. During migration, approximately 91% of the sharp-tailed sandpiper population occur in Australia. There are no desktop records of the species within the Project Area and the species was not recorded during the field surveys. Therefore, the Project Area does not contain a key source population for breeding or dispersal.
Populations that are necessary for maintaining genetic diversity	Nationally important habitat for migratory shorebirds can be defined by if the area regularly supports: • 0.1 percent of the flyway population of a single species of migratory shorebird; or, • 2,000 migratory shorebirds; or • 15 migratory shorebird species. The Project Area does not support the above criteria for nationally important habitat for migratory shorebirds and therefore, is unlikely to sustain a population necessary for maintaining genetic diversity.
Populations that are near the limit of the species' range	The Project Area is not located at the limit of the species' range.
Assessment as an important population	**The Project Area does not contain an important population of sharp-tailed sandpiper.**

TABLE D1-18: SIGNIFICANT IMPACT ASSESSMENT – SHARP-TAILED SANDPIPER

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** The global mature sharp-tailed sandpiper population is estimated at 71,000 individuals. Sharp-tailed sandpiper has not been recorded within the Project Area previously (based on database records) or during the field survey and therefore, the Project Area does not contain an important population of the species (Table D1-17). The Project Area contains 0.1 ha of potential habitat for sharp-tailed sandpiper, of which, less than 0.1 ha is expected to be impacted. This impact will not lead to a long-term decrease in the size of an important population of a species and a significant impact is unlikely to occur.

Criteria	Description
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy for the sharp-tailed sandpiper is estimated at 13,000 km^2 (1,300,000 ha) and is considered stable (DCCEEW, 2024). As per the important population assessment in Table D1-17, the Project Area does not support an important population of sharp-tailed sandpiper; and therefore the Project will not reduce the area of occupancy of an important population and therefore, a significant impact is unlikely to occur.
Fragment an existing important population into two or more populations	**Unlikely** Sharp-tailed sandpiper has not been recorded within the Project Area, and therefore, the Project Area does not contain an important population (Table D1-17). The Project will not fragment an existing population into two or more populations and a significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of sharp-tailed sandpiper has not been defined or officially adopted. For the purpose of this impact assessment, the SIG1.1 definition of habitat critical to the survival of the species will be used. The sharp-tailed sandpiper will generally occupy a variety of habitats throughout Australia and is known to be more tolerant of grassy vegetation than most shorebirds. Less than 0.1 ha of potential habitat is expected to be impacted by the Project. Given the species tolerance to varying habitat types and the species not occurring within the Project Area, the Project will not adversely impact habitat critical to the survival of a species and a significant impact is unlikely to occur.
Disrupt the breeding cycle of an important population	**Unlikely** Sharp-tailed sandpiper snipe does not breed in Australia, and therefore, the Project will not disrupt the breeding cycle of a population and a significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The sharp-tailed sandpiper inhabits the muddy edges of shallow freshwater and brackish wetlands, lined with emergent vegetation (e.g., sedges, grass and saltmarsh); as well as lagoons, swamps, lakes and pools near the coast. In inland environments, the species inhabits dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes (DCCEEW, 2024). Less than 0.1 ha of potential habitat is expected to be impacted by the Project. As the species has not been recorded utilising this habitat, the Project will not decrease the availability or quality of habitat to the extent that the species is likely to decline, and a significant impact is unlikely to occur.
Result in invasive species that is harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** The sharp-tailed sandpiper is not known to be threatened by invasive species (DCCEEW, 2024). The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of

Criteria	Description
	management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** There are no known diseases associated with sharp-tailed sandpiper (DCCEEW, 2024), and there is no evidence to suggest the Project will introduce diseases The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made recovery plan for this species, and a recovery plan is not required; however, the conservation advice (DCCEEW, 2024) lists the following primary conservation objectives: • "Minimise further loss of habitat critical to the survival of sharp-tailed sandpiper throughout Australia (including habitat predicted to become habitat critical to survival in the future because of climate change); and • Prevent further declines in sharp-tailed sandpiper populations by working with Range States to address threats in the East Asian - Australasian Flyway." The Project Area does not contain any populations of the species or habitat critical to the survival of the species, and as such, the Project will not interfere with the recovery of the species and a significant impact is unlikely to occur.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to sharp-tailed sandpiper.**

TABLE D1-19: SIGNIFICANT IMPACT ASSESSMENT – SHARP-TAILED SANDPIPER (MIGRATORY STATUS)

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Nationally important habitat for the sharp-tailed sandpiper is defined in the species conservation advice as areas regularly supporting: • 0.1 percent of the flyway population of a single species of migratory shorebird or • 2,000 migratory shorebirds or • 15 migratory shorebird species. The species has not been recorded within the Project Area, and the nearest recent record (within the past 20 years) is located 2.3 km east of the Project Area and was recorded in 2023. Potential foraging habitat within the Project Area is restricted to an old dam with relatively low quality foraging function, and thus, impacts to less than 0.1 ha of this habitat will not result in a significant impact.

Criteria	Description
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The sharp-tailed sandpiper is not known to be threatened by invasive species (DCCEEW, 2024). The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The sharp-tailed sandpiper does not breed in Australia and there are no records of the species within the Project Area. Therefore, the Project Area does not contain an ecologically significant proportion of the population, and impacts to less than 0.1 ha are considered insignificant.
Significant Impact:	**The Project is unlikely to result in a significant impact to the sharp-tailed sandpiper.**

D1.2.3.5 SOUTH-EASTERN GLOSSY BLACK-COCKATOO

The Project is unlikely to result in a significant impact to south-eastern glossy black-cockatoo (*Calyptorhynchus lathami lathami*).

South-eastern glossy black-cockatoo is listed as vulnerable under the EPBC Act and is assessed as known to occur within the Project Area.

The nearest historically relevant record is located 4 km to the north in habitat and regional ecosystem composition similar to that of the Project Area. A historic record from 1983 occurs within the Project Area. The presence of *Casuarina* spp. may provide limited foraging habitat within the Project Area. As the distribution of the species overlaps with the area, and the species has the potential to occur aerially over the entirety of the Project Area, their presence cannot be ruled out entirely.

The Project Area contains 0.3 ha of foraging and dispersal habitat for south-eastern glossy black-cockatoo; of which, 0.1 ha is expected to be impacted by the Project.

As south-eastern glossy black-cockatoo is vulnerable under the EPBC Act, an assessment against the important population criterion is discussed in Table D1-20, while the significant impact assessment against SIG1.1 is provided in Table D1-21.

TABLE D1-20: IMPORTANT POPULATION ASSESSMENT – SOUTH-EASTERN GLOSSY BLACK-COCKATOO

Criterion	Assessment against criteria
Key source population for breeding or dispersal	There are no desktop records of the species within the Project Area and the species was not recorded during the field survey; and therefore, the Project Area does not contain a population of south-eastern glossy black-cockatoo. Additionally, breeding habitat is specific, which the species requiring suitable large hollows, which do not occur within the Project Area. The Project Area does not contain a key source population for breeding or dispersal.
Populations that are necessary for maintaining genetic diversity	The Project Area does not contain a population of south-eastern glossy black-cockatoo, with the nearest recent record occurring 4 km north of the Project Area. The species was not recorded during the field survey. Therefore, the Project Area does not contain a population that is necessary for maintaining genetic diversity.
Populations that are near the limit of the species' range	The Project Area is not located at the limit of the species' range.
Assessment as an important population	**The Project Area does not contain an important population of south-eastern glossy black-cockatoo.**

TABLE D1-21: SIGNIFICANT IMPACT ASSESSMENT – SOUTH-EASTERN GLOSSY BLACK-COCKATOO

Criteria	Description
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** The estimated population of south-eastern glossy black-cockatoo individuals is 7,500 (DCCEEW, 2022). There are no records of the species occurring within the Project Area, and the Project Area does not support an important population of the species (Table D1-20). Impacts to 0.1 ha of potential foraging habitat will not lead to a long-term decrease in the size of an important population of a species. A significant impact is unlikely to occur.
Reduce the area of occupancy of an important population	**Unlikely** The area of occupancy of the south-eastern glossy black-cockatoo is estimated at 40,000 km^2 (DCCEEW, 2022). As per the important population assessment in Table D1-20, the Project Area does not support an important population of south-eastern glossy black-cockatoo; and the Project will not reduce the area of occupancy of an important population. A significant impact is unlikely to occur.
Fragment an existing important population into two or more populations	**Unlikely** As per the important population assessment in Table D1-20, the Project Area does not support an important population of south-eastern glossy black-cockatoo. Therefore, impacts to 0.1 ha of foraging habitat will not fragment an existing important population into two or more populations. A significant impact is unlikely to occur.
Adversely affect habitat critical to the survival of a species	**Unlikely** Habitat critical to the survival of the south-eastern glossy black-cockatoo includes foraging habitat dominated by preferred foraging tree species, particularly black sheoak (*Allocasuarina littoralis*) and forest sheoak (*A. torulosa*) within south-east Queensland; however, may also include stringybark sheoak (*A. inophloia*), coastal sheoak (*C. equisetifolia*), and to a lesser extent river sheoak (*C. cunninghamiana*) and swamp sheoak (*C. glauca*) during limited times of the year (DCCEEW, 2022) Critical breeding habitat is defined as areas dominated by narrow-leaved ironbark (*Eucalyptus crebra*), blue-leaved ironbark (*E. nubila*) and Blakely's red gum (*E. blakelyi*) AND contain the following nest hollow traits: • >8 m above ground; • Located in branches >30 cm in diameter; • Branch or stem no more than 45o from vertical; and • Minimum entrance diameter of >15 cm. The Project Area does not contain breeding habitat for the species, as large hollows were not observed during the field survey. The Project Area does contain potential foraging habitat for the species; however, targeted ort searches within this habitat confirmed no chewed orts, and thus, the absence of habitat use by the south-eastern glossy black-cockatoo. Given the relatively minimal amount of habitat to be impacted (0.1 ha), the availability of preferrable habitat outside the Project Area, and the ecological context of this habitat, the Project will not adversely affect habitat critical to the survival of a species. A significant impact is unlikely to occur.

Criteria	Description
Disrupt the breeding cycle of an important population	**Unlikely** As per the important population assessment in Table D1-20, the Project Area does not support an important population of south-eastern glossy black-cockatoo. The Project Area does not contain breeding habitat for the species. Therefore, impacts to 0.1 ha of foraging habitat will not disrupt the breeding cycle of an important population. A significant impact is unlikely to occur.
Modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The Project Area contains 0.3 ha of potential foraging habitat for the species; however, targeted ort searches within this habitat confirmed no chewed orts, and thus, the absence of habitat use by the south-eastern glossy black-cockatoo. Additionally, the Project Area does not contain breeding habitat for the species, as large hollows were not observed during the field survey. Habitat within the Project Area is subject to existing disturbances, given the nature of the Project (being widening of an existing busy road). The relatively minimal amount of habitat which will be impacted (0.1 ha) is not likely to significantly impact the species, particularly as the species has not been recorded utilising this habitat. Furthermore, mitigation and management measures will be implemented to minimise potential direct and indirect impacts, including pre-clearance surveys. With these measures and the existing disturbances present within the Project Area, the Project will not modify or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is unlikely to occur.
Result in invasive species that is harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** The species is not threatened by invasive species, as feral cats and European red foxes do not appear to be a major threat (DCCEEW, 2022). The Project will implement appropriate management and mitigation measures, including a weed and pest management plan, to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Introduce disease that may cause the species to decline	**Unlikely** The south-eastern glossy black-cockatoo is threatened by Psittacine Beak and Feather Disease, a potentially fatal disease caused by psittacine circovirus, typically transferring between adults, nestlings and contaminated nest hollows (DCCEEW, 2022). Despite this, the threat is considered relatively low. Psittacine Beak and Feather Disease is not transmitted by humans or human development. The Project will implement appropriate mitigation and management measures to reduce any risks of diseases. Therefore, with the appropriate management and mitigation measures applied, the Project will not introduce disease that may cause the species to decline, and a significant impact is unlikely to occur.
Interfere with the recovery of the species	**Unlikely** There is no adopted or made Recovery Plan for this species; however a recovery plan is required (DCCEEW, 2026). The conservation advice lists the following conservation objectives: • Long term (10+ years):

Criteria	Description
	◦ The subspecies' population is stable, such that it no longer qualifies for listing as threatened under the EPBC Act listing criteria. • Short term (5 – 10 years): ◦ Protect, enhance extent and quality of habitat across the subspecies' range; ◦ Address critical knowledge gaps of the subspecies' ecological needs to guide and refine management strategies; and ◦ Enhance community awareness and stewardship of the conservation of the subspecies. The south-eastern glossy black-cockatoo has not been recorded within the Project Area, and targeted ort searches in potential foraging habitat confirmed the absence of the species. Potential foraging habitat for the species is subject to existing disturbance, including continuous road noise, given the nature of the Project. Impacts to 0.1 ha of potential foraging habitat will not interfere with the recovery of the species. A significant impact is unlikely to occur.
Assessment of potential for significant impacts	**The Project is unlikely to result in a significant impact to south-eastern glossy black-cockatoo**

D1.3 LISTED MIGRATORY SPECIES

D1.3.1 LISTED MIGRATORY SPECIES LIKELY TO OCCUR

D1.3.1.1 FORK-TAILED SWIFT

The Project is unlikely to result in a significant impact to fork-tailed swift (*Apus pacificus*).

The fork-tailed swift is listed as migratory under the EPBC Act and is assessed as likely to occur above the Project Area.

The field surveys did not identify fork-tailed swift within the Project Area; however, there are four records of the species occurring within the Locality (ALA, 2026). Of these records, three occur to the west, approximately <1 km away and are dated 2017, 2018 and 2019; and one occurs 1 km to the north of the Project Area. As the distribution of the species overlaps with the area, and the species has the potential to occur aerially over the entirety of the Project Area, their presence cannot be ruled out entirely.

Potential foraging habitat for fork-tailed swift over dry open habitats is present across the entirety of the Project Area, where the species would forage aerially. The aerial environment does not constitute habitat, and therefore no applicable habitat for the fork-tailed swift has been mapped.

A significant impact assessment against the SIG1.1 for the fork-tailed swift is presented in Table D1-22.

TABLE D1-22: SIGNIFICANT IMPACT ASSESSMENT – FORK-TAILED SWIFT

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** The Referral Guideline for 14 birds listed as migratory species under the EPBC Act (DoE, 2015) defines important habitat for the fork-tailed swift as "*non-breeding habitat only, found across a range of habitats, from inland open plains to wooded areas, where it is exclusively aerial*". The Project Area does not contain any land-based habitat for the species; however, provides aerial foraging space across the entire Project Area. The species has not been recorded over the Project Area. As the species is an aerial visitor and no land-based habitat is mapped, the Project will not substantially modify, destroy or isolate an area of important habitat for a migratory species and a significant impact is unlikely to occur.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The fork-tailed swift is not known to be threatened by invasive species and the Project Area does not contain important habitat for the species. Therefore, the Project will not result in establishing a harmful species in an area of important habitat. A significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** In Australia, the fork-tailed swift is almost exclusively aerial, foraging during flight (DCCEEW, 2026). The species is a non-breeding visitor to Australia and generally breeds on mainland Asia. The Project Area does not contain any land-based habitat (i.e., roosting habitat) for the species; however, the species may occur aerially. Additionally, an ecologically significant proportion of the population of fork-tailed swift is 100 individuals (0.1% as nationally important) (DoE, 2015), and as no individuals are known to occur within or flying above the Project Area, the Project Area does not contain an ecologically significant proportion of the population. Therefore, a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to fork-tailed swift.**

D1.3.2 LISTED MIGRATORY SPECIES POTENTIAL TO OCCUR

D1.3.2.1 COMMON SANDPIPER

The Project is unlikely to result in a significant impact to the common sandpiper (*Actitis hypoleucos*).

The common sandpiper is listed as migratory under the EPBC Act and is assessed as having the potential to occur within the Project Area.

There are no historically relevant records of this species within the Project Area or Locality. The closest, historically relevant record dated 2017 is approximately 5 km to the east; (ALA, 2026). The field surveys did not identify common sandpiper within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely.

Potential habitat for common sandpiper includes all waterbodies within the Project Area. It is noted that the Project Area does not contain substantial waterbodies. Potential habitat occurs across 0.1 ha of the Project Area, of which, less than 1 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the common sandpiper is presented in Table D1-23.

TABLE D1-23: SIGNIFICANT IMPACT ASSESSMENT – COMMON SANDPIPER

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Areas of national importance within Queensland include south-eastern Gulf of Carpentaria and the Cairns Foreshore. As such, the Project Area is not considered an important site for the species. The Project Area contains 0.1 ha of potential habitat for the species, of which, less than 0.1 ha is expected to be impacted. The Project Area does not contain important habitat for the species, as the species has not been recorded, and therefore, impacts to less than 0.1 ha will not substantially modify, destroy or isolate an area of important habitat and a significant impact is unlikely to occur.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The common sandpiper is not threatened by invasive species (DCCEEW, 2026) and the Project Area does not contain important habitat for the species. Therefore, the Project will not result in establishing a harmful species in an area of important habitat. A significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The common sandpiper breeds in far east Russia, and does not breed in Australia (DCCEEW, 2026). There are no records of the common sandpiper within the Project Area, and the species was not recorded during the field survey. Therefore, the Project Area does not contain an ecologically significant proportion of the population, and impacts to less than 0.1 ha are considered insignificant.
Significant Impact:	**The Project is unlikely to result in a significant impact to the common sandpiper.**

D1.3.2.2 PECTORAL SANDPIPER

The Project is unlikely to result in a significant impact to the pectoral sandpiper (*Calidris melanotos*).

The pectoral sandpiper is listed as migratory under the EPBC Act and is assessed as having the potential to occur within the Project Area.

There are no historically relevant records within the Project Area or Locality. The closest, recent record is 2.2 km to the east and dated 2023. Additionally, there is one historic record within the Locality <1 km to the south, dated 1993 (ALA, 2026). The field surveys did not identify pectoral sandpiper within the Project Area; however, as the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely.

Potential habitat for pectoral sandpiper includes all waterbodies within the Project Area. It is noted that the Project Area does not contain substantial waterbodies. Potential habitat occurs across 0.1 ha of the Project Area, of which, less than 1 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the pectoral sandpiper is presented in Table D1-24.

TABLE D1-24: SIGNIFICANT IMPACT ASSESSMENT – PECTORAL SANDPIPER

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Areas of national importance within Queensland are defined in the Australian National Directory of Important Migratory Shorebird Habitat (Birdlife Australia, 2025). The Project Area is not listed as an important site for the species, and the species is not known to occur within the Project Area. Therefore, impacts to less than 0.1 ha will not substantially modify, destroy or isolate an area of important habitat and a significant impact is unlikely to occur.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The pectoral sandpiper is not threatened by invasive species (DCCEEW, 2026) and the Project Area does not contain important habitat for the species. Therefore, the Project will not result in establishing a harmful species in an area of important habitat. A significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The pectoral sandpiper does not breed in Australia (DCCEEW, 2026) and there are no records of the species within the Project Area. Therefore, the Project Area does not contain an ecologically significant proportion of the population, and impacts to less than 0.1 ha are considered insignificant.

Criteria	Description
Significant Impact:	**The Project is unlikely to result in a significant impact to the pectoral sandpiper.**

D1.3.2.3 ORIENTAL CUCKOO

The Project is unlikely to result in a significant impact to the oriental cuckoo (*Cuculus optatus*).

The oriental cuckoo is listed as migratory under the EPBC Act and is assessed as having the potential to occur within the Project Area.

The field surveys did not identify oriental cuckoo within the Project Area; however, there are three records located within the Locality 1 km west from the Project Area dated 2017, 2018 and 2020 (ALA, 2026). As the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely.

The Project Area does not contain breeding habitat for this species. The Project Area contains 4.3 ha of potential foraging habitat for oriental cuckoo; of which, 1.7 ha is expected to be impacted by the Project.

A significant impact assessment against the SIG1.1 for the oriental cuckoo is presented in Table D1-25Table D1-22.

TABLE D1-25: SIGNIFICANT IMPACT ASSESSMENT – ORIENTAL CUCKOO

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Important habitat for the oriental cuckoo is defined as monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habitat types. Riparian forest is favoured habitat in the Kimberley region (DoE, 2015). The Project Area contains 4.3 ha of habitat for the species; however, is not considered to represent important habitat due to its degraded and fragmented condition, resulting from disturbance associated with the existing road corridor and weed encroachment. Additionally, the species has not been recorded within the Project Area. Therefore, impacts to 1.7 ha of oriental cuckoo habitat is considered insignificant.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** The oriental cuckoo is not known to be threatened by invasive species and the Project Area does not contain important habitat for the species. Therefore, the Project will not result in establishing a harmful species in an area of important habitat. A significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an	**Unlikely** In Australia, the oriental cuckoo occurs as a non-breeding visitor and inhabits monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. The Project Area

Criteria	Description
ecologically significant proportion of the population of a migratory species	contains 4.3 ha of habitat for the species, of which 1.7 ha will be impacted by the Project. An ecologically significant proportion of the population of oriental cuckoo is 1,000 individuals (0.1% as nationally important) (DoE, 2015), and as no individuals are known to occur within the Project Area, the Project Area does not contain an ecologically significant proportion of the population. Therefore, a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the oriental cuckoo.**

D1.3.2.4 OSPREY

The Project is unlikely to result in a significant impact to the osprey (*Pandion halieatus*).

The osprey is listed as migratory under the EPBC Act and is assessed as known to occur within the Project Area.

The osprey was not recorded within the Project Area during the field survey, and there are no desktop records of the species within the Project Area. There is one record within the Locality 450 m west of the Project Area dated 2025 (ALA, 2026). As the distribution of the species overlaps with the area, and the Project Area contains potential habitat, their presence cannot be ruled out entirely.

The species does not utilise the Project Area for breeding and is therefore considered a potential aerial flyover visitor only for foraging purposes.

A significant impact assessment against the SIG1.1 for the osprey is presented in Table D1-26.

TABLE D1-26: SIGNIFICANT IMPACT ASSESSMENT – OSPREY

Criteria	Description
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**Unlikely** Important habitat for the osprey is defined as bays, estuaries, along tidal stretches of large coastal rivers, mangrove swamps, coral and rock reefs, terrestrial wetlands and coastal lands of tropical and temperate Australia and offshore islands (DoE, 2015). The species does not utilise the Project Area for breeding and is therefore considered a potential aerial flyover visitor only for foraging purposes. Waterbodies within the Project Area consist of farm dams, which are not listed as important habitat for the species. The nature of the Project is not likely to alter the availability of foraging opportunity for the species, should it utilise the Project Area, and therefore, a significant impact is unlikely to occur.

Criteria	Description
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**Unlikely** Any species that greatly reduce fish abundance are considered invasive to the osprey (DoE, 2015). The Project will implement appropriate management and mitigation measures to reduce the risk of an invasive species becoming established in the species' habitat. With the implementation of management and mitigation measures, a significant impact is unlikely to occur.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**Unlikely** The Project Area does not contain breeding habitat for the species, and the species may occur as an aerial flyover visitor only for foraging. Waterbodies within the Project Area consist of farm dams, which are not listed as important habitat for the species. An ecologically significant proportion of the population of the osprey is 24 individuals (0.1% as nationally important) (DoE, 2015), and as no individuals are known to occur within the Project Area, the Project Area does not contain an ecologically significant proportion of the population. Therefore, a significant impact is unlikely to occur.
Significant Impact:	**The Project is unlikely to result in a significant impact to the osprey.**

APPENDIX E TREE DATA FOR REMOVAL AND PENDING REMOVAL

Table D1 provides an overview of all trees which will either be removed, or are pending removal, within the Development Footprint. It is noted that any trees highlighted in grey are considered locally important koala trees (as per Youngentob et al., 2021).

TABLE D1: ALL TREES PENDING REMOVAL OR TO BE REMOVED

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Acacia disparrima	Hickory wattle	54	12	8	Fair	Remove
Acacia disparrima	Hickory wattle	43	8	9	Fair	Remove
Acacia disparrima	Hickory wattle	35	6	5	Fair	Remove
Acacia disparrima	Hickory wattle	25	5	4	Fair	Remove
Acacia disparrima	Hickory wattle	35	7	6	Fair	Remove
Acacia disparrima	Hickory wattle	40	7	5	Fair	Remove
Acacia disparrima	Hickory wattle	23	6	4	Fair	Remove
Acacia disparrima	Hickory wattle	31	6	4	Fair	Remove
Acacia disparrima	Hickory wattle	34	10	5	Fair	Remove
Acacia disparrima	Hickory wattle	23	10	5	Fair	Remove
Acacia disparrima	Hickory wattle	36	8	7	Fair	Remove
Acacia disparrima	Hickory wattle	25	9	5	Fair	Remove
Acacia disparrima	Hickory wattle	24	7	4	Poor	Remove
Acacia disparrima	Hickory wattle	28	7	7	Poor	Remove
Acacia disparrima	Hickory wattle	23	9	6	Poor	Remove
Acacia disparrima	Hickory wattle	30	8	6	Fair	Remove
Acacia disparrima	Hickory wattle	33	16	5	Poor	Remove
Acacia disparrima	Hickory wattle	24	5	7	Fair	Remove
Acacia disparrima	Hickory wattle	21	8	5	Fair	Remove
Acacia leiocalyx	Black wattle	27	6	6	Fair	Remove
Acacia leiocalyx	Black wattle	38	5	7	Poor	Remove
Agathis robusta	Queensland kauri	27	13	4	Fair	Remove
Agathis robusta	Queensland kauri	25	13	4	Fair	Remove
Agathis robusta	Queensland kauri	20	13	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Allocasuarina littoralis	Black she-oak	23	4	5	Fair	Remove
Allocasuarina littoralis	Black she-oak	35	8	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	29	7	5	Fair	Remove
Allocasuarina littoralis	Black she-oak	38	7	9	Fair	Remove
Allocasuarina littoralis	Black she-oak	29	15	7	Fair	Remove
Allocasuarina littoralis	Black she-oak	24	15	6	Fair	Remove
Allocasuarina littoralis	Black she-oak	42	16	6	Fair	Remove
Allocasuarina littoralis	Black she-oak	22	9	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	27	7	5	Fair	Remove
Allocasuarina littoralis	Black she-oak	21	6	3	Fair	Remove
Allocasuarina littoralis	Black she-oak	28	6	3	Fair	Remove
Allocasuarina littoralis	Black she-oak	28	7	3	Fair	Remove
Allocasuarina littoralis	Black she-oak	26	5	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	32	5	3	Fair	Remove
Allocasuarina littoralis	Black she-oak	30	7	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	36	14	6	Fair	Remove
Allocasuarina littoralis	Black she-oak	30	13	5	Poor	Remove
Allocasuarina littoralis	Black she-oak	46	10	7	Poor	Remove
Allocasuarina littoralis	Black she-oak	22	10	3	Very poor	Remove
Allocasuarina littoralis	Black she-oak	45	9	7	Poor	Remove
Allocasuarina littoralis	Black she-oak	28	7	7	Fair	Remove
Allocasuarina littoralis	Black she-oak	26	15	7	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Allocasuarina littoralis	Black she-oak	27	10	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	27	10	4	Fair	Remove
Allocasuarina littoralis	Black she-oak	24	16	7	Poor	Remove
Allocasuarina littoralis	Black she-oak	26	7	5	Poor	Remove
Allocasuarina littoralis	Black she-oak	35	12	7	Fair	Remove
Allocasuarina littoralis	Black she-oak	38	12	7	Fair	Remove
Allocasuarina littoralis	Black she-oak	33	12	7	Fair	Remove
Allocasuarina littoralis	Black she-oak	18	8	5	Poor	Remove
Alphitonia excelsa	Soap tree/red ash	20	5	3	Fair	Remove
Alphitonia excelsa	Soap tree/red ash	20	4	3	Fair	Remove
Alphitonia excelsa	Soap tree/red ash	29	3	4	Poor	Remove
Angophora floribunda	Rough barked apple	23	9	5	Fair	Remove
Angophora floribunda	Rough barked apple	16	11	6	Fair	Remove
Angophora woodsiana	Smudgee	33	8	4	Poor	Remove
Angophora woodsiana	Smudgee	21	10	4	Fair	Remove
Angophora woodsiana	Smudgee	23	10	4	Fair	Remove
Angophora woodsiana	Smudgee	32	10	4	Fair	Remove
Angophora woodsiana	Smudgee	19	10	4	Fair	Remove
Angophora woodsiana	Smudgee	26	10	4	Fair	Remove
Angophora woodsiana	Smudgee	24	10	4	Fair	Remove
Angophora woodsiana	Smudgee	26	11	5	Fair	Remove
Angophora woodsiana	Smudgee	26	11	5	Poor	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Angophora woodsiana	Smudgee	52	14	8	Good	Remove
Angophora woodsiana	Smudgee	19	8	4	Fair	Remove
Angophora woodsiana	Smudgee	22	10	4	Fair	Remove
Angophora woodsiana	Smudgee	43	7	6	Fair	Remove
Angophora woodsiana	Smudgee	20	8	5	Fair	Remove
Angophora woodsiana	Smudgee	24	9	5	Fair	Remove
Angophora woodsiana	Smudgee	27	9	5	Fair	Remove
Angophora woodsiana	Smudgee	53	10	8	Fair	Remove
Angophora woodsiana	Smudgee	25	10	8	Fair	Remove
Angophora woodsiana	Smudgee	25	12	5	Fair	Remove
Angophora woodsiana	Smudgee	43	16	6	Fair	Remove
Angophora woodsiana	Smudgee	33	14	8	Fair	Remove
Angophora woodsiana	Smudgee	42	14	7	Fair	Remove
Araucaria bidwillii	Bunya bunya pine	49	11	7	Fair	Remove
Araucaria columnaris	Cook pine	50	15	4	Fair	Remove
Araucaria columnaris	Cook pine	65	15	4	Fair	Remove
Araucaria cunninghamii var. Cunninghamii	Hoop pine	58	18	6	Fair	Remove
Araucaria cunninghamii var. Cunninghamii	Hoop pine	37	18	6	Poor	Remove
Araucaria cunninghamii var. Cunninghamii	Hoop pine	46	13	6	Fair	Remove
Araucaria cunninghamii var. Cunninghamii	Hoop pine	19	11	2	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Backhousia citriodora	Lemon scented myrtle	31	8	4	Fair	Remove
Backhousia citriodora	Lemon scented myrtle	39	7	5	Fair	Remove
Backhousia citriodora	Lemon scented myrtle	39	7	5	Fair	Remove
Bauhinia variegata	Orchid tree	26	7	6	Fair	Remove
Bauhinia variegata	Orchid tree	29	9	6	Fair	Remove
Bauhinia variegata	Orchid tree	25	9	6	Fair	Remove
Brachychiton acerifolius	Flame tree	31	8	3	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	30	7	5	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	21	7	5	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	21	7	5	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	22	5	4	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	24	5	4	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	24	5	6	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	25	7	6	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	29	7	6	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	27	5	3	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	22	11	7	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	36	8	6	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	26	6	3	Fair	Remove
Buckinghamia celsissima	Ivory curl tree	27	6	5	Fair	Remove
Callitris columellaris	Bribie island pine	75	15	7	Fair	Pending
Callitris columellaris	Bribie island pine	43	13	7	Fair	Pending
Callitris columellaris	Bribie island pine	52	13	7	Fair	Pending

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Callitris columellaris	Bribie island pine	65	14	7	Fair	Pending
Callitris columellaris	Bribie island pine	75	16	8	Fair	Pending
Callitris columellaris	Bribie island pine	75	16	8	Fair	Pending
Callitris columellaris	Bribie island pine	69	16	8	Fair	Pending
Callitris columellaris	Bribie island pine	68	16	8	Fair	Pending
Callitris columellaris	Bribie island pine	62	12	8	Fair	Pending
Callitris columellaris	Bribie island pine	74	16	8	Fair	Pending
Cassia fistula	Golden shower tree	30	7	5	Poor	Remove
Casuarina cunninghamiana	River she-oak	76	15	10	Fair	Remove
Celtis sinensis	Chinese elm	53	18	20	Fair	Remove
Corymbia citriodora subsp. Variegata	Lemon-scented gum	66	21	13	Fair	Pending
Corymbia citriodora subsp. Variegata	Lemon-scented gum	41	15	5	Fair	Pending
Corymbia citriodora subsp. Variegata	Lemon-scented gum	53	19	14	Fair	Remove
Corymbia citriodora subsp. Variegata	Lemon-scented gum	60	15	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	85	20	15	Fair	Pending
Corymbia intermedia	Pink bloodwood	107	20	15	Fair	Pending
Corymbia intermedia	Pink bloodwood	85	22	13	Fair	Pending
Corymbia intermedia	Pink bloodwood	55	14	6	Fair	Pending
Corymbia intermedia	Pink bloodwood	46	14	6	Fair	Pending
Corymbia intermedia	Pink bloodwood	31	13	6	Fair	Pending
Corymbia intermedia	Pink bloodwood	68	18	11	Fair	Pending
Corymbia intermedia	Pink bloodwood	52			Fair	Pending
Corymbia intermedia	Pink bloodwood	64	21	11	Fair	Pending
Corymbia intermedia	Pink bloodwood	76	19	13	Fair	Pending

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Corymbia intermedia	Pink bloodwood	60	16	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	44	16	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	20	11	3	Fair	Remove
Corymbia intermedia	Pink bloodwood	111	19	11	Fair	Remove
Corymbia intermedia	Pink bloodwood	54	18	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	56	14	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	54	8	9	Fair	Remove
Corymbia intermedia	Pink bloodwood	66	24	11	Fair	Remove
Corymbia intermedia	Pink bloodwood	63	14	9	Fair	Remove
Corymbia intermedia	Pink bloodwood	36	13	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	65	13	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	34	8	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	32	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	55	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	48	16	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	51	10	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	52	13	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	43	13	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	58	15	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	58	15	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	61	11	10	Good	Remove
Corymbia intermedia	Pink bloodwood	36	10	7	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Corymbia intermedia	Pink bloodwood	54	15	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	10	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	44	8	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	72	13	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	54	14	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	51	14	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	26	10	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	43	15	9	Fair	Remove
Corymbia intermedia	Pink bloodwood	43	15	9	Fair	Remove
Corymbia intermedia	Pink bloodwood	29	12	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	46	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	57	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	37	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	28	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	19	10	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	25	12	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	40	12	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	47	12	10	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	12	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	30	8	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	35	6	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Corymbia intermedia	Pink bloodwood	48	17	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	65	17	11	Fair	Remove
Corymbia intermedia	Pink bloodwood	29	12	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	20	11	3	Fair	Remove
Corymbia intermedia	Pink bloodwood	30	14	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	25	14	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	40	15	11	Fair	Remove
Corymbia intermedia	Pink bloodwood	30	13	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	25	13	5	Poor	Remove
Corymbia intermedia	Pink bloodwood	53	14	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	23	12	4	Poor	Remove
Corymbia intermedia	Pink bloodwood	33	12	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	19	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	23	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	24	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	37	17	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	35	24		Fair	Remove
Corymbia intermedia	Pink bloodwood	25	15	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	21	10	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	52	18	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	65	20	17	Fair	Remove
Corymbia intermedia	Pink bloodwood	47	17	8	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Corymbia intermedia	Pink bloodwood	33	18	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	55	21	16	Fair	Remove
Corymbia intermedia	Pink bloodwood	27	19	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	48	20	16	Fair	Remove
Corymbia intermedia	Pink bloodwood	51	17	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	28	15	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	46	15	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	35	8	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	21	8	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	37	13	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	45	13	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	30	12	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	23	8	3	Fair	Remove
Corymbia intermedia	Pink bloodwood	25	15	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	14	4	Fair	Remove
Corymbia intermedia	Pink bloodwood	42	16	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	27	18	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	50	21	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	35	18	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	21	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	48	22	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	30	13	5	Poor	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Corymbia intermedia	Pink bloodwood	50	22	8	Fair	Remove
Corymbia intermedia	Pink bloodwood	25	11	7	Poor	Remove
Corymbia intermedia	Pink bloodwood	53	19	8	Poor	Remove
Corymbia intermedia	Pink bloodwood	26	10	4	Poor	Remove
Corymbia intermedia	Pink bloodwood	46	16	8	Poor	Remove
Corymbia intermedia	Pink bloodwood	44	16	7	Dead	Remove
Corymbia intermedia	Pink bloodwood	31	14	6	Fair	Remove
Corymbia intermedia	Pink bloodwood	59	10	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	39	11	7	Fair	Remove
Corymbia intermedia	Pink bloodwood	23	8	5	Fair	Remove
Corymbia intermedia	Pink bloodwood	31	11	5	Fair	Remove
Corymbia tessellaris	Carbeen	33	14	6	Fair	Remove
Corymbia tessellaris	Carbeen	26	14	4	Fair	Remove
Corymbia tessellaris	Carbeen	19	8	3	Fair	Remove
Corymbia tessellaris	Carbeen	40	16	6	Fair	Remove
Corymbia torelliana	Cadaghi	63	18	7	Fair	Remove
Corymbia torelliana	Cadaghi	49	12	7	Fair	Remove
Corymbia torelliana	Cadaghi	69	12	7	Fair	Remove
Corymbia torelliana	Cadaghi	19	8	4	Fair	Remove
Corymbia torelliana	Cadaghi	58	14	7	Fair	Remove
Corymbia torelliana	Cadaghi	62	14	7	Fair	Remove
Corymbia torelliana	Cadaghi	76	14	7	Fair	Remove
Corymbia torelliana	Cadaghi	37	14	7	Fair	Remove
Corymbia torelliana	Cadaghi	69	14	10	Fair	Remove
Cupaniopsis anacardioides	Tuckeroo	33	8	5	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Delonix regia	Royal poinciana	74	8	15	Fair	Pending
Delonix regia	Royal poinciana	90	6	15	Fair	Remove
Delonix regia	Royal poinciana	33	6	8	Fair	Remove
Delonix regia	Royal poinciana	31	7	7	Fair	Remove
Delonix regia	Royal poinciana	48	4	10	Fair	Remove
Elaeocarpus eumundi	Eumundi quandong	44	6	5	Fair	Remove
Elaeocarpus grandis	Blue quandong	29	15	7	Fair	Remove
Eucalyptus carnea	Broad-leaved white mahogany	57	14	8	Fair	Remove
Eucalyptus curtisii	Plunkett mallee	29	12	8	Fair	Remove
Eucalyptus curtisii	Plunkett mallee	13	12	8	Fair	Remove
Eucalyptus curtisii	Plunkett mallee	26	12	8	Fair	Remove
Eucalyptus grandis	Flooded gum	61	17	9	Fair	Pending
Eucalyptus grandis	Flooded gum	59	15	8	Poor	Remove
Eucalyptus grandis	Flooded gum	66	12	9	Fair	Remove
Eucalyptus grandis	Flooded gum	85	16	12	Fair	Remove
Eucalyptus grandis	Flooded gum	53	16	12	Fair	Remove
Eucalyptus microcorys	Tallow wood	34	9	8	Fair	Remove
Eucalyptus microcorys	Tallow wood	57	17	14	Good	Remove
Eucalyptus microcorys	Tallow wood	45	17	14	Good	Remove
Eucalyptus microcorys	Tallow wood	41	17	14	Fair	Remove
Eucalyptus microcorys	Tallow wood	35	14	8	Fair	Remove
Eucalyptus microcorys	Tallow wood	39	19	13	Fair	Remove
Eucalyptus microcorys	Tallow wood	40	19	13	Fair	Remove
Eucalyptus microcorys	Tallow wood	84	21	16	Fair	Remove
Eucalyptus microcorys	Tallow wood	94	20	14	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus microcorys	Tallow wood	41	19	10	Fair	Remove
Eucalyptus microcorys	Tallow wood	37	16	8	Fair	Remove
Eucalyptus microcorys	Tallow wood	56	15	7	Fair	Remove
Eucalyptus microcorys	Tallow wood	34	14	5	Fair	Remove
Eucalyptus microcorys	Tallow wood	58	17	10	Fair	Remove
Eucalyptus microcorys	Tallow wood	29	8	4	Fair	Remove
Eucalyptus microcorys	Tallow wood	38	19	7	Fair	Remove
Eucalyptus microcorys	Tallow wood	68	21	10	Fair	Remove
Eucalyptus microcorys	Tallow wood	30	13	4	Poor	Remove
Eucalyptus microcorys	Tallow wood	27	22	5	Fair	Remove
Eucalyptus microcorys	Tallow wood	22	17	5	Poor	Remove
Eucalyptus microcorys	Tallow wood	44	20	7	Fair	Remove
Eucalyptus microcorys	Tallow wood	55	23	7	Poor	Remove
Eucalyptus microcorys	Tallow wood	31	16	7	Fair	Remove
Eucalyptus microcorys	Tallow wood	57	16	9	Fair	Remove
Eucalyptus microcorys	Tallow wood	18	15	7	Fair	Remove
Eucalyptus pilularis	Blackbutt	37	13	7	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	132	21	15	Fair	Pending
Eucalyptus racemosa	Queensland scribbly gum	98	21	11	Fair	Pending
Eucalyptus racemosa	Queensland scribbly gum	127	25	15	Fair	Pending
Eucalyptus racemosa	Queensland scribbly gum	100	17	9	Fair	Pending
Eucalyptus racemosa	Queensland scribbly gum	85	18	11	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus racemosa	Queensland scribbly gum	37	14	9	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	88	23	14	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	67	19	11	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	35	12	6	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	71	15	9	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	154	18	12	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	45	14	9	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	40	11	6	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	32	11	6	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	38	14	5	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	32	12	6	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	50	15	8	Fair	Remove
Eucalyptus racemosa	Queensland scribbly gum	22	12	4	Fair	Remove
Eucalyptus resinifera	Red mahogany	51	11	6	Fair	Remove
Eucalyptus resinifera	Red mahogany	36	12	7	Fair	Remove
Eucalyptus resinifera	Red mahogany	86	19	10	Fair	Remove
Eucalyptus resinifera	Red mahogany	43	14	8	Fair	Remove
Eucalyptus resinifera	Red mahogany	81	19	12	Fair	Remove
Eucalyptus resinifera	Red mahogany	32	18	7	Fair	Remove
Eucalyptus resinifera	Red mahogany	34	19	7	Fair	Remove
Eucalyptus resinifera	Red mahogany	28	19	7	Fair	Remove
Eucalyptus resinifera	Red mahogany	57	22	16	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus resinifera	Red mahogany	24	18	7	Fair	Remove
Eucalyptus resinifera	Red mahogany	51	18	10	Fair	Remove
Eucalyptus resinifera	Red mahogany	74	19	11	Fair	Remove
Eucalyptus resinifera	Red mahogany	18	6	3	Fair	Remove
Eucalyptus resinifera	Red mahogany	20	6	3	Fair	Remove
Eucalyptus resinifera	Red mahogany	53	12	6	Fair	Remove
Eucalyptus resinifera	Red mahogany	68	16	8	Fair	Remove
Eucalyptus resinifera	Red mahogany	42	16	8	Fair	Remove
Eucalyptus resinifera	Red mahogany	55	17	6	Fair	Remove
Eucalyptus resinifera	Red mahogany	51	7	7	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	48	11	8	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	26	7	4	Poor	Remove
Eucalyptus seeana	Narrow leaf red gum	33	7	4	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	26	14	8	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	20	9	4	Poor	Remove
Eucalyptus seeana	Narrow leaf red gum	35	12	4	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	23	9	3	Poor	Remove
Eucalyptus seeana	Narrow leaf red gum	86	18	17	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	22	7	2	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	35	14	6	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	27	17	5	Fair	Remove
Eucalyptus seeana	Narrow leaf red gum	37	8	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus seeana	Narrow leaf red gum	39	8	4	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	76	15	10	Fair	Pending
Eucalyptus siderophloia	Northern grey ironbark	92	20	10	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	60	18	9	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	65	18	9	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	65	16	7	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	82	20	10	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	56	16	8	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	24	16	8	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	77	18	12	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	38	10	5	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	52	13	6	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	25	10	4	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	99	20	12	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	43	11	7	Fair	Remove
Eucalyptus siderophloia	Northern grey ironbark	49	11	5	Fair	Remove
Eucalyptus tereticornis	Forest red gum	44	14	6	Fair	Pending
Eucalyptus tereticornis	Forest red gum	51	14	6	Fair	Pending
Eucalyptus tereticornis	Forest red gum	88	18	10	Fair	Pending
Eucalyptus tereticornis	Forest red gum	94	20	10	Fair	Remove
Eucalyptus tereticornis	Forest red gum	45	20	8	Fair	Remove
Eucalyptus tereticornis	Forest red gum	39	20	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus tereticornis	Forest red gum	57	17	8	Fair	Remove
Eucalyptus tereticornis	Forest red gum	45	20	7	Fair	Remove
Eucalyptus tereticornis	Forest red gum	35	20	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	28	18	4	Fair	Remove
Eucalyptus tereticornis	Forest red gum	20	12	3	Fair	Remove
Eucalyptus tereticornis	Forest red gum	57	17	7	Fair	Remove
Eucalyptus tereticornis	Forest red gum	67	12	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	31	15	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	35	17	7	Fair	Remove
Eucalyptus tereticornis	Forest red gum	22	14	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	34	16	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	34	16	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	34	13	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	46	13	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	27	14	6	Fair	Remove
Eucalyptus tereticornis	Forest red gum	23	16	5	Fair	Remove
Eucalyptus tereticornis	Forest red gum	56	22	14	Fair	Remove
Eucalyptus tereticornis	Forest red gum	42	17	7	Fair	Remove
Eucalyptus tereticornis	Forest red gum	65	22	15	Fair	Remove
Eucalyptus tereticornis	Forest red gum	38	18	8	Fair	Remove
Eucalyptus tereticornis	Forest red gum	30	16	8	Fair	Remove
Eucalyptus tereticornis	Forest red gum	25	10	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Eucalyptus tereticornis	Forest red gum	29	15	7	Fair	Remove
Eucalyptus tindaliae	Tindale's stringybark	37	8	6	Fair	Remove
Eucalyptus tindaliae	Tindale's stringybark	62	16	9	Fair	Remove
Eucalyptus tindaliae	Tindale's stringybark	49	10	8	Fair	Remove
Eucalyptus tindaliae	Tindale's stringybark	22	8	7	Fair	Remove
Eucalyptus tindaliae	Tindale's stringybark	39	8	7	Poor	Remove
Eucalyptus tindaliae	Tindale's stringybark	63	12	7	Fair	Remove
Ficus benjamina	Weeping fig	128	15	18	Fair	Pending
Ficus benjamina	Weeping fig	109	13	8	Fair	Pending
Ficus benjamina	Weeping fig	80	13	8	Fair	Pending
Ficus benjamina	Weeping fig	75	13	8	Fair	Pending
Ficus benjamina	Weeping fig	91	13	8	Fair	Pending
Ficus benjamina	Weeping fig	114	13	8	Fair	Pending
Ficus benjamina	Weeping fig	92	12	7	Fair	Pending
Ficus benjamina	Weeping fig	132	16	20	Fair	Remove
Ficus benjamina	Weeping fig	108	14	20	Fair	Remove
Ficus benjamina	Weeping fig	102	13	10	Fair	Remove
Ficus benjamina	Weeping fig	79	13	8	Fair	Remove
Ficus benjamina	Weeping fig	66	13	8	Fair	Remove
Ficus benjamina	Weeping fig	94	13	8	Fair	Remove
Ficus elastica	Rubber tree	84	14	14	Good	Remove
Ficus obliqua	Small-leaved fig	26	8	7	Fair	Remove
Flacourtia jangomas	Indian plum	38	8	7	Fair	Remove
Flindersia australis	Australian teak	23	7	4	Fair	Remove
Flindersia australis	Australian teak	35			Poor	Remove
Glochidion ferdinandi	Cheese tree	23	8	5	Poor	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Glochidion ferdinandi	Cheese tree	50	8	5	Very poor	Remove
Glochidion ferdinandi	Cheese tree	39	7	7	Fair	Remove
Glochidion ferdinandi	Cheese tree	31	5	6	Fair	Remove
Glochidion ferdinandi	Cheese tree	33	7	5	Fair	Remove
Glochidion ferdinandi	Cheese tree	28	12	6	Fair	Remove
Glochidion ferdinandi	Cheese tree	32	12	6	Fair	Remove
Glochidion sumatranum	Large-leaved cheese tree	58	13	11	Fair	Remove
Glochidion sumatranum	Large-leaved cheese tree	38	7	7	Fair	Remove
Glochidion sumatranum	Large-leaved cheese tree	57	11	6	Fair	Remove
Glochidion sumatranum	Large-leaved cheese tree	20	4	4	Good	Remove
Glochidion sumatranum	Large-leaved cheese tree	32	11	7	Fair	Remove
Grevillea baileyana	White oak	23	5	2	Fair	Remove
Grevillea baileyana	White oak	70	12	9	Fair	Remove
Grevillea robusta	Silky oak	30	12	5	Fair	Remove
Grevillea robusta	Silky oak	16	10	5	Fair	Remove
Grevillea robusta	Silky oak	40	10	5	Fair	Remove
Grevillea robusta	Silky oak	39	10	5	Fair	Remove
Grevillea robusta	Silky oak	35	10	5	Fair	Remove
Grevillea robusta	Silky oak	35	10	5	Fair	Remove
Grevillea robusta	Silky oak	22	13	5	Fair	Remove
Grevillea sp.	Grevillea	46	6	6	Poor	Remove
Harpullia pendula	Tulipwood	22	7	4	Fair	Remove
Harpullia pendula	Tulipwood	29	9	4	Fair	Remove
Harpullia pendula	Tulipwood	29	7	5	Fair	Remove
Harpullia pendula	Tulipwood	34	7	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Harpullia pendula	Tulipwood	32	7	8	Fair	Remove
Heptapleurum actinophyllum	Umbrella tree	37	8	6	Fair	Remove
Hymenosporum flavum	Native frangipani	33	3	2	Fair	Remove
Jacaranda mimosifolia	Jacaranda	121	14	10	Fair	Pending
Jacaranda mimosifolia	Jacaranda	73	9	8	Fair	Remove
Jacaranda mimosifolia	Jacaranda	39	6	5	Fair	Remove
Leptospermum petersonii	Lemon-scented tea-tree	39	6	6	Fair	Remove
Leptospermum petersonii	Lemon-scented tea-tree	28	6	5	Fair	Remove
Leptospermum petersonii	Lemon-scented tea-tree	38	6	6	Fair	Remove
Leptospermum petersonii	Lemon-scented tea-tree	35	4	4	Fair	Remove
Leptospermum petersonii	Lemon-scented tea-tree	23	2	2	Fair	Remove
Libidibia ferrea	Leopard tree	36	9	7	Fair	Remove
Libidibia ferrea	Leopard tree	78	9	8	Fair	Remove
Libidibia ferrea	Leopard tree	83	9	11	Fair	Remove
Lophostemon confertus	Queensland brush box	50	13	8	Fair	Pending
Lophostemon confertus	Queensland brush box	51	9	8	Fair	Remove
Lophostemon confertus	Queensland brush box	77	18	10	Fair	Remove
Lophostemon confertus	Queensland brush box	50	8	6	Fair	Remove
Lophostemon suaveolens	Swamp box	28	8	5	Fair	Remove
Lophostemon suaveolens	Swamp box	29	10	5	Fair	Remove
Lophostemon suaveolens	Swamp box	46	10	4	Fair	Remove
Lophostemon suaveolens	Swamp box	26	13	7	Fair	Remove
Lophostemon suaveolens	Swamp box	50	13	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Lophostemon suaveolens	Swamp box	21	10	3	Fair	Remove
Lophostemon suaveolens	Swamp box	25	14	5	Fair	Remove
Lophostemon suaveolens	Swamp box	19	9	4	Fair	Remove
Lophostemon suaveolens	Swamp box	18	9	4	Fair	Remove
Lophostemon suaveolens	Swamp box	23	14	7	Fair	Remove
Lophostemon suaveolens	Swamp box	26	9	4	Fair	Remove
Lophostemon suaveolens	Swamp box	33	8	4	Fair	Remove
Lophostemon suaveolens	Swamp box	19	8	4	Fair	Remove
Lophostemon suaveolens	Swamp box	22	8	4	Fair	Remove
Lophostemon suaveolens	Swamp box	26	10	3	Poor	Remove
Lophostemon suaveolens	Swamp box	18	9	4	Fair	Remove
Lophostemon suaveolens	Swamp box	26	9	4	Fair	Remove
Lophostemon suaveolens	Swamp box	21	12	4	Fair	Remove
Lophostemon suaveolens	Swamp box	23	12	4	Fair	Remove
Lophostemon suaveolens	Swamp box	29	16	5	Fair	Remove
Lophostemon suaveolens	Swamp box	51	13	7	Fair	Remove
Lophostemon suaveolens	Swamp box	37	8	6	Fair	Remove
Lophostemon suaveolens	Swamp box	20	8	5	Fair	Remove
Lophostemon suaveolens	Swamp box	29	4	3	Fair	Remove
Lophostemon suaveolens	Swamp box	35	14	8	Fair	Remove
Lophostemon suaveolens	Swamp box	37	15	8	Fair	Remove
Lophostemon suaveolens	Swamp box	26	8	3	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Lophostemon suaveolens	Swamp box	28	7	7	Fair	Remove
Lophostemon suaveolens	Swamp box	18	9	6	Fair	Remove
Lophostemon suaveolens	Swamp box	19	8	5	Fair	Remove
Lophostemon suaveolens	Swamp box	24	8	3	Fair	Remove
Macadamia integrifolia	Macadamia tree	27	6	4	Fair	Remove
Macaranga tanarius	Macaranga	69	10	8	Fair	Remove
Macaranga tanarius	Macaranga	27	10	4	Fair	Remove
Macaranga tanarius	Macaranga	16	8	3	Fair	Remove
Macaranga tanarius	Macaranga	46	7	7	Fair	Remove
Mangifera indica	Mango	145	17	12	Fair	Pending
Mangifera indica	Mango	45	9	7	Fair	Remove
Melaleuca bracteata	Black tea-tree	34	6	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	45	6	7	Fair	Remove
Melaleuca bracteata	Black tea-tree	42	6	5	Fair	Remove
Melaleuca bracteata	Black tea-tree	35	5	4	Fair	Remove
Melaleuca bracteata	Black tea-tree	38	7	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	27	6	5	Poor	Remove
Melaleuca bracteata	Black tea-tree	26	6	5	Fair	Remove
Melaleuca bracteata	Black tea-tree	31	6	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	39	7	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	50	7	5	Fair	Remove
Melaleuca bracteata	Black tea-tree	31	6	5	Fair	Remove
Melaleuca bracteata	Black tea-tree	30	7	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	33	7	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	42	6	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	27	6	6	Fair	Remove
Melaleuca bracteata	Black tea-tree	36	8	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca bracteata	Black tea-tree	59	13	9	Fair	Remove
Melaleuca bracteata	Black tea-tree	21	3	4	Fair	Remove
Melaleuca bracteata 'revolution gold'	Revolution gold	36	5	3	Poor	Remove
Melaleuca leucadendra	Weeping paperbark	56	13	8	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	35	8	5	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	80	11	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	67	9	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	108	13	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	81	13	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	95	13	9	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	96	13	9	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	78	13	9	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	83	13	9	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	46	10	5	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	48	10	5	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	59	12	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	64	10	8	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	47	8	4	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	74	10	9	Good	Remove
Melaleuca leucadendra	Weeping paperbark	47	14	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	80	9	10	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	49	9	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca leucadendra	Weeping paperbark	65	10	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	52	11	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	34	9	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	46	9	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	47	12	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	73	12	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	48	11	8	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	60	13	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	91	13	7	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	62	10	6	Fair	Remove
Melaleuca leucadendra	Weeping paperbark	36	7	6	Fair	Remove
Melaleuca linariifolia	Snow in summer	39	12	6	Fair	Remove
Melaleuca linariifolia	Snow in summer	47	6	6	Poor	Remove
Melaleuca linariifolia	Snow in summer	21	4	2	Poor	Remove
Melaleuca linariifolia	Snow in summer	49	4	2	Poor	Remove
Melaleuca linariifolia	Snow in summer	63	4	8	Fair	Remove
Melaleuca linariifolia	Snow in summer	40	2	2	Poor	Remove
Melaleuca linariifolia	Snow in summer	33	3	2	Poor	Remove
Melaleuca linariifolia	Snow in summer	73	4	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	68	12	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	38	12	4	Fair	Remove
Melaleuca quinquenervia	Common paperbark	50	13	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca quinquenervia	Common paperbark	86	17	10	Fair	Remove
Melaleuca quinquenervia	Common paperbark	61	14	10	Fair	Remove
Melaleuca quinquenervia	Common paperbark	58	14	7	Fair	Remove
Melaleuca quinquenervia	Common paperbark	66	13	10	Fair	Remove
Melaleuca quinquenervia	Common paperbark	39	12	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	59	14	11	Fair	Remove
Melaleuca quinquenervia	Common paperbark	77	13	7	Fair	Remove
Melaleuca quinquenervia	Common paperbark	47	15	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	27	14	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	21	8	3	Fair	Remove
Melaleuca quinquenervia	Common paperbark	42	17	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	37	15	3	Fair	Remove
Melaleuca quinquenervia	Common paperbark	25	7	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	33	17	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	36	7	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	31	11	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	42	12	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	53	12	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	45	9	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	32	11	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	50	8	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	35	14	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca quinquenervia	Common paperbark	40	12	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	33	9	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	30	15	8	Fair	Remove
Melaleuca quinquenervia	Common paperbark	30	13	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	35	10	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	26	13	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	25	8	4	Fair	Remove
Melaleuca quinquenervia	Common paperbark	30	8	5	Poor	Remove
Melaleuca quinquenervia	Common paperbark	48	18	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	29			Poor	Remove
Melaleuca quinquenervia	Common paperbark	18	12	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	39	16	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	45	13	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	28	8	5	Fair	Remove
Melaleuca quinquenervia	Common paperbark	45	13	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	36	14	6	Fair	Remove
Melaleuca quinquenervia	Common paperbark	24	8	4	Fair	Remove
Melaleuca quinquenervia	Common paperbark	25	7	5	Fair	Remove
Melaleuca salicina	Willow bottle brush	35	8	4	Fair	Remove
Melaleuca salicina	Willow bottle brush	38	6	4	Poor	Remove
Melaleuca salicina	Willow bottle brush	25	6	4	Fair	Remove
Melaleuca salicina	Willow bottle brush	41	17	7	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca styphelioides	Prickly paperbark	42	10	7	Fair	Remove
Melaleuca styphelioides	Prickly paperbark	65	11	8	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	33	5	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	38	6	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	26	6	3	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	37	6	4	Poor	Remove
Melaleuca viminalis	Weeping bottle brush	59	6	8	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	44	6	5	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	37	8	7	Poor	Remove
Melaleuca viminalis	Weeping bottle brush	40	8	7	Poor	Remove
Melaleuca viminalis	Weeping bottle brush	27	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	46	8	8	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	21	5	3	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	26	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	25	5	4	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	29	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	30	7	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	23	7	5	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	24	6	5	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	28	7	5	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	31	8	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	23	7	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca viminalis	Weeping bottle brush	29	7	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	32	7	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	36	7	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	28	8	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	34	8	10	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	27	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	25	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	34	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	33	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	25	8	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	38	11	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	31	6	7	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	43	7	10	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	28	8	4	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	17	9	3	Poor	Remove
Melaleuca viminalis	Weeping bottle brush	22	5	8	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	21	9	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	28	9	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	31	9	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	29	6	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	31	6	6	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	19	8	5	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Melaleuca viminalis	Weeping bottle brush	28	8	4	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	58	4	11	Fair	Remove
Melaleuca viminalis	Weeping bottle brush	27	6	6	Fair	Remove
Melicope elleryana	Pink evodia	38	6	8	Fair	Remove
Melicope elleryana	Pink evodia	35	6	7	Fair	Remove
Melicope elleryana	Pink evodia	39	6	7	Fair	Remove
Melicope elleryana	Pink evodia	48	6	5	Good	Remove
Melicope elleryana	Pink evodia	18	8	6	Fair	Remove
Peltophorum pterocarpum	Yellow poinciana	22	8	5	Poor	Remove
Peltophorum pterocarpum	Yellow poinciana	22	8	5	Poor	Remove
Peltophorum pterocarpum	Yellow poinciana	30	8	5	Poor	Remove
Peltophorum pterocarpum	Yellow poinciana	26	8	5	Very poor	Remove
Peltophorum pterocarpum	Yellow poinciana	25	8	5	Poor	Remove
Peltophorum pterocarpum	Yellow poinciana	19	8	5	Poor	Remove
Petalostigma trioculare	Forest quinine	24	6	4	Fair	Remove
Pinus elliottii	Slash pine	29	18	3	Fair	Remove
Pinus elliottii	Slash pine	31	11	5	Fair	Remove
Pinus elliottii	Slash pine	35	8	3	Fair	Remove
Pinus elliottii	Slash pine	28	12	6	Fair	Remove
Pinus elliottii	Slash pine	57	12	7	Fair	Remove
Pinus elliottii	Slash pine	28	12	7	Fair	Remove
Pinus elliottii	Slash pine	34	12	4	Fair	Remove
Pinus elliottii	Slash pine	28	12	4	Fair	Remove
Pinus elliottii	Slash pine	31	12	4	Fair	Remove
Pinus elliottii	Slash pine	28	14	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Pinus elliottii	Slash pine	29	12	5	Fair	Remove
Pinus elliottii	Slash pine	30	12	6	Fair	Remove
Pinus elliottii	Slash pine	64	16	7	Fair	Remove
Pinus elliottii	Slash pine	42	13	5	Fair	Remove
Pinus elliottii	Slash pine	44	14	7	Fair	Remove
Pinus elliottii	Slash pine	43	14	5	Fair	Remove
Pinus elliottii	Slash pine	32	14	7	Fair	Remove
Pinus elliottii	Slash pine	36	14	7	Fair	Remove
Pinus elliottii	Slash pine	34	10	5	Fair	Remove
Pinus elliottii	Slash pine	32	15	7	Fair	Remove
Pinus elliottii	Slash pine	65	18	4	Fair	Remove
Pinus elliottii	Slash pine	38	15	6	Fair	Remove
Pinus elliottii	Slash pine	36	10	6	Fair	Remove
Pinus elliottii	Slash pine	44	15	5	Fair	Remove
Pinus elliottii	Slash pine	46	15	8	Fair	Remove
Pinus elliottii	Slash pine	30	13	5	Fair	Remove
Pinus elliottii	Slash pine	28	13	5	Fair	Remove
Pinus elliottii	Slash pine	41	13	5	Fair	Remove
Pinus elliottii	Slash pine	30	10	5	Fair	Remove
Pinus elliottii	Slash pine	47	13	5	Fair	Remove
Pinus elliottii	Slash pine	38	13	5	Fair	Remove
Pinus elliottii	Slash pine	38	13	5	Fair	Remove
Pinus elliottii	Slash pine	36	13	5	Fair	Remove
Pinus elliottii	Slash pine	28	12	6	Fair	Remove
Pinus elliottii	Slash pine	48	12	6	Fair	Remove
Pinus elliottii	Slash pine	24	12	3	Fair	Remove
Pinus elliottii	Slash pine	33	14	3	Fair	Remove
Pinus elliottii	Slash pine	27	13	4	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Pinus elliottii	Slash pine	40	16	6	Fair	Remove
Pinus elliottii	Slash pine	33	18	3	Poor	Remove
Pinus elliottii	Slash pine	25	15	3	Poor	Remove
Pinus elliottii	Slash pine	27			Fair	Remove
Pinus elliottii	Slash pine	22	14	4	Fair	Remove
Pinus elliottii	Slash pine	63	19	12	Fair	Remove
Pinus elliottii	Slash pine	55	18	8	Fair	Remove
Pinus elliottii	Slash pine	26	12	5	Fair	Remove
Pinus elliottii	Slash pine	22	10	5	Fair	Remove
Pinus elliottii	Slash pine	20	10	5	Fair	Remove
Pinus elliottii	Slash pine	20	10	5	Fair	Remove
Pinus elliottii	Slash pine	23	10	5	Fair	Remove
Pinus elliottii	Slash pine	20	10	5	Fair	Remove
Pinus elliottii	Slash pine	21	15	5	Poor	Remove
Pinus elliottii	Slash pine	23	15	5	Fair	Remove
Pinus elliottii	Slash pine	25	15	5	Fair	Remove
Pinus elliottii	Slash pine	33	15	5	Fair	Remove
Pinus elliottii	Slash pine	25	15	5	Fair	Remove
Pinus elliottii	Slash pine	38	22	9	Fair	Remove
Pinus elliottii	Slash pine	54	19	6	Fair	Remove
Planchonella sp.	Coondoo	28	8	6	Fair	Remove
Spathodea campanulata	African tulip tree	38	12	5	Fair	Remove
Stag	Dead tree	58	16	6	Dead	Remove
Stag	Dead tree	52	18	3	Dead	Remove
Syagrus romanzoffiana	Queen palm	20	7	3	Fair	Remove
Syzygium cumini	Jambolan plum	31	6	8	Fair	Remove
Syzygium luehmannii	Small leaved lilly pilly	42	10	6	Fair	Remove

Scientific name	Common name	DSH (cm)	Tree height (m)	Spread (m)	Tree health	Retention
Syzygium luehmannii	Small leaved lilly pilly	28	7	4	Fair	Remove
Syzygium moorei	Coolamon	27	3	2	Fair	Remove
Syzygium moorei	Coolamon	26	3	2	Fair	Remove
Syzygium moorei	Coolamon	28	5	3	Fair	Remove
Syzygium paniculatum	Magenta cherry	30	7	5	Fair	Remove
Tamarindus indica	Tamarind	38	10	7	Good	Remove
Tamarindus indica	Tamarind	36	10	7	Good	Remove
Tamarindus indica	Tamarind	41	10	7	Good	Remove
Waterhousea floribunda	Weeping lilly pilly	20	10	3	Fair	Remove
Waterhousea floribunda	Weeping lilly pilly	31	8	6	Fair	Remove
Waterhousea floribunda	Weeping lilly pilly	17	4	3	Fair	Remove
Waterhousea floribunda	Weeping lilly pilly	17	4	3	Fair	Remove
Xanthostemon chrysanthus	Golden penda	30	7	5	Fair	Remove
Xanthostemon chrysanthus	Golden penda	28	7	5	Fair	Remove
Xanthostemon chrysanthus	Golden penda	40	9	5	Fair	Remove
Xanthostemon chrysanthus	Golden penda	25	10	6	Fair	Remove
Xanthostemon chrysanthus	Golden penda	24	6	6	Good	Remove
Xanthostemon chrysanthus	Golden penda	33	5	5	Fair	Remove
Xanthostemon chrysanthus	Golden penda	22	7	6	Fair	Remove

APPENDIX F DETAILED DESIGN DRAWINGS

GENERAL LEGEND

Existing

Proposed

- Pedestrian and cycle ramp
- Kerb
- Kerb and channel
- Earthworks
- Guardrail
- 1.32m High Weldmesh safety fence
- 1.8m High Chainwire koala proof fence
- Existing property fence/fauna fence
- Retaining wall
- Security gate

LANDSCAPING AND URBAN DESIGN LEGEND

- PA–01 – Grasses and Groundcovers Mix A
- PA–02 – Grasses and Groundcovers Mix B
- PA–03 – Shaded Understorey
- PA–04 – TPZ Understorey
- PA–10 – Grasses and Low Shrubs
- PA–11 – Grasses and Screening
- PA–20 – Tree with Breakout Kerb
- PA–21 – Biofiltration Verge Treatment
- PA–22 – Biofiltration Buildout
- PA–30 – Swale Invert
- PA–31 – Swale Batter
- PA–40 – Revegetation (RE 12.3.5) Invert
- PA–41 – Revegetation (RE 12.3.5) Batter
- PA–50 – Revegetation (RE 12.3.6) Invert
- PA–51 – Revegetation (RE 12.3.6) Batter
- PA–60 – Revegetation (RE 12.5.3)
- PA–61 – Revegetation (RE 12.5.3) Border
- PA–62 – Revegetation (RE 12.5.3) TPZ
- PA–63 – Revegetation (RE 12.5.3.) Batter
- TU–01 – Turf

- ST–01 – Proposed streetscape seat
- ST–02 – Proposed log bench
- Proposed Habitat Tree
- Key location for interpretive design elements (to be confirmed and designed by others)
- Retained tree – Refer TMMP drawing series for details
- Retained Cultural Heritage tree – Refer TMMP drawing series for details
- Proposed street tree
- Proposed shade tree
- Proposed feature tree

GREEN INFRASTRUCTURE LEGEND

- Threshold Treatment for Koala Crossing Zones (CMB Std Drg GI–0581)
- 1.8m High Chainwire Fauna Exclusion Fence (TMR Std Drg 1603)
- 1.2m High Chainwire Fauna Exclusion Fence (CMB Std Drg GI–0590 and GI–0591)
- Waste facility fence to CMB waste standards
- Fauna crossing – rope cage (CMB Std Drg GI–0562, LMRD–0101 and LMRD–0102)
- Fauna crossing – designed by others
- Fauna movement shelf within culverts (CMB Std Drg GI–0530 and GI–0531)
- Fauna escape pole (CMB Std Drg GI–0520 and GI–0521)
- Fauna hatch (refer Green Infrastructure Note 3)
- Fauna push–under gate (CMB Std Drg GI–9999)
- Fauna exclusion grid vehicle crossing

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN NOTES AND LEGEND SHEET 1

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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LANDSCAPE – GENERAL

1. All plans and details are to be read in conjunction with the legend, specification and schedules, and notes provided within the Landscaping and Urban Design package, in combination with all other design packages provided as part of the Project, and the Landscape and Green Infrastructure Technical Note (304487–ARU–00CILR–TNE–000001)
2. Refer to the following standards and drawings, unless stated otherwise. The Administrator and Contractor is to ensure the latest revision of the listed drawings and standards is referred to at time of construction commencement.

Referenced Standards and Specifications:

Australian Standards

AS1428.1:2021 Design for access and mobility, Part 1: General requirements for access – New building work
AS1428.4.2:2018 Design for access and mobility, Part 4.2: Means to assist the orientation of people with vision impairment – Wayfinding signs
AS2303:2018 Tree stock for landscape use
AS4373:2007 Pruning of amenity trees
AS4419:2018 Soils for landscape and garden use
AS4454:2012 Composts, soil conditioners and mulches
AS4970:2025 Protection of trees on development sites

City of Moreton Bay Standard Drawings

GI–0505 Temporary Tree Protection Details
GI–0510 Fauna Refuge Poles
PN–6500 Sub–soil Drainage Details
PN–6510 Drainage Swale Details
PN–6520 Typical Edge Details
PN–6550 Root Barrier Details
PN–6560 Typical Planting Details
PN–6600 Park Furniture Setout
SF–1507 Pedestrian Fence Powder Coated Weld Mesh
SF–1530 Hardwood Timber Bollards
SL–1000 Tree Planting Details
SL–1015 Tree with Breakout Kerb and WSUD Elements
SL–1050 Stone Clad Masonry Walls

IPWEA Standard Drawings

DS–070 Bioretention Drainage Profile
DS–078 Bioretention Standard Notes

Other Technical Resources

Nursery Industry Accrediation Scheme Australia (NIASA) Best Management Practice Guidelines, Appendix 14: Tree Stock Specification
Water by Design Bioretention Technical Design Guidelines

LANDSCAPE – PROTECTION

1. All tree protection and measures to be in accordance with AS4970
2. The Administrator is to ensure a qualified Arborist is present on site for:
   - site investigations in and around the Tree Protection Zone (TPZ) of existing trees to be retained in accordance with AS4970
   - removal of trees marked for salvaging or re–use
   - construction in and around a TPZ of a tree to be retained in accordance with AS4970
   - pruning of retained trees for construction access or road corridor maintenance in accordance with AS4373
3. A site–specific Environmental Management Plan is to be prepared by the Contractor and provided to the Administrator for approval.
4. The establishment of weeds throughout construction and maintenance must be adequately and frequently managed to ensure the spread of weed into natural areas does not occur. A site–specific Weed Management Plan is to be prepared by the Contractor and submitted to the Administrator prior to commencement of clearing and earthworks. Weed management measures such as matting for suppression, and manual or natural or non–glysophate herbicides for removal are to be used due to proximity of creek catchments.
5. Application of herbicide must be carried out minimum 24 hours prior to expected rainfall to ensure application effectiveness and mitigate herbicide leeching into stormwater network, or as per manufacturer specification where greater.

LANDSCAPE – PLANTING

6. In compliance with Project Design Brief, landscaping and shade tree planting should be in accordance with the City of Moreton Bay (CMB) 'Planning Scheme Policy – Integrated Design App D – Landscape Design & Street Trees' and the CMB 'Street Tree & Streetscape Guideline for Council Projects'.
7. In compliance with the Project Design Brief, planted verges are to be constructed to 'break up large areas of turf'.
8. The proposed design treatment extents do not allow for temporary works required by the Contractor for construction. The final extent of proposed design treatments shall be confirmed on site with the Administrator following clearing of existing vegetation and completion of final earthworks to ensure the true extent of disturbed landscape is treated.
9. The design treatments assume the cadastral boundary as the suitable extent of landscape works. Where the adjoining property fence is not in alignment with the cadastral boundary, the Administrator is to raise with CMB Project Manager to resolve interface with land owner.
10. The Contractor is to develop and implement a Soil Management Plan and Erosion and Sediment Control Plan, including temporary landscape treatments, that has been submitted and approved by the Administrator prior to any clearing works.
11. Highly compacted soils are expected to be present on site due to previous corridor and land use, and heavy plant machinery footprint as part of construction footprint. Compaction testing prior to tree planting is to be conducted. Where compaction is greater than 300PSI, soil decompaction methods such as geo–injection shall be implemented in combination with sufficient subgrade prepraration and ripping to ensure the long–term stability of mature trees in proximity to private residences and public infrastructure.
12. Preparation of planting areas to be undertaken maximum 2 weeks prior to installation of stock
13. Preparation of planting areas to constructed to the entire depth and profile as specified
14. Planting areas are to be free of spoil, construction material, contaminants, and weed free from date of preparation until installation of plant stock
15. Plant stock to be sourced from Nurseries with NIASA Accreditation
16. Plant stock to be checked and accepted in accordance with NIASA Best Management Practice Guidelines Appendix 14 Tree Stock Specification prior to installation.
17. Plant stock that do not meet the Project or Appendix 14 health and size requirements are to be rejected, and not installed.
18. Plant stock shall not to sit on site prior to installation without appropriate shade, wind protection, and appropriate watering. Plant stock shall sit for a maximum of 2 days prior to installation.
19. Plant stock to be installed with soil cover to the rootball, maximum 25mm cover to ensure no excessive moisture loss or heat exposure
20. Mulch to be installed to base of plant stock with no mounding of mulch around base of trunk
21. Arborist shall be present on site for installation of advanced tree stock 1000L or greater
22. Turf extents are to be graded evenly and lightly compacted to minimise slump and water ponding
23. Administrator is to ensure through random 1m2 sampling that the installed plant densities are as per specification. Installed treatments at lower densities may lead to increased weed establishment and maintenance requirements, or sediment erosion and scouring.

GREEN INFRASTRUCTURE

1. Fauna movement shelves to be installed within culverts to facilitate fauna movement. Shelves to terminate at dry ground. Reuse of removed koala tree species where possible.
2. Exact locations of fauna hatches and escape poles to be determined on site by Council representative during fence construction. Locations shown are indicative.
3. Fauna escape hatch to be 'Endeavour Veterinary Ecology' Koala/Kangaroo type (or approved equivalent) and placed to be confirmed in coordination with a prior Green Infrastructure site visit.
4. Refer to the following guidelines and drawings, unless stated otherwise. The Administrator and Contractor is to ensure the latest revision of the listed drawings and standards is referred to at time of construction commencement:

City of Moreton Bay Standard Drawings

GI–0521 Fauna Escape Pole
GI–0530 & GI–0531 Fauna Movement Shelf
GI–0560, GI–0561 & GI–0562 Fauna Crossing
GI–0581 Koala Crossing Zone Threshold Treatment
GI–0590 & GI–0591 Fauna Exclusion Fencing 1.2m
GI–9999 Macropod Gate Elevation and Details

Department of Transport and Main Roads Standard Drawings

SD1603 Fauna Exclusion Fencing 1.8m

Other Guidelines

Green Infrastructure Guidelines For Design & Construction by City of Moreton Bay
Fauna Sensitive Transport Infrastructure Delivery by Department of Transport and Main Roads

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN NOTES AND LEGEND SHEET 2

Drawn: Fabian Baumann	Design Check: Alexandra Brown
Designed: Jared Hall	Approved: Adam Robinson

Scale at A1	NOT TO SCALE
Role	LANSDCAPE
Status	DETAILED DESIGN
Arup Job No	304487-00
Rev	1

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Coordinate System: MGA94 (Z56)

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PAVEMENT AND FINISHES SCHEDULE

CODE	TYPE	DESCRIPTION	SIZE	COLOUR	AGGREGATE	FINISH	SUPPLIER	SPECIAL NOTES	SAMPLES REQUIRED	STANDARD DRAWINGS
ER–01	Edge Restraint Type 1	Concrete Edge Planting to Turf	N/A	Plain Grey	N/A	As per standard drawing	N/A	Required for all interfaces between existing or proposed turf (TU–01) and selected planting areas (MU–01; PA–01, 02, 03, 10, 11)	N/A	To be installed as per City of Moreton Bay drawing PN–6520 'Planting to Turf'
ER–02	Edge Restraint Type 2	Spade Edge Planting to Turf	N/A	N/A	N/A	As per standard drawing	N/A	Required for all interfaces between existing or proposed turf (TU–01) and selected planting areas (PA–30, 31, 41, 51, 60, 63)	N/A	To be installed as per City of Moreton Bay drawing PN–6520 'Planting to Turf'
PT–01	Interpretive Feature Pavement Type 1	Broom Finish Coloured Concrete	N/A	CCS 'Paperbark', or approved equivalent	N/A	Concrete: Broom finish with sandblasted pattern (by others) Penetrative Sealer: CCS Streetscape, or approved equivalent	N/A	Design intent: 'Paperbark' coloured concrete is specified at culturally significant creek locations to signify the dominant vegetation of that landscape, the Paperbark. This pavement includes broomed pattern that add visual interest and cultural connection to the space	N/A	By others
PT–02	Interpretive Feature Pavement Type 2	Rock Salt Finish Coloured Concrete	N/A	CCS 'Limestone', or approved equivalent	N/A	Concrete: 'Rock Salt' finish with sandblasted pattern (by others) Penetrative Sealer: CCS Streetscape, or approved equivalent	N/A	Design intent: 'Limestone' coloured concrete is specified at culturally significant locations. This pavement includes rock salt textured finish to signify connection to the land, and provide visual interest	N/A	By others

FURNITURE AND SITE ELEMENTS SCHEDULE

CODE	TYPE	DESCRIPTION	MANUFACTURER	PRODUCT	MATERIAL	COLOUR	FINISH	FIXING	ACCESSORIES	SPECIAL REQUIREMENTS	FOUNDATIONS	SAMPLES AND WORKMANSHIP	STANDARD DRAWINGS
BN–01	Bin Type 1	Rubbish Bin	Street Furniture Australia	Frame Bin Enclosure	Aluminium	Cabinet: Olive Mist Frame: Olive Mist Lid and Support Plate: Clear Apron: Clear	Anodized	Surface mounted, as per supplier specification	N/A	N/A	N/A	N/A	Setout as per City of Moreton Bay drawing PN–6600. Fixing as per manufacturer's specification
BN–02	Bin Type 2	Bus Stop Litter Bin	Street Furniture Australia	80L Round Bin Lid: Monsoon Body: Panelled, Slots Base: Hoop Base, Surface Fixed		Body: TBC	Body: Powdercoated Base: Polished	Surface mounted, as per supplier specification	N/A	N/A	N/A	N/A	Refer to ALGD drawing series. Fixing as per manufacturer's specification
ST–01	Seat Type 1	DDA–comliant seat	Street Furniture Australia	Mall Seat	Frame: Recycled aluminium Slats: Recycled aluminium	Frame: Woodland Grey Arms: Woodland Grey Legs: Woodland Grey Slats: Woodlike Spotted Gum	Frame: Powdercoated Slats: Anodized	Surface mounted, as per supplier specification	N/A	N/A	N/A	N/A	Setout as per City of Moreton Bay drawing PN–6600. Fixing as per manufacturer's specification
ST–02	Seat Type 2	Reclaimed timber seat	N/A	N/A	Salvaged and reporposed durability class 1 or 2 hardwood timber	N/A	Natural	Refer LRMD–DRG–0003	Refer LRMD–DRG–0004	Refer LRMD–DRG–0005	Refer LRMD–DRG–0006	Refer LRMD–DRG–0007	Refer LRMD–DRG–0003

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING SCHDULE SHEET 1 OF 6

Drawn: Ethan Song
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

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PLANTING AREA TYPE SCHEDULE

CODE	DESCRIPTION	GROUND PREPARATION	DRAINAGE	GROWING MEDIA	MULCH	MATTING	ROOT BARRIER	FERTILISER	PLANT SUPPLY, STOCK AND DELIVERY	ESTABLISHMENT AND MAINTENANCE	SPECIAL NOTES	SAMPLES REQUIRED	STANDARD DRAWINGS
PA–01	Grasses and Groundcovers Mix A	150mm ripping/cultivation	N/A (can be installed as per PN–6500 at request of City of Moreton Bay or Administrator)	300mm topsoil	100mm Forest Mulch or Tea Tree	N/A	N/A	Yes	TBC	TBC	N/A	Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–02	Grasses and Groundcovers Mix B	150mm ripping/cultivation	N/A (can be installed as per PN–6500 at request of City of Moreton Bay or Administrator)	300mm topsoil	100mm Forest Mulch or Tea Tree	N/A	N/A	Yes	TBC	TBC	N/A	Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–03	Shaded Understorey	150mm ripping/cultivation	N/A (can be installed as per PN–6500 at request of City of Moreton Bay or Administrator)	300mm topsoil, remaining depth to be ameliorated soil	100mm Forest Mulch or Tea Tree	N/A	N/A	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–04	TPZ Understorey	50mm ripping cultivation at location of hole (2x width of rootball)	N/A	Topsoil backfill to hole	100mm Tea Tree Mulch	N/A	N/A	Fertiliser and native plant food applied individually to planting hole	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–10	Grasses and Low Shrubs	200mm ripping/cultivation	Install drainage layer (details to be provided in next design phase)	300mm topsoil, remaining depth to be ameliorated soil	100mm Forest Mulch or Tea Tree	N/A	N/A	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–11	Grasses and Screening	200mm ripping/cultivation	Install drainage layer (details to be provided in next design phase)	300mm topsoil, remaining depth to be ameliorated soil	100mm Forest Mulch or Tea Tree	N/A	Installation of root barrier as per PN–6550	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560. Where batter slopes are greater than 1:3, planting to be installed as per TMR SD1653 Detail 3 and include 700gsm coir mesh trenched and pinned.
PA–20	Tree with Breakout Kerb	Filtration media	200mm drainage layer installed as per PN–6500 to suit SL–1015 Permeable liner as per IPWEA DSD–504	As per IPWEA DSD–504. Filter media: 700mm Transition layer: 200mm Drainage layer: 200mm	75mm Mulch	N/A	Installation of root barrier as per PN–1015 and PN–6550	Yes	TBC	TBC	N/A	To be in accordance with Water by Design Bioretention Technical Design Guidelines	To be in accordance with Water by Design Bioretention Technical Design Guidelines To be installed as per City of Moreton Bay drawing PN–1015
PA–21	Biofiltration Verge Treatment	200mm ripping/cultivation	200mm drainage layer installed as per PN–6500 Permeable liner as per IPWEA DSD–504	As per IPWEA DSD–504. Filter media: 700mm Transition layer: 200mm Drainage layer: 200mm	75mm Mulch	N/A	Installation of root barrier as per LRMD drawing series and PN–6550	Yes	TBC	TBC	N/A	To be in accordance with Water by Design Bioretention Technical Design Guidelines	To be in accordance with Water by Design Bioretention Technical Design Guidelines To be installed as per LRMD drawing series. Drainage and root barrier as per PN–1015.
PA–22	Biofiltration Buildout	200mm ripping/cultivation	200mm drainage layer installed as per PN–6500 Permeable liner as per IPWEA DSD–504	As per IPWEA DSD–504. Filter media: 700mm Transition layer: 200mm Drainage layer: 200mm	75mm Mulch	N/A	Installation of root barrier as per LRMD drawing series and PN–6550	Yes	TBC	TBC	N/A	To be in accordance with Water by Design Bioretention Technical Design Guidelines	To be in accordance with Water by Design Bioretention Technical Design Guidelines To be installed as per LRMD drawing series. Drainage and root barrier as per PN–1015.
PA–30	Swale Invert	200mm ripping/cultivation	N/A (can be installed as per PN–6500 at request of City of Moreton Bay or Administrator)	200mm topsoil	75mm 1" Hoop Pine Mulch	Jute Matting Trenched in soil and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6550	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6510

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

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Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING SCHDULE SHEET 2 OF 6

Drawn: Ethan Song | Design Check: Alexandra Brown
Designed: Jared Hall | Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00 | Rev: 1
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CODE	DESCRIPTION	GROUND PREPARATION	DRAINAGE	GROWING MEDIA	MULCH	MATTING	ROOT BARRIER	FERTILISER	PLANT SUPPLY, STOCK AND DELIVERY	ESTABLISHMENT AND MAINTENANCE	SPECIAL NOTES	SAMPLES REQUIRED	STANDARD DRAWINGS
PA–31	Swale Batter	100mm ripping/cultivation	N/A (can be installed as per PN–6500 at request of City of Moreton Bay or Administrator)	100mm topsoil	75mm 1" Hoop Pine Mulch	700gsm Coir Mesh Trenched in soil at crest and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6551	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per TMR SD1653 Detail 3. Batter slopes greater than 1:3 to include coir mesh, as specified
PA–40	Revegetation (RE 12.3.5) Invert	200mm ripping/cultivation	N/A	200mm topsoil	75mm 1" Hoop Pine Mulch	Jute Matting Trenched in soil and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6552	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560 'Revegetation'
PA–41	Revegetation (RE 12.3.5) Batter	100mm ripping/cultivation	N/A	100mm topsoil	75mm 1" Hoop Pine Mulch	700gsm Coir Mesh Trenched in soil at crest and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6553	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per TMR SD1653 Detail 3. Batter slopes greater than 1:3 to include coir mesh, as specified
PA–50	Revegetation (RE 12.3.6) Invert	200mm ripping/cultivation	N/A	200mm topsoil	75mm 1" Hoop Pine Mulch	Jute Matting Trenched in soil and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6554	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560 'Revegetation'
PA–51	Revegetation (RE 12.3.6) Batter	100mm ripping/cultivation	N/A	100mm topsoil	75mm 1" Hoop Pine Mulch	700gsm Coir Mesh Trenched in soil at crest and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6555	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per TMR SD1653 Detail 3. Batter slopes greater than 1:3 to include coir mesh, as specified
PA–60	Revegetation (RE 12.5.3)	200mm ripping/cultivation	N/A	200mm topsoil	100mm Tea Tree Mulch	N/A	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6556	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560 'Revegetation'
PA–61	Revegetation (RE 12.5.3) Border	100mm ripping/cultivation	N/A	200mm topsoil	100mm Tea Tree Mulch	N/A	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6557	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560 'Revegetation'
PA–62	Revegetation (RE 12.5.3) TPZ		N/A	Topsoil backfill to hole	100mm Tea Tree Mulch	N/A	N/A	Fertiliser and native plant food applied individually to planting hole	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per City of Moreton Bay drawing PN–6560 'Revegetation'
PA–63	Revegetation (RE 12.5.3) Batter	100mm ripping/cultivation	N/A	100mm topsoil	75mm 1" Hoop Pine Mulch	700gsm Coir Mesh Trenched in soil at crest and pinned to manufacturers specification	Root barrier to be installed if planting is within 2m of conduit or service corridar, as per PN–6559	Yes	TBC	TBC	N/A	A soil management plan is to be undertaken by the Contractor for the installation of advanced tree. Contractor to allow for current testing pre and post amelioration and conditioning of site–won soil. Where site–won soil is insufficient, contractor to allow for current testing of imported soils on site.	To be installed as per TMR SD1653 Detail 3. Batter slopes greater than 1:3 to include coir mesh, as specified

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
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ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING SCHDULE SHEET 3 OF 6

Drawn: Ethan Song
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

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TREE PLANTING SCHEDULE

CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	SIZE	QUANTITY	NOTES AND INTENDED FORM
STREET TREES								
AGA rob	Agathis robusta	Queensland Kauri Pine	As shown	Stake as per SL-1000	100L	2.5-3.5m		
ARA cun	Araucaria cunninghamii	Hoop Pine	As shown	Stake as per SL-1000	100L	2.5-3.5m		
ALL lit	Allocasia littoralis	Black She Oak	As shown	Stake as per SL-1001	100L	2.5-3.5m		
BAC cit	Backhousia citriodora	Lemon Scented Myrtle	As shown	Stake as per SL-1000	100L	2.3-3.4m		
COR SC	Corymbia citriodora 'Scentuous'	Dwarf Lemon Scented Gum	As shown	Stake as per SL-1001	100L	2.0-2.8m		
COR tes	Corymbia tessellaris	Moreton Bay Ash	As shown	Stake as per SL-1002	100L	2.5-3.5m		WSUD tree.
CUP ana	Cupaniopsis anacardioides	Tuckeroo	As shown	Stake as per SL-1000	100L	2.3-3.4m		WSUD tree.
ELA eum	Elaeocarpus eumundi	Eumundi Quandong	As shown	Stake as per SL-1000	100L	2.5-3.5m		
EUC cur	Eucalyptus curtisii	Plunket Mallee	As shown	Stake as per SL-1001	100L	2.0-2.8m		
LIV aus	Livistona australis	Cabbage Tree Palm	As shown	Stake as per SL-1000	400L	2-3m clear trunk		
LOP ST2	Lophostemon confertus 'ST2'	Compact Brush Box	As shown	Stake as per SL-1000	100L	2.5-3.5m		
SYZ tie	Syzygium tierneyanum	River Cherry	As shown	Stake as per SL-1000	100L	2.0-2.8m		
TRI LU	Tristaniopsis laurina 'Luscious'	Water Gum	As shown	Stake as per SL-1001	100L	2.5-3.5m		
CANOPY TREES								
ELA obo	Elaeocarpus obovatus	Hard Quandong	As shown	Stake as per SL-1000	100L	2.5-3.5m		
FIC cor	Ficus coronata	Sandpaper Fig	As shown	Stake as per SL-1000	100L	2.0-2.8m		
FLI aus	Flindersia australis	Crow's Ash	As shown	Stake as per SL-1000	100L	2.5-3.5m		
LOP con	Lophostemon confertus	Brush Box	As shown	Stake as per SL-1000	100L	2.5-3.5m		
SYZ aus	Syzygium australe	Brush Cherry	As shown	Stake as per SL-1000	100L	2.5-3.5m		
TRI lau	Tristaniopsis laurina	Water Gum	As shown	Stake as per SL-1001	100L	2.5-3.5m		
WAT flo	Waterhousea floribunda	Weeping Lily Pily	As shown	Stake as per SL-1000	100L	2.5-3.5m		WSUD tree.
FEATURE TREES								
COR int	Corymbia intermedia	Pink Bloodwood	As shown	Stake as per SL-1000	100L	2.5-3.5m		
COR mac	Corymbia maculata	Spotted Gum	As shown	Stake as per SL-1002	100L	2.5-3.5m		
COR tes	Corymbia tessellaris	Moreton Bay Ash	As shown	Stake as per SL-1002	100L	2.5-3.5m		
EUC rac	Eucalyptus racemosa	Queensland Scribbly Gum	As shown	Stake as per SL-1000	100L	2.5-3.5m		
EUC ter	Eucalyptus tereticornis	Queensland Blue Gum	As shown	Stake as per SL-1000	100L	2.3-3.4m		Swale tree.
FIC mac	Ficus macrophylla	Moreton Bay Fig	As shown	Stake as per SL-1000	100L	2.5-3.5m		

PA-01 SCHEDULE

GENERAL MIX A							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
GRASSES							
CEN PL	Cenchrus purpurascens 'Purple Lea'	Purple Lea	3/m2	N	140mm		
LOM TA	Lomandra longifolia 'Tanika'	Tanika		N	140mm		
LOM TC	Lomandra hystrix 'Tropic Cascade'	Tropic Cascade		N	140mm		
GROUNDCOVERS							
CAS CI	Casuarina glauca 'Cousin It'	Prostate She-oak	2/m2	N	140mm		
CHR AR	Chrysocephalum apiculatum 'Aussie Reflection'	Yellow Buttons		N	140mm		
ERE BH	Eremophila glabra prostate 'Blue Horizon'	Blue Horizon	1/m2	N	140mm		
WES MU	Westringia fruiticosa 'Mundi'	Coastal Rosemary		N	140mm		

PA-02 SCHEDULE

GENERAL MIX B							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
GRASSES							
FIC nod	Ficinia nodosa	Knobby Club Rush	3/m2	N	140mm		
LOM NY	Lomandra longifolia 'Nyalla'	Nyalla		N	140mm		
POA lab	Poa labillardierei	Common Tussock Grass		N	140mm		
GROUNDCOVERS							
CAS CI	Casuarina glauca 'Cousin It'	Prostate She-oak	2/m2	N	140mm		
MYO YA	Myoporum parvifolium 'Yareena'	Creeping Boobialla	1/m2	N	140mm		
SCA aem	Scaevola aemula	Fan Flower	1/m2	N	140mm		

PA-03 SCHEDULE

SHADED UNDERSTOREY							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
SHRUBS							
DOR exc	Doryanthes excelsa	Gymea Lily	1/2m2	N	140mm		
GRASSES							
LOM TC	Lomandra hystrix 'Tropic Cascade'	Tropic Cascade	3/m2	N	140mm		
GROUNDCOVERS							
MYO YA	Myoporum parvifolium 'Yareena'	Creeping Boobialla	1/m2	N	140mm		

PA-04 SCHEDULE

TPZ UNDERSTOREY							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
GRASSES							
LOM TA	Lomandra longifolia 'Tanika'	Lomandra Tanika	1/m2	N	140mm		
LOM TC	Lomandra hystrix 'Tropic Cascade'	Tropic Cascade		N	140mm		
POA lab	Poa labillardierei	Common Tussock Grass		N	140mm		
GROUNDCOVERS							
MYO ell	Myoporum ellipticum	Coastal Boobialla	1/2m2	N	140mm		

PA-10 SCHEDULE

GRASSES AND LOW SHRUBS							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
SHRUBS							
CAS GW	Casuarina glauca 'Green Wave'	She-oak	1/m2		140mm		
GRE RG	Grevillea 'Robyn Gordon'	Spider Flower		N	140mm		
LEP PC	Leptospermum 'Pink Cascade'	Pink Cascade Tea Tree		N	140mm		
MEL CT	Melaleuca linarlifolia 'Claret Tops'	Honey Myrtle			140mm		
WES NA	Westringia hybrid 'Naringa'	Coastal Rosemary		N	140mm		
GRASSES							
CEN PL	Cenchrus purpurascens 'Purple Lea'	Purple Lea	2/m2	N	140mm		
LOM NY	Lomandra longifolia 'Nyalla'	Nyalla		N	140mm		
POA lab	Poa labillardierei	Common Tussock Grass		N	140mm		
GROUNDCOVERS							
HAR vio	Hardenbergia violacea	Native Sarsaparilla	1/m2	N	140mm		
MYO YA	Myoporum parvifolium 'Yareena'	Creeping Boobialla		N	140mm		
SCA aem	Scaevola aemula	Fan Flower		N	140mm		

PA-11 SCHEDULE

GRASSES AND SCREENING TO PROPERTY BOUNDARY							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
SHRUBS							
ACM CS	Acmena smithii 'Cherry Surprise'	Lilly Pilly	1/2m2	N	140mm		
COR alb	Correa alba	White Correa		N	140mm		
DOR exc	Doryanthes excelsa	Gymea lily		N	140mm		
SYZ BB	Syzygium australe 'Baby Boomer'	Lily Pily Resilience		N	140mm		
GRASSES							
LOM NY	Lomandra longifolia 'Nyalla'	Nyalla	2/m2	N	Tubestock		
LOM TC	Lomandra hystrix 'Tropic Cascade'	Tropic Cascade		N	Tubestock		
POA lab	Poa labillardierei	Common Tussock Grass		N	Tubestock		
GROUNDCOVERS							
GRE BR	Grevillea 'Bronze Rambler'	Prostrate Grevillea	1/2m2	N	75mm		
HAR vio	Hardenbergia violacea	Native Sarsaparilla		N	75mm		
SCA aem	Scaevola aemula	Fan Flower		N	75mm		
WES MU	Westringia fruiticosa 'Mundi'	Coastal Rosemary		N	75mm		

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING SCHDULE SHEET 4 OF 6

Drawn	Design Check
Ethan Song	Alexandra Brown
Designed	Approved
Jared Hall	Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1
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PA–50 SCHEDULE

12.3.6 REVEGETATION INVERT							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
GRASSES							
DIA cae	Dianella caerulea	Blue Flax Lily	7/m2	N	Tubestock		
LOM hys	Lomandra hystrix	Creek Mat–rush		N	Tubestock		
GAH sie	Gahnia sieberiana	Red–fruited Saw–sedge		N	Tubestock		
JUN usi	Juncus usitatus	Common Rush		N	Tubestock		
THE tri	Themeda triandra	Kangaroo Grass		N	Tubestock		

PA–51 SCHEDULE

12.3.6 REVEGETATION BATTER							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
TREES							
EUC ter	Eucalyptus tereticornis	Forest Red Gum	1/5m2	N	Tubestock		
EUC amp	Eucalyptus amplifolia	Blue Gum		N	Tubestock		
EUC cre	Eucalyptus crebra	Narrow–leaved Ironbark		N	Tubestock		
LOP sua	Lophostemon suaveolens	Swamp Box	1/8m2	N	Tubestock		
MEL qui	Melaleuca quinquenervia	Paperbark	1/5m2	N	Tubestock		
CAS cun	Casuarina cunninghamiana	River She–oak		N	Tubestock		
MEL sal	Melaleuca salicina	Willow Bottlebrush/Pink Tip	1/8m2	N	Tubestock		
SHRUBS							
ACA con	Acacia concurrens	Currumbin Wattle	1/5m2	N	Tubestock		
ACA lei	Acacia leiocalyx	Brown Salwood		N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		
JAC sco	Jacksonia scoparia	Dogwood		N	Tubestock		
MEL aff	Melastoma affine	Native Lasiandra		N	Tubestock		
GRASSES							
FIC nod	Ficinia nodosa	Knobby Club Rush	5/m2	N	Tubestock		
LOM hys	Lomandra hystrix	Creek Mat–rush		N	Tubestock		
THE tri	Themeda triandra	Kangaroo Grass		N	Tubestock		

PA–60 SCHEDULE

12.5.3 REVEGETATION TO GENERAL GRADES							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
TREES							
EUC rac	Eucalyptus racemosa	Scribbly Gum	1/3m2	N	Tubestock		
COR int	Corymbia intermedia	Pink Bloodwood		N	Tubestock		
EUC sid	Eucalyptus siderophloia	Grey Ironbark		N	Tubestock		
EUC tin	Eucalyptus tindaliae	White Stringybark		N	Tubestock		
EUC res	Eucalyptus resinifera	Red Stringybark	1/5m2	N	Tubestock		
EUC pil	Eucalyptus pilularis	Blackbutt		N	Tubestock		
EUC mic	Eucalyptus microcorys	Tallowwood		N	Tubestock		
ANG lei	Angophora leiocarpa	Smooth–barked Apple		N	Tubestock		
SHRUBS							
ACA lei	Acacia leiocalyx	Brown Salwood	1/3m2	N	Tubestock		
ACA con	Acacia concurrens	Currumbin Wattle		N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		
JAC sco	Jacksonia scoparia	Dogwood		N	Tubestock		
LEP pol	Leptospermum polygalifolium	Tea–tree		N	Tubestock		
PUL vil	Pultenaea villosa	Hairy Bush–pea		N	Tubestock		
GRASSES							
DIA cae	Dianella caerulea	Flax Lily	2/m2	N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		
HAR vio	Hardenbergia violacea	Native Sarsaparilla		N	Tubestock		
HET con	Heteropogon contortus	Black Speargrass		N	Tubestock		
LOM lon	Lomandra longifolia	Mat Rush		N	Tubestock		
THE tri	Themeda triandra	Kangaroo Grass		N	Tubestock		

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

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Member Firm
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ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING SCHDULE
SHEET 5 OF 6

Drawn: Ethan Song
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

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PA–61 SCHEDULE

12.5.3 REVEGETATION BORDER							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
GRASSES							
CEN PL	Cenchrus purpurascens 'Purple Lea'	Purple Lea	4/m2	N	Tubestock		
LOM TA	Lomandra longifolia 'Tanika'	Tanika		N	Tubestock		
LOM TC	Lomandra hystrix 'Tropic Cascade'	Tropic Cascade		N	Tubestock		
POA lab	Poa labillardierei	Common Tussock Grass		N	Tubestock		
GROUNDCOVERS							
HAR vio	Hardenbergia violacea	Native Sarsaparilla	1/2m2	N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		

PA–62 SCHEDULE

12.5.3 REVEGETATION TPZ							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
SHRUBS							
ACA lei	Acacia leiocalyx	Brown Salwood	1/3m2	N	Tubestock		
ACA con	Acacia concurrens	Currumbin Wattle		N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		
JAC sco	Jacksonia scoparia	Dogwood		N	Tubestock		
LEP pol	Leptospermum polygalifolium	Tea–tree		N	Tubestock		
PUL vil	Pultenaea villosa	Hairy Bush–pea		N	Tubestock		
GRASSES							
DIA cae	Dianella caerulea	Flax Lily	1/m2	N	Tubestock		
LOM lon	Lomandra longifolia	Mat Rush		N	Tubestock		
POA lab	Poa labillardierei	Common Tussock Grass		N	Tubestock		
GROUNDCOVERS							
HAR vio	Hardenbergia violacea	Native Sarsaparilla	1/2m2	N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		

PA–63 SCHEDULE

12.5.3 REVEGETATION BATTER							
CODE	BOTANICAL NAME	COMMON NAME	DENSITY	STAKE OR GUY	POT SIZE	QUANTITY	INTENDED FORM
SHRUBS							
EUC rac	Eucalyptus racemosa	Scribbly Gum	1/3m2	N	Tubestock		
COR int	Corymbia intermedia	Pink Bloodwood		N	Tubestock		
EUC sid	Eucalyptus siderophloia	Grey Ironbark		N	Tubestock		
EUC tin	Eucalyptus tindaliae	White Stringybark		N	Tubestock		
EUC res	Eucalyptus resinifera	Red Stringybark		N	Tubestock		
SHRUBS							
ACA lei	Acacia leiocalyx	Brown Salwood	1/3m2	N	Tubestock		
ACA con	Acacia concurrens	Currumbin Wattle		N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		
JAC sco	Jacksonia scoparia	Dogwood		N	Tubestock		
LEP pol	Leptospermum polygalifolium	Tea–tree		N	Tubestock		
PUL vil	Pultenaea villosa	Hairy Bush–pea		N	Tubestock		
GRASSES							
IMP cyl	Imperata cylindrica	Blady Grass	5/m2	N	Tubestock		
LOM hys	Lomandra hystrix	Creek Mat Rush		N	Tubestock		
POA lab	Poa labillardierei	Common Tussock Grass		N	Tubestock		
GROUNDCOVERS							
HAR vio	Hardenbergia violacea	Native Sarsaparilla	1/3m2	N	Tubestock		
DOD vis	Dodonaea viscosa	Hopbush		N	Tubestock		

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Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

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Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title
LANDSCAPING SCHDULE
SHEET 6 OF 6

Drawn: Ethan Song
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

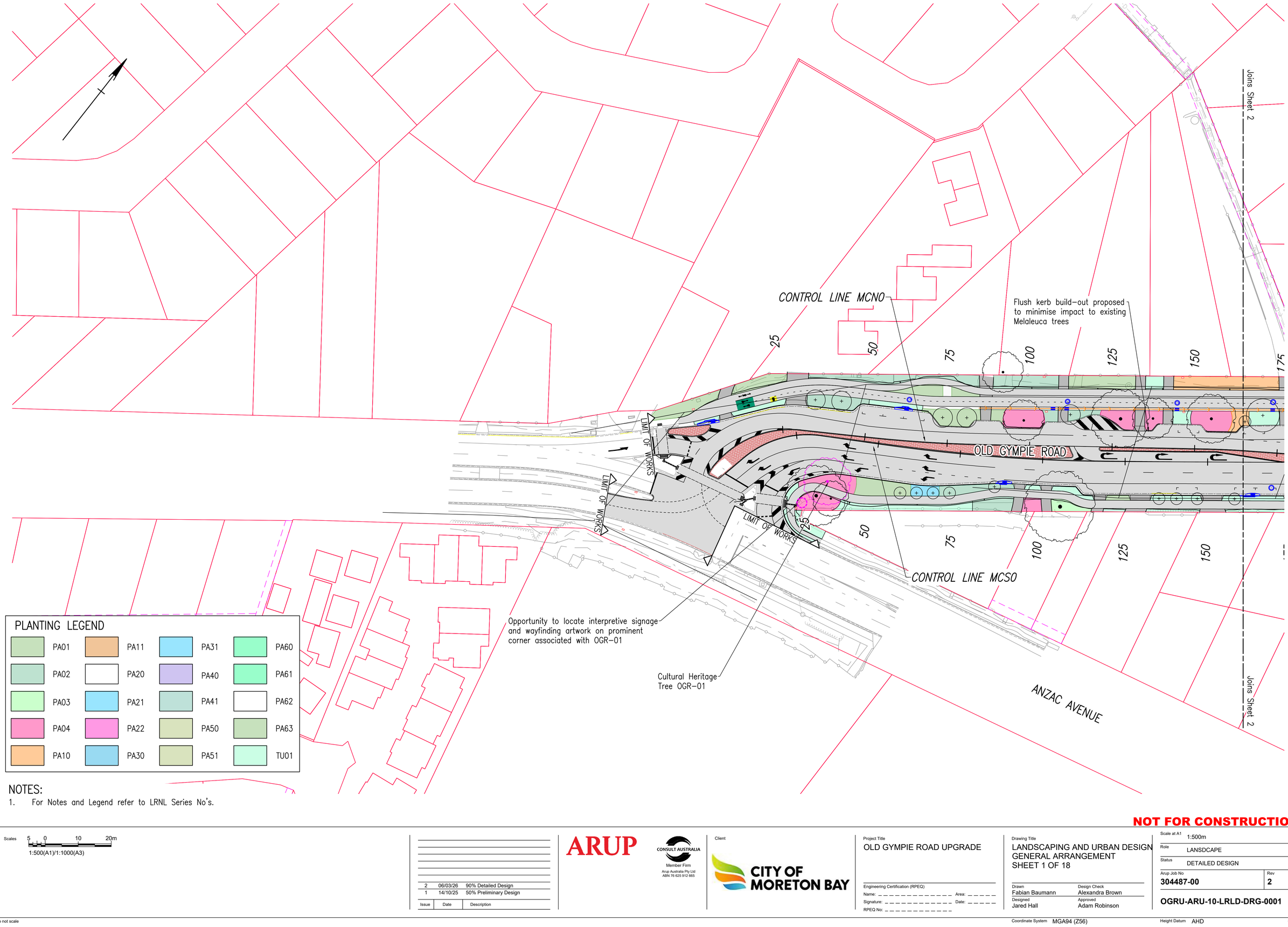
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PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

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Issue	Date	Description
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1	14/10/25	50% Preliminary Design

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Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 1 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
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Joins Sheet 16

Joins Sheet 16

NOOJEE COURT

ALONGA COURT

LAUDER STREET

Joins Sheet 1

Joins Sheet 3

CONTROL LINE MCNO

Flush kerb build-out proposed to minimise impact to existing Melaleuca trees

OLD GYMPIE ROAD

SCHOOL ZONE

CONTROL LINE MCSO

Kerb build-out proposed to minimise impact to significant Queensland Scribbly Gum

LIMIT OF WORKS

STOREY ROAD

Joins Sheet 1

Joins Sheet 3

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

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Scales 5 0 10 20m
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Issue	Date	Description
2	06/03/26	90% Detailed Design
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Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

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Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 2 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
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Joins Sheet 16

Joins Sheet 16

Joins Sheet 2

Joins Sheet 4

VINEY AVENUE

LIMIT OF WORKS

CONTROL LINE MC1C

CONTROL LINE MCNO

Opportunity to locate Habitat Tree in proximity to active habitat and hollows of retained gum trees, salvaged from surrounding felled trees

OLD GYMPIE ROAD

Joins Sheet 4

LIMIT OF WORKS

Joins Sheet 2

STOREY ROAD

ST-01 proposed to entries and waiting areas of school under existing or proposed trees

CONTROL LINE MC1B

CONTROL LINE MCSO

ST-01 proposed to entries and waiting areas of school under existing or proposed trees

Opportunity to locate interpretive elements at prominent location such as decorative pavement and salvaged tree artwork to address removal of OGR-02 and 03

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

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Arup Australia Pty Ltd
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Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title
LANDSCAPING AND URBAN DESIGN
GENERAL ARRANGEMENT
SHEET 3 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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Joins Sheet 17

Joins Sheet 17

Joins Sheet 3

Joins Sheet 5

LIMIT OF WORKS

BLAZEY STREET

ANN STREET

CONTROL LINE MC2A

BRIDGE STREET EAST

COPPIN STREET EAST

CONTROL LINE MCNO

LIMIT OF WORKS

LIMIT OF WORKS

LIMIT OF WORKS

Administrator to ensure provision of TU-01 to each letterbox and private pedestrian gate within planted areas. Refer LRMD drawings series for details.

Opportunity to locate Habitat Tree within environmental corridor using salvaged felled trees

Opportunity to locate interpretive elements such as signage and timber reuse to address removal of OGR-02 and 03

OLD GYMPIE ROAD

SCHOOL ZONE

CONTROL LINE MCSO

CONTROL LINE MC2B

Joins Sheet 3

Joins Sheet 5

125 100 75 50 25 725 750 775 800 825 850 875 900 925 950 975 1000 1025 1050 1075

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title
LANDSCAPING AND URBAN DESIGN
GENERAL ARRANGEMENT
SHEET 4 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0004

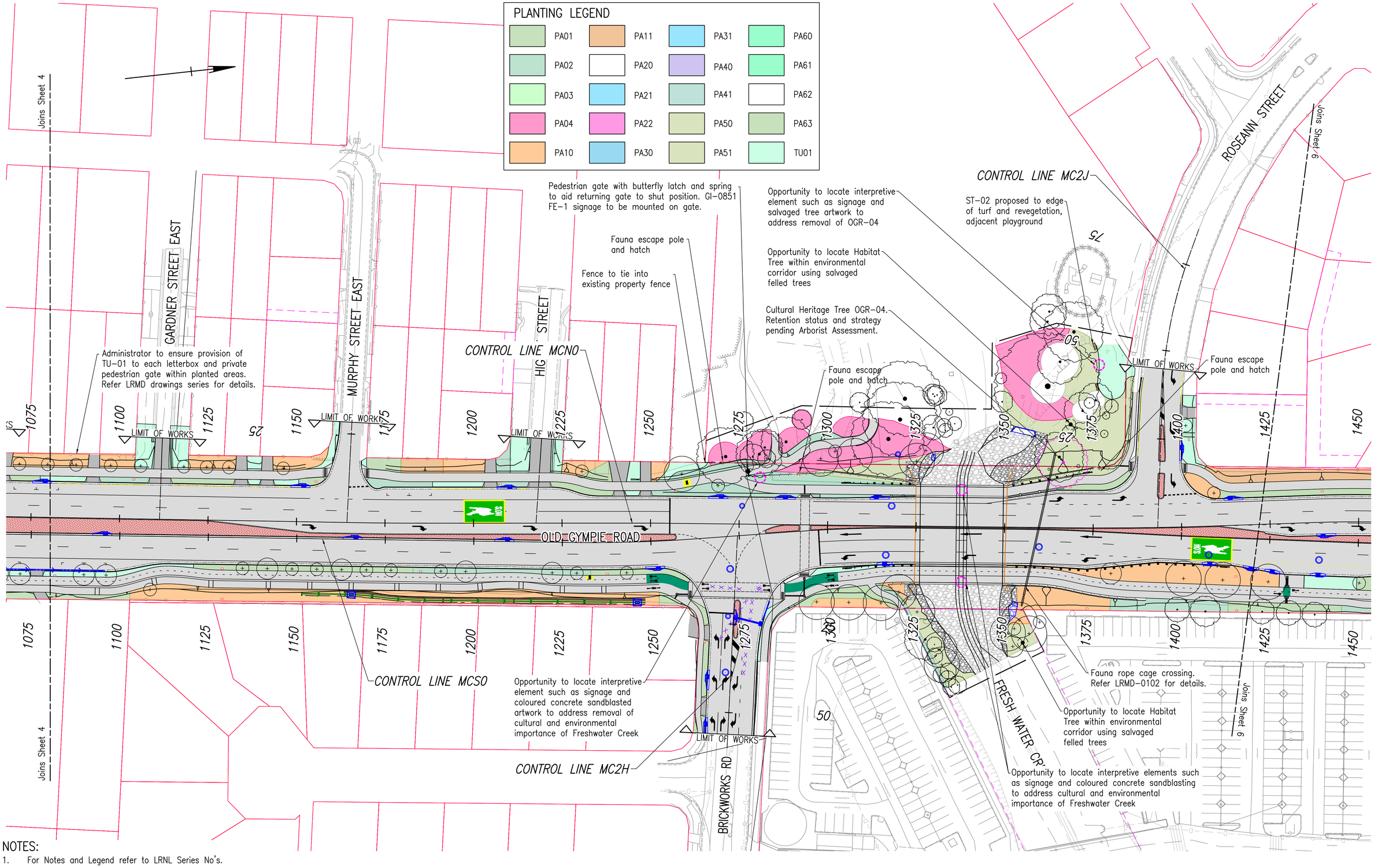
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Height Datum AHD

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NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 5 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

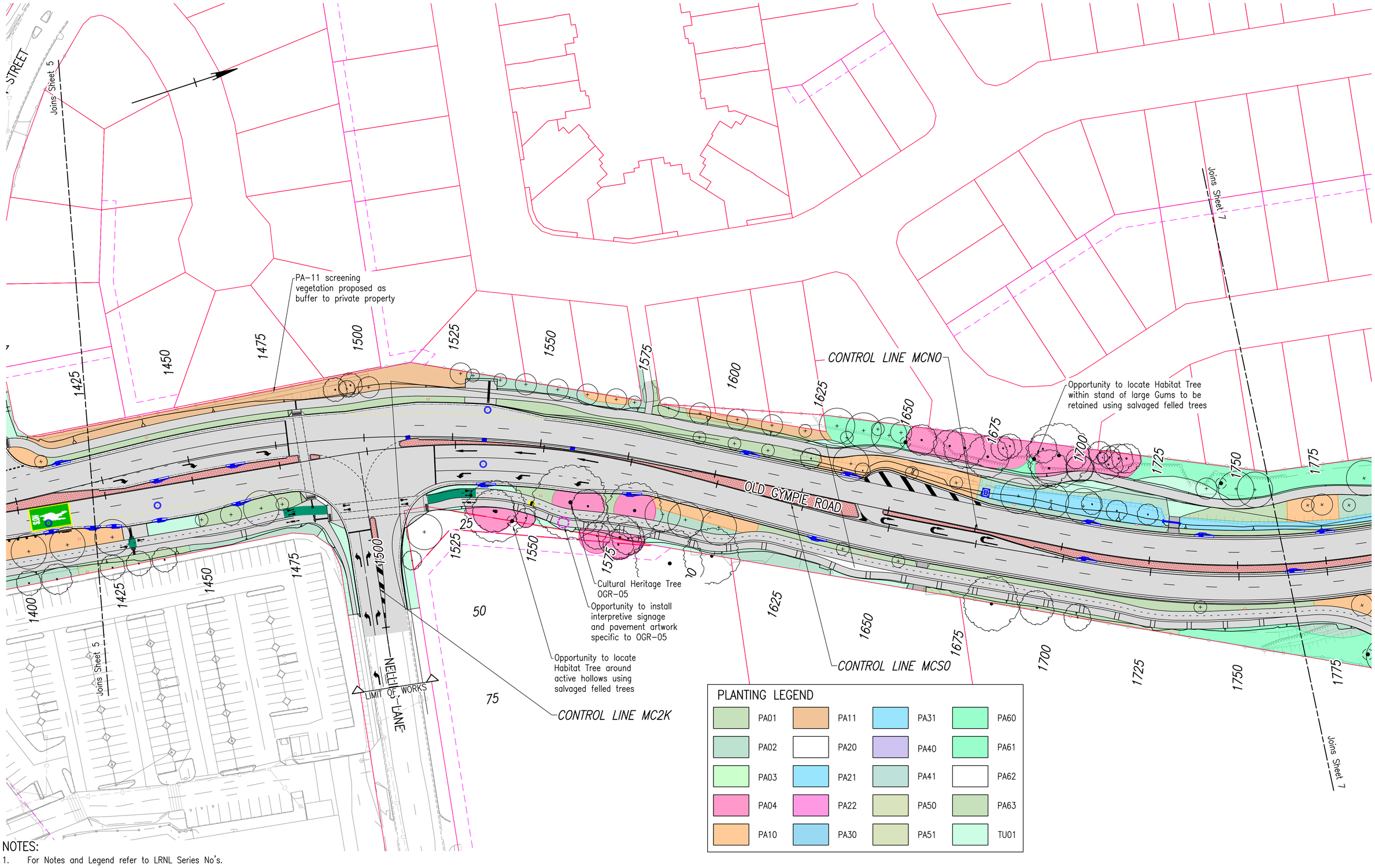
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Coordinate System: MGA94 (Z56)
Height Datum: AHD

Do not scale

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PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 6 OF 18

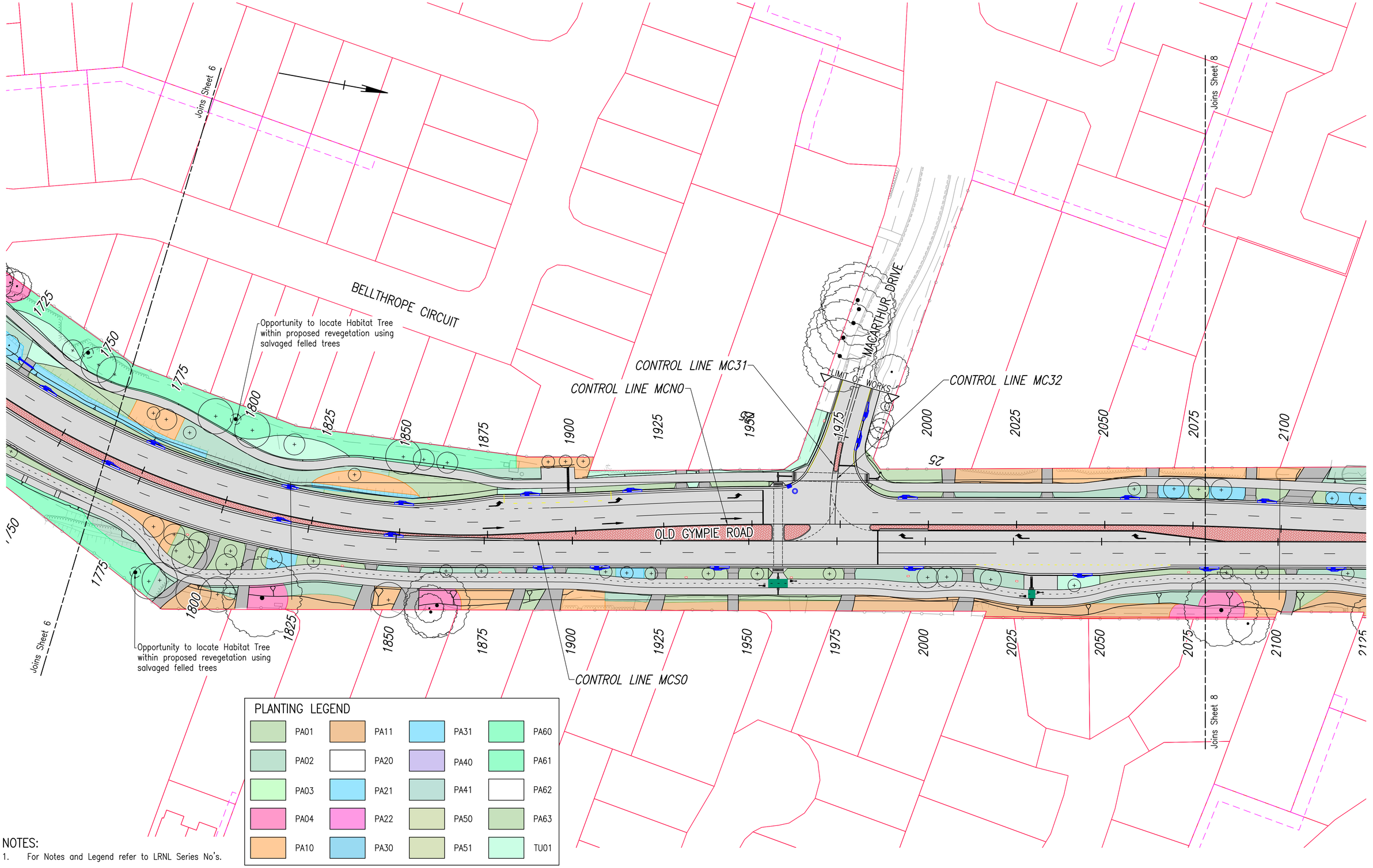
Drawn: Fabian Baumann
Designed: Jared Hall
Design Check: Alexandra Brown
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0006

Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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PLANTING LEGEND

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PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 7 OF 18

Drawn: Fabian Baumann
Designed: Jared Hall
Design Check: Alexandra Brown
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0007

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Coordinate System: MGA94 (Z56)
Height Datum: AHD
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PLANTING LEGEND

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PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

Joins Sheet 7

Joins Sheet 9

LIMIT OF WORKS

WHITEHORSE ROAD

CONTROL LINE MC4A

CONTROL LINE MC4B

CONTROL LINE MCNO

OLD GYMPIE ROAD

CONTROL LINE MCSO

CONTROL LINE MC4C

CONTROL LINE MC4D

BUTTERFLY DR

LIMIT OF WORKS

WT-01

Screening and amenity vegetation proposed to address removal of significant trees with walling

Reuse of significant trees and hardwoods removed from roadway as simple artwork or cultural interpretation in prominent locations.

Reuse of significant trees and hardwoods removed from roadway as simple artwork or cultural interpretation in prominent locations.

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Area:
Signature: Date:
RPEQ No:

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 8 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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Coordinate System: MGA94 (Z56)

Height Datum: AHD

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Joins Sheet 8

Joins Sheet 10

Opportunity to locate Habitat Tree within proposed revegetation and adjacent retained trees, using salvaged felled trees

Opportunity to locate interpretive element using salvaged cultural heritage trees OGR-07, 08, 09

Tie in with existing turf

Reuse of significant trees and hardwoods removed from roadway as supplementary fauna habitat.

Tie in with existing turf

OLD GYMPIE ROAD

CONTROL LINE MCSO

CONTROL LINE MCNO

2400 2425 2450 2475 2500 2525 2550 2575 2600 2625 2650 2675 2700 2725 2750 2775

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 9 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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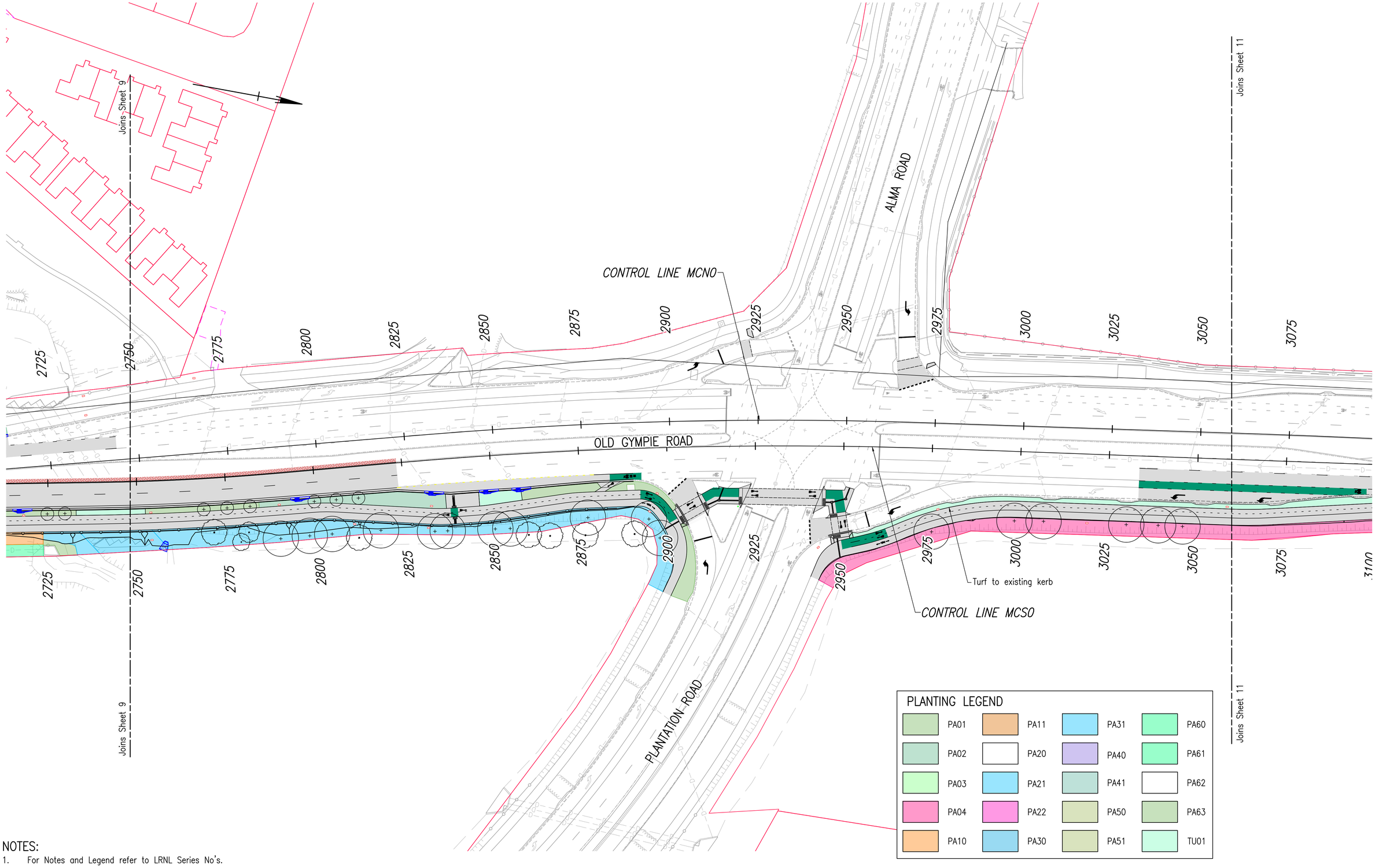
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PLANTING LEGEND

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PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 10 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

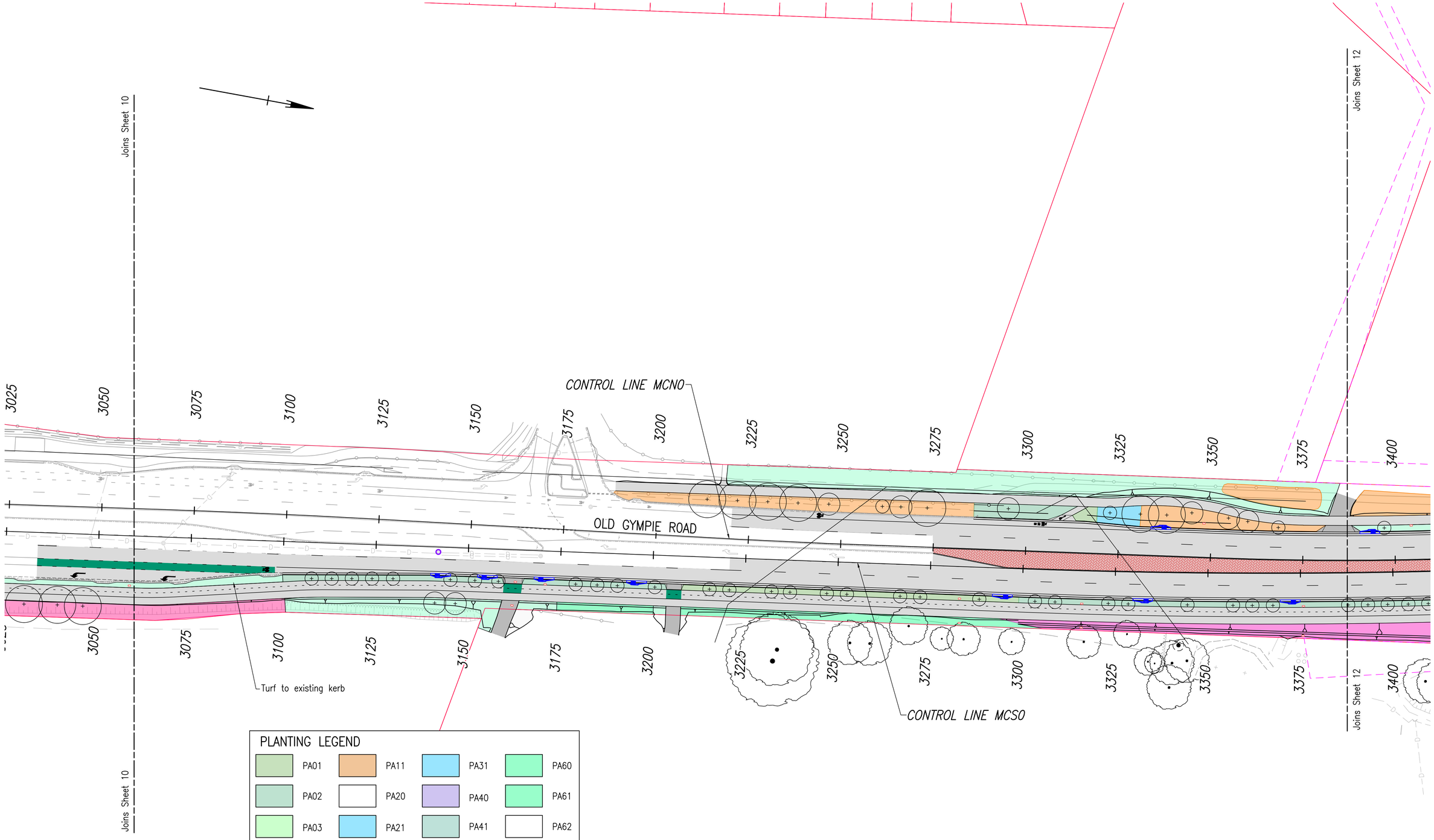
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Height Datum: AHD

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PLANTING LEGEND

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PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 11 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0011

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Coordinate System: MGA94 (Z56)
Height Datum: AHD
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A1

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

Joins Sheet 11

Joins Sheet 13

LIMIT OF WORKS

HUGHES ROAD EAST

SCHOOL ZONE

OLD GYMPIE ROAD

CONTROL LINE MC5A

CONTROL LINE MC5B

CONTROL LINE MCNO

CONTROL LINE MCSO

Fauna escape pole and hatch

3.6m maintenance access gate. Refer TMR STD 1603 for details

1.8m fauna fencing to tie in as per existing fence adjacent to the childcare centre.

Habitat Trees to be installed within revegetation, or in proximity to retained tall gum tree

Beyond disturbed ground, revegetation is proposed to connect separated vegetation north and south of removed refuse access road to strengthen the retained ecological habitat

Revegetation to earthworks and redundant road pavement. Revegetation to also match extent of disturbed ground.

Joins Sheet 18

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm

Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)

Name: Area:

Signature: Date:

RPEQ No:

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 12 OF 18

Drawn: Fabian Baumann | Design Check: Alexandra Brown

Designed: Jared Hall | Approved: Adam Robinson

Scale at A1: 1:500m

Role: LANSDCAPE

Status: DETAILED DESIGN

Arup Job No: 304487-00 | Rev: 2

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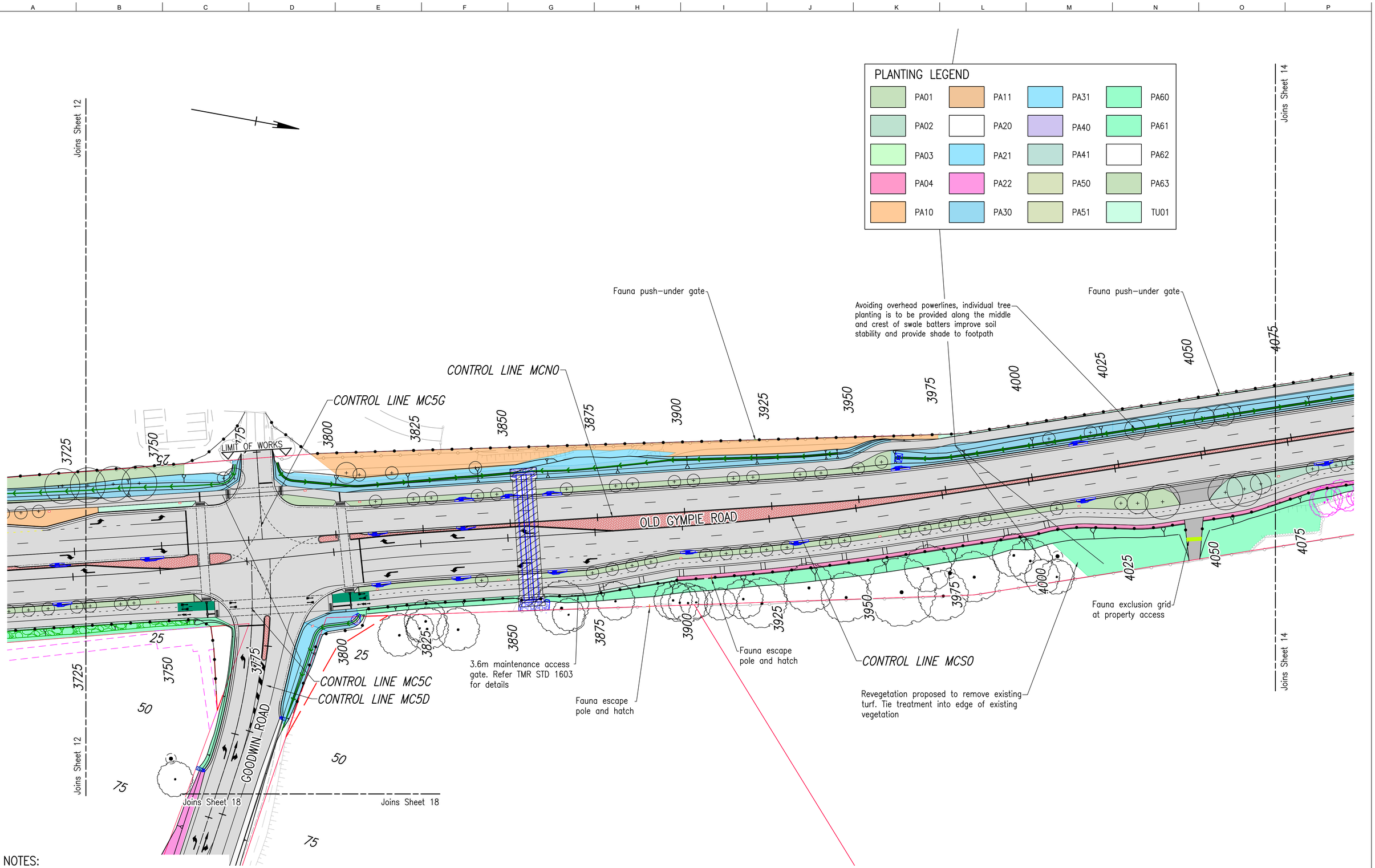
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NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m
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Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 13 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

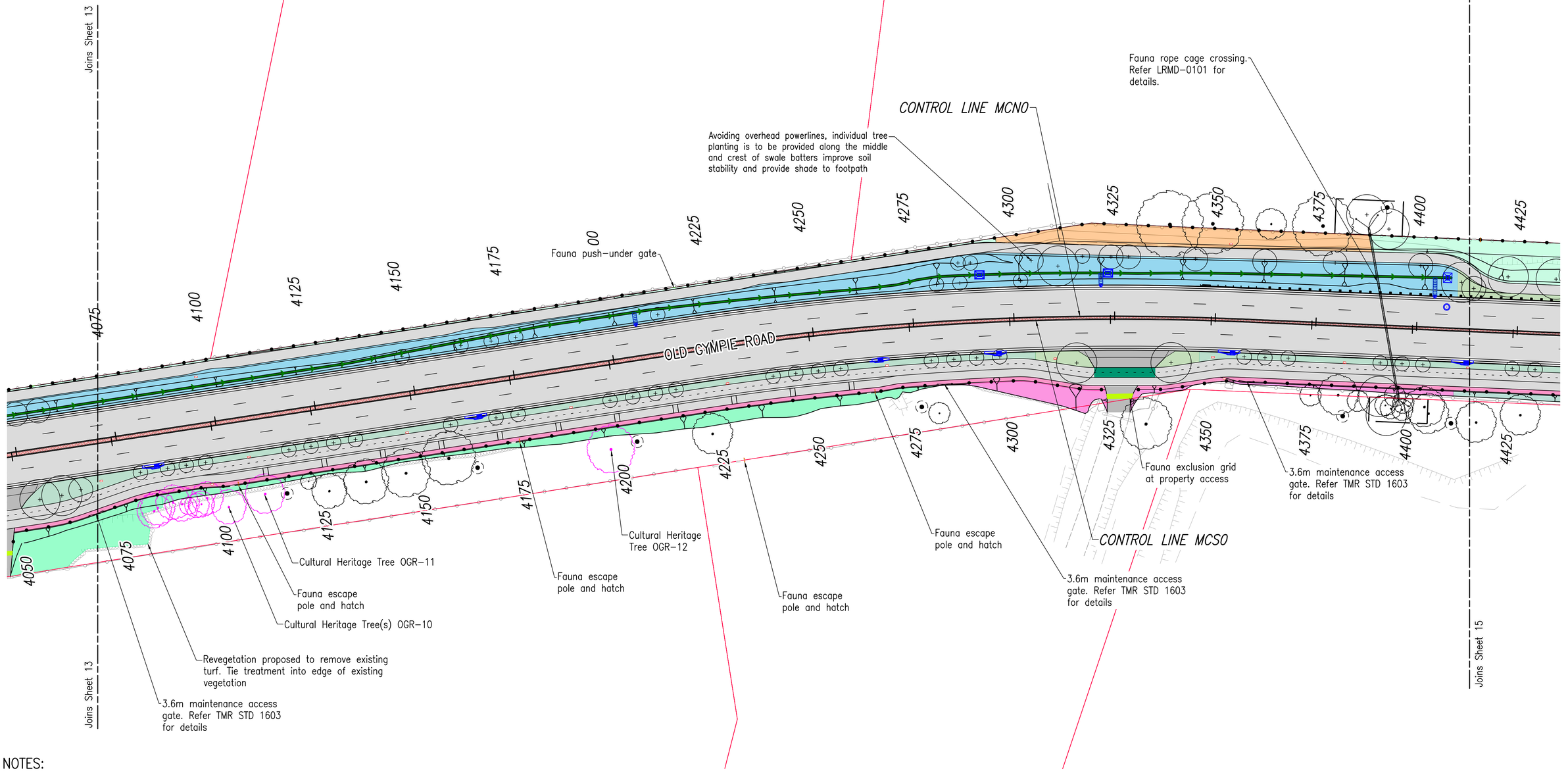
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PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01



NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 14 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

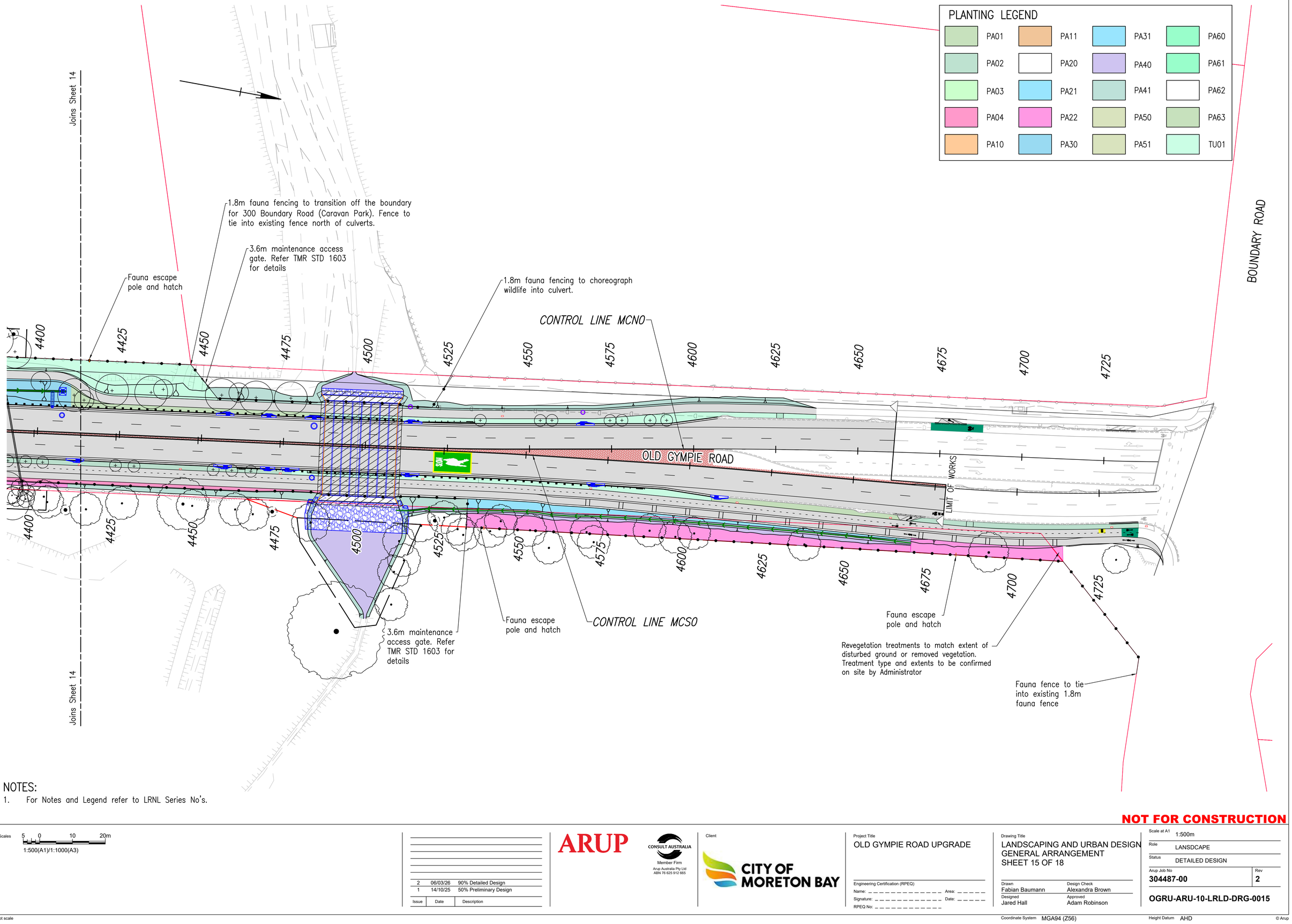
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Arup Job No: 304487-00
Rev: 2

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Coordinate System: MGA94 (Z56)
Height Datum: AHD

Do not scale
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NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 15 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0015

Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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A1

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

LIMIT OF WORKS

TU-01 applied to disturbed extents

ALONGA COURT

Joins Sheet 2

Joins Sheet 2

Joins Sheet 17

Joins Sheet 17

Joins Sheet 2

Joins Sheet 2

VINEY AVENUE

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm

Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)

Name: _____ Area: _____

Signature: _____ Date: _____

RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 16 OF 18

Drawn: Fabian Baumann | Design Check: Alexandra Brown

Designed: Jared Hall | Approved: Adam Robinson

Scale at A1: 1:500m

Role: LANSDCAPE

Status: DETAILED DESIGN

Arup Job No: 304487-00 | Rev: 2

OGRU-ARU-10-LRLD-DRG-0016

Do not scale

Coordinate System: MGA94 (Z56)

Height Datum: AHD

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A1

PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
PA04	PA22	PA50	PA63
PA10	PA30	PA51	TU01

Joins Sheet 16

Ann Street fauna crossing designed and installed by others

LIMIT OF WORKS

SLOW

200

Planting treatment to tie into existing concrete headwall

175

Opportunity to locate Habitat Tree in proximity of active Koala and other fauna habitat to supplement existing large gum trees

CONTROL LINE MC2A

Retention of existing mature gums subject to Arborist Assessment

150

125

Joins Sheet 4

Joins Sheet 4

Joins Sheet 16

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

Scales 5 0 10 20m

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 17 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: 1:500m
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0017

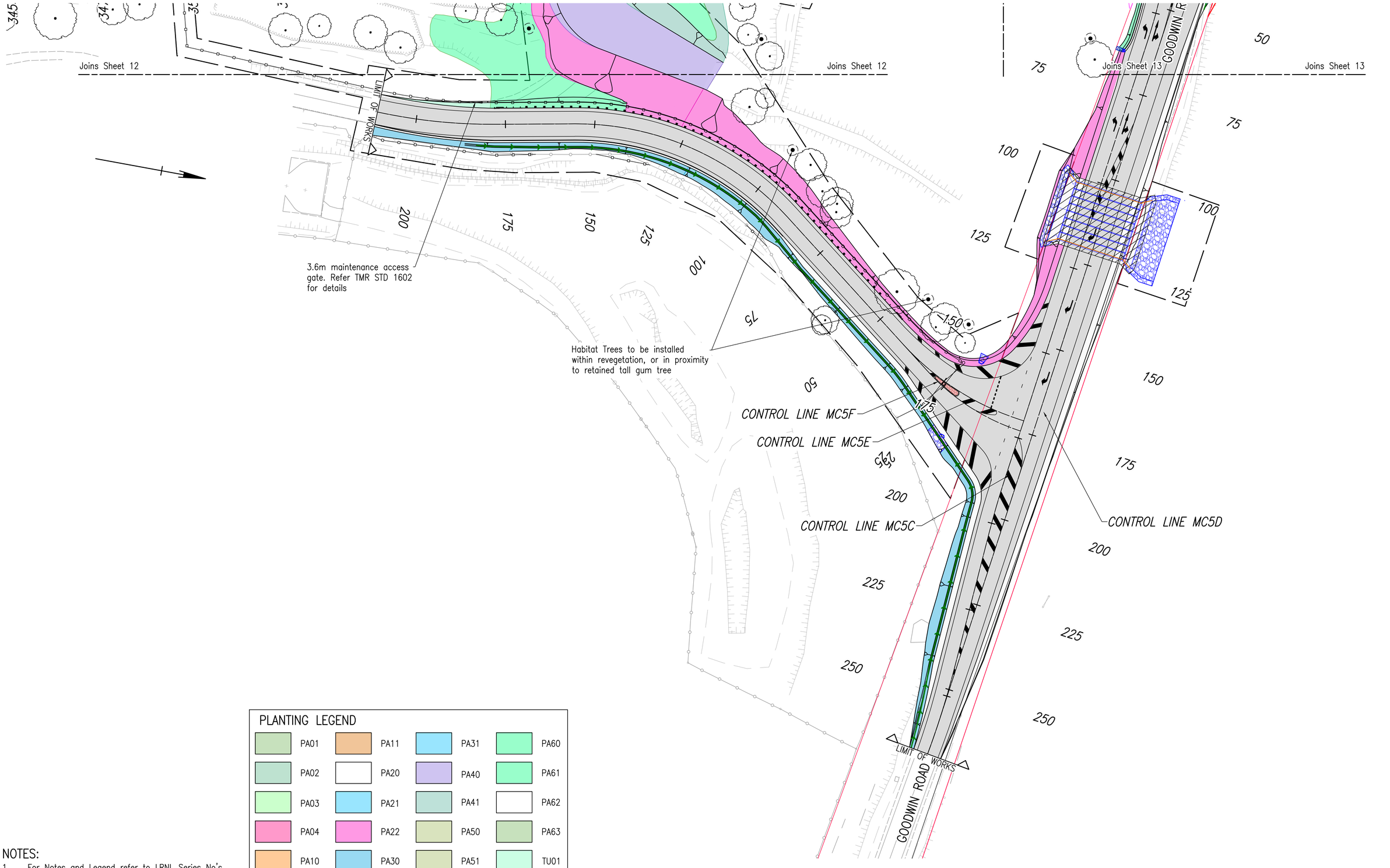
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PLANTING LEGEND

PA01	PA11	PA31	PA60
PA02	PA20	PA40	PA61
PA03	PA21	PA41	PA62
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PA10	PA30	PA51	TU01

NOTES:

1. For Notes and Legend refer to LRNL Series No's.

NOT FOR CONSTRUCTION

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Issue	Date	Description
2	06/03/26	90% Detailed Design
1	14/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GENERAL ARRANGEMENT SHEET 18 OF 18

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

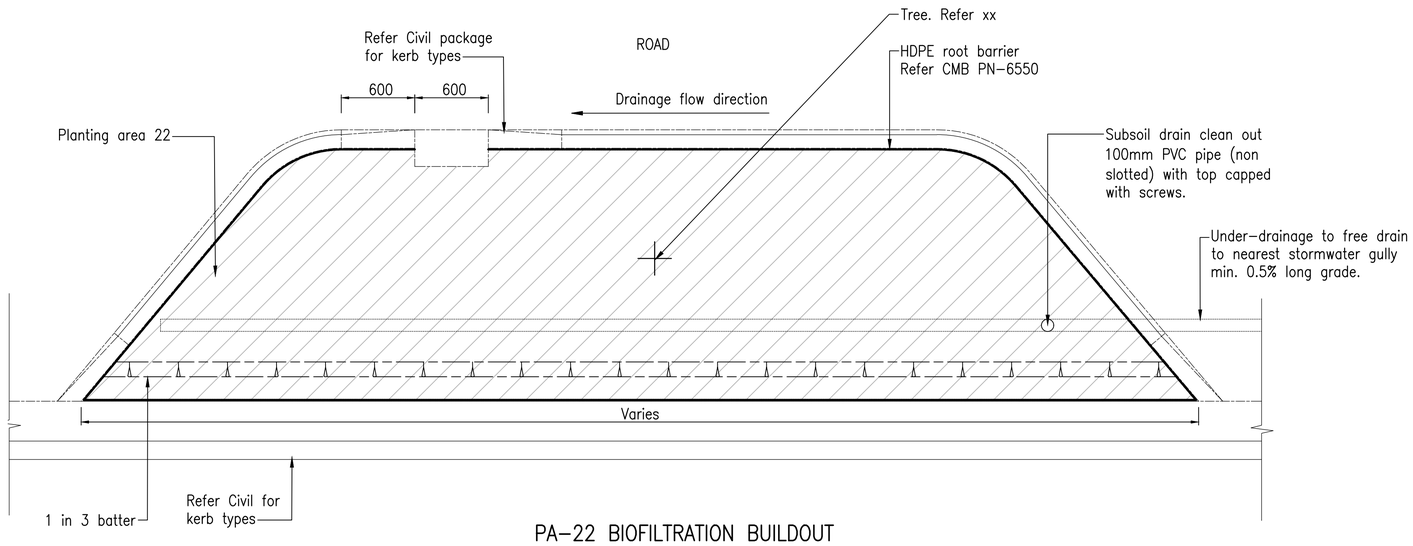
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Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-LRLD-DRG-0018

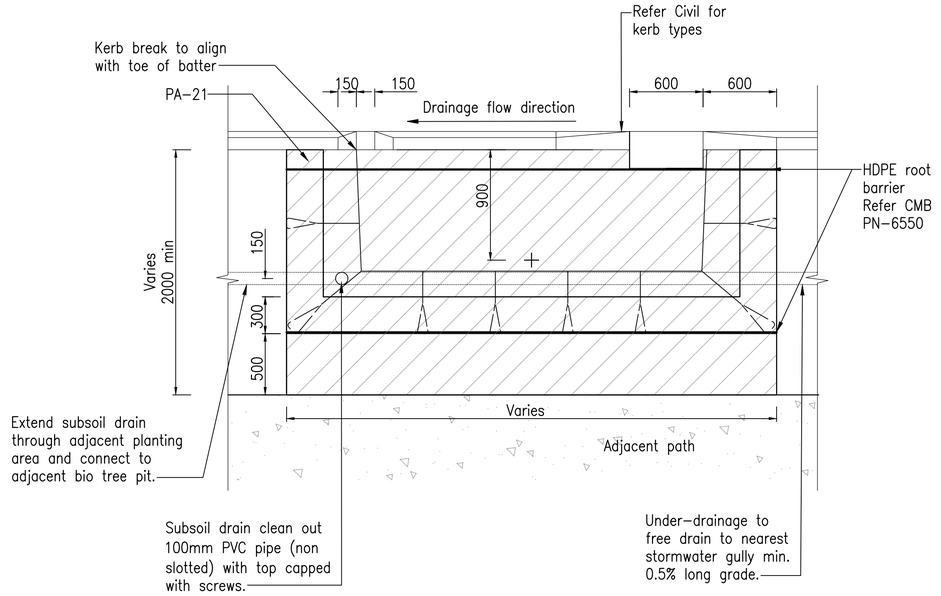
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Do not scale
© Arup

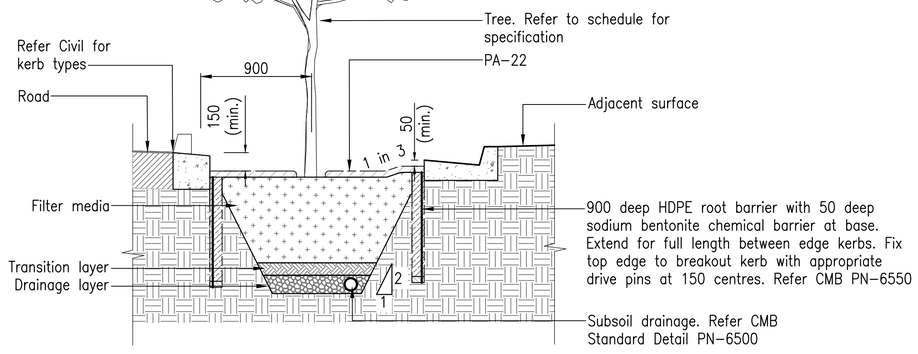
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PA–22 BIOFILTRATION BUILDOUT
TYPICAL PLAN
N.T.S.



PA–21 BIOFILTRATION VERGE TREATMENT
TYPICAL PLAN
N.T.S.



PA–22 BIOFILTRATION BUILDOUT
TYPICAL SECTION
N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title
LANDSCAPING AND URBAN DESIGN DETAILS
SHEET 1 OF 5

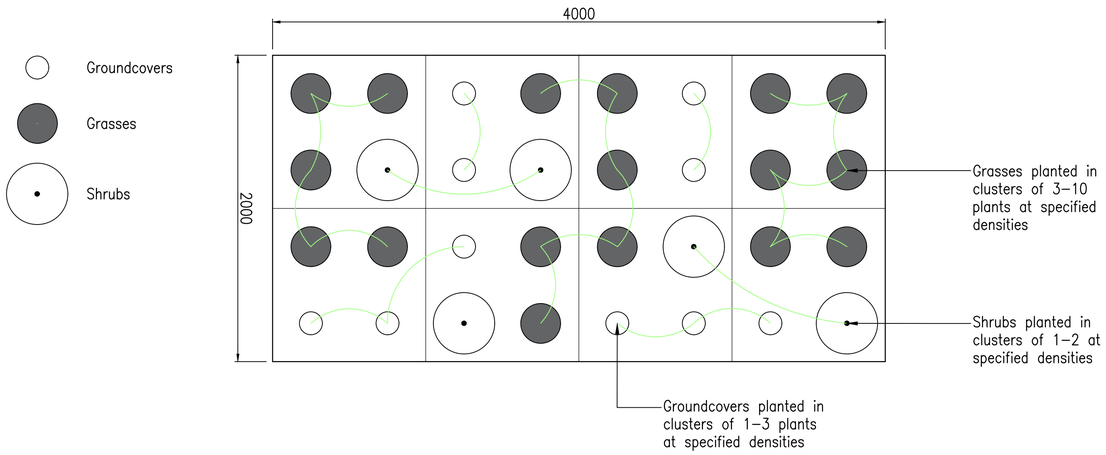
Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-LRMD-DRG-0001

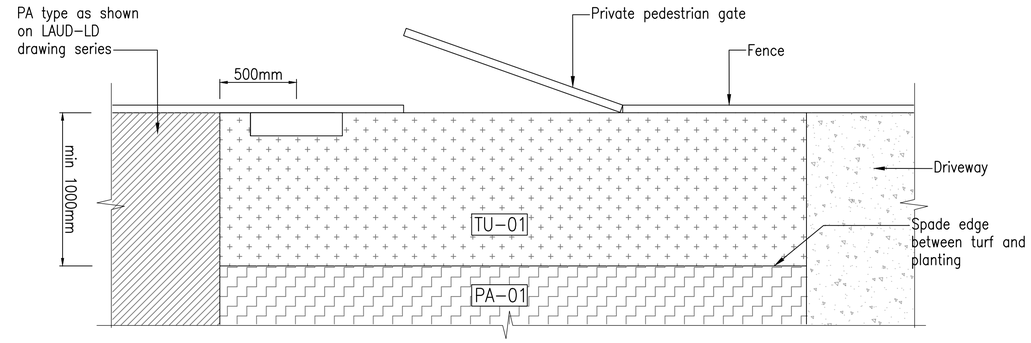
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© Arup

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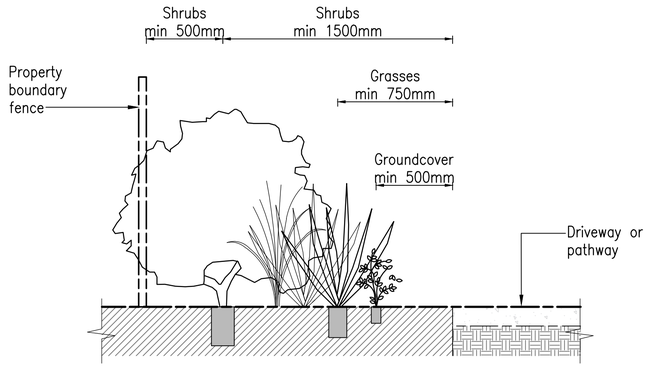
TYPICAL PLANTING MODULE

N.T.S.



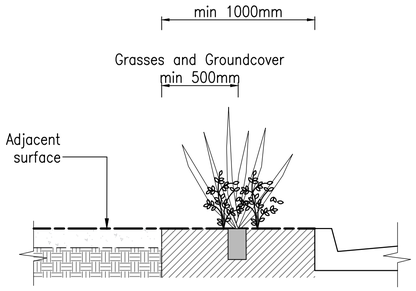
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N.T.S.



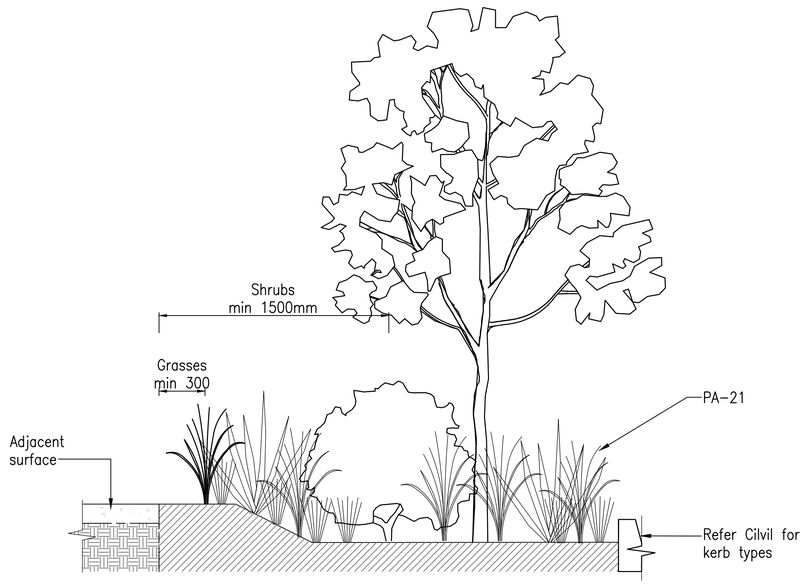
PLANTING SETOUT DETAIL A

N.T.S.



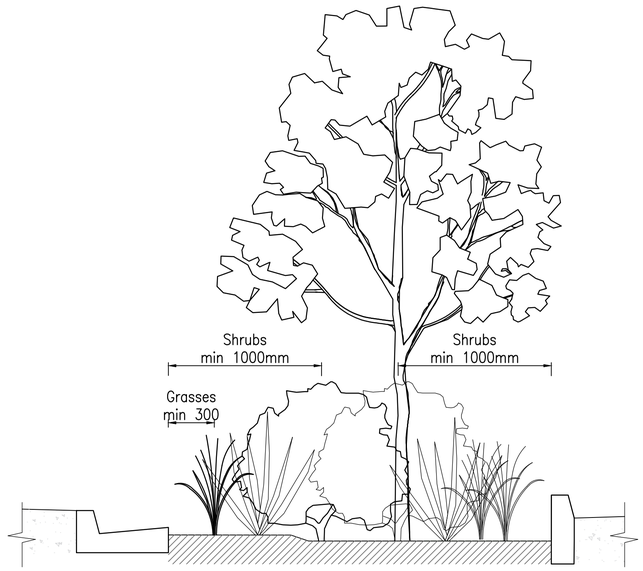
PLANTING SETOUT DETAIL B

N.T.S.



PLANTING SETOUT DETAIL C

N.T.S.



PLANTING SETOUT DETAIL D

N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN DETAILS SHEET 2 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

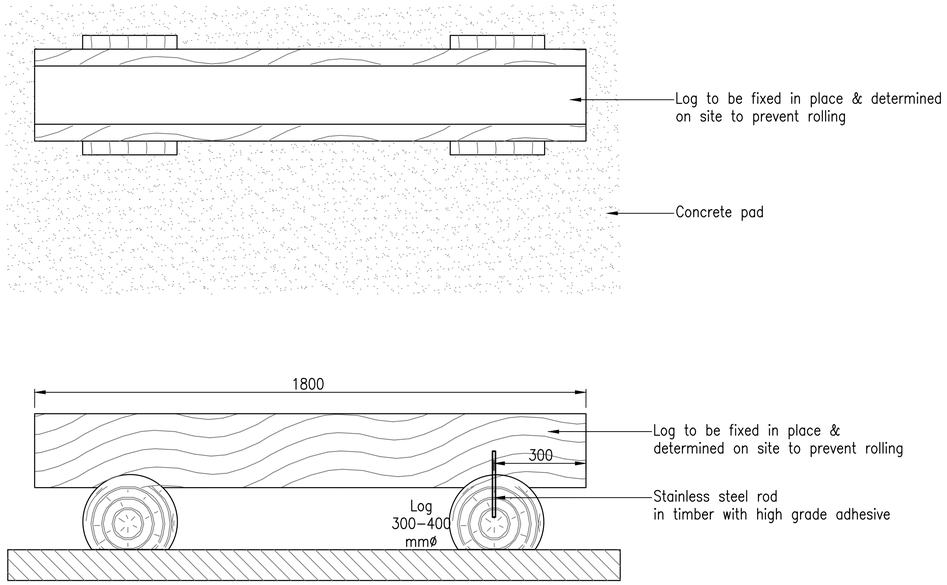
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Height Datum: AHD

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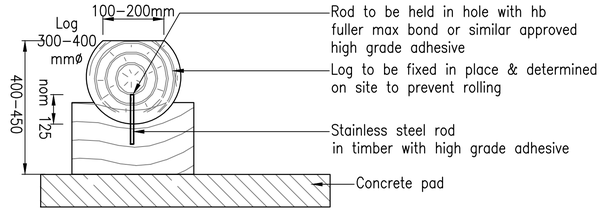
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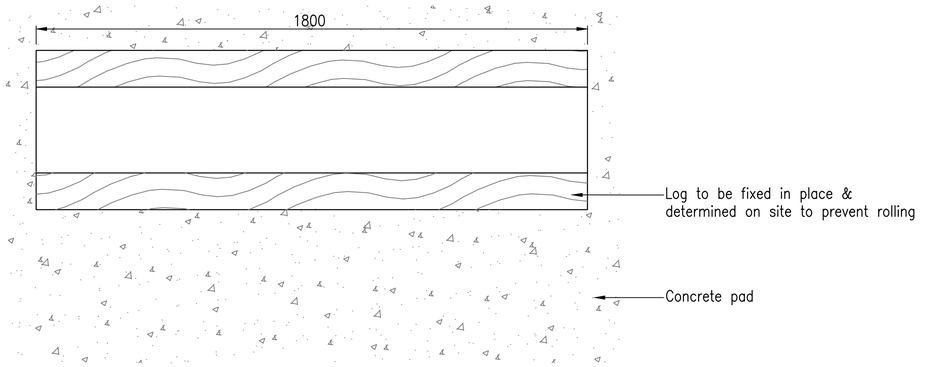
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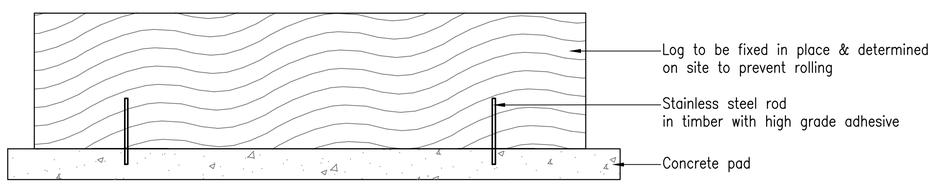


TYPICAL TIMBER REUSE LOG SEAT (A)

N.T.S.

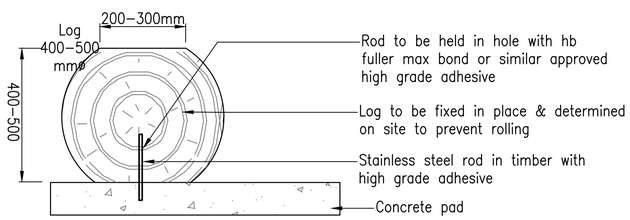






TYPICAL TIMBER REUSE LOG SEAT (B)

N.T.S.



NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN DETAILS SHEET 3 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

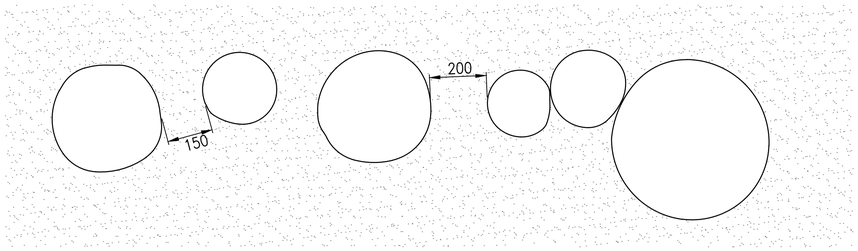
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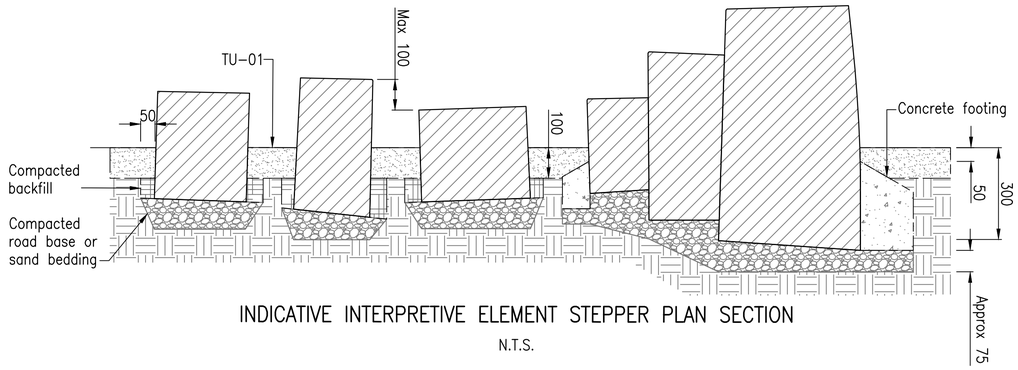
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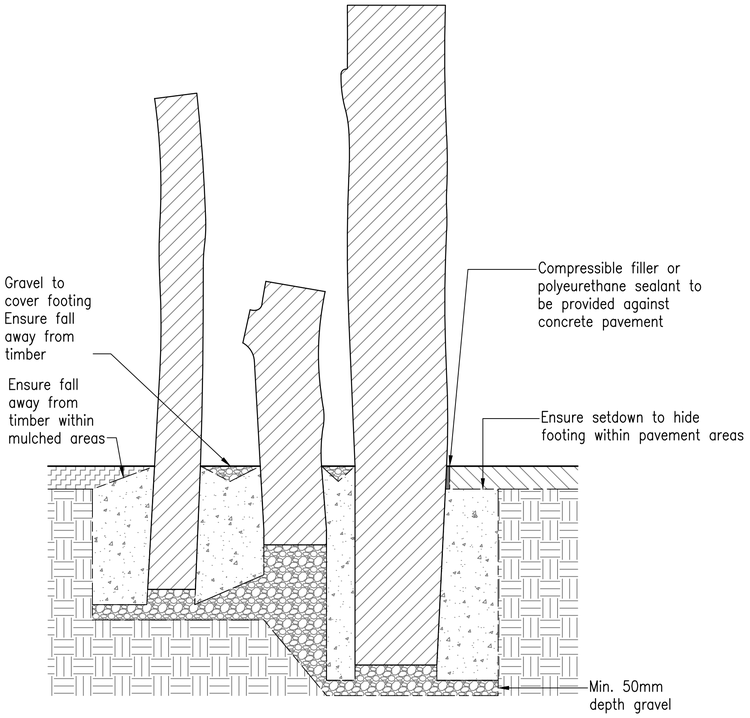
INDICATIVE INTERPRETIVE ELEMENT STEPPER PLAY PLAN

N.T.S.



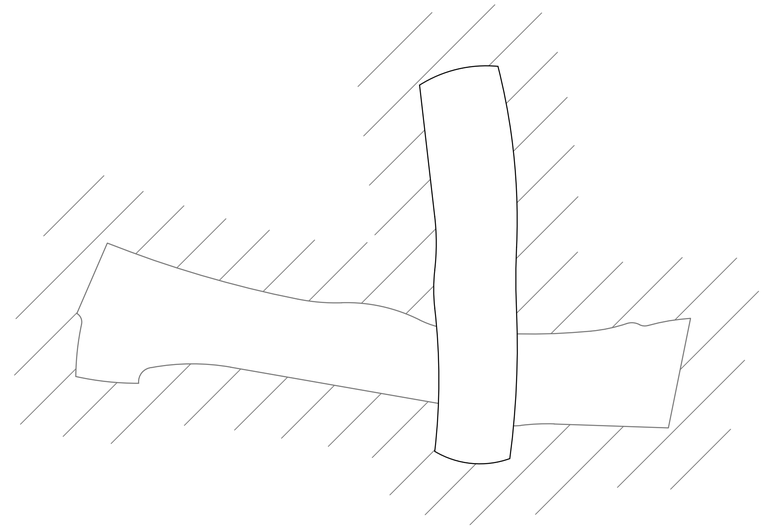
INDICATIVE INTERPRETIVE ELEMENT STEPPER PLAN SECTION

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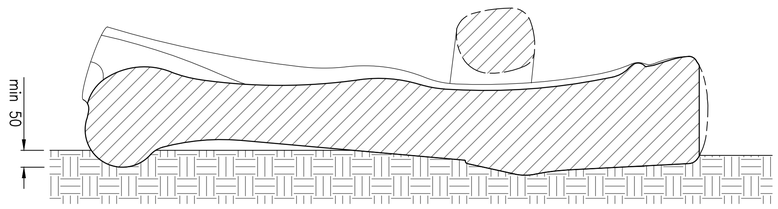
INDICATIVE INTERPRETIVE ELEMENT ARTWORK POLES SECTION

N.T.S.



PLAN VIEW

N.T.S.



SECTION

N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN DETAILS SHEET 4 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

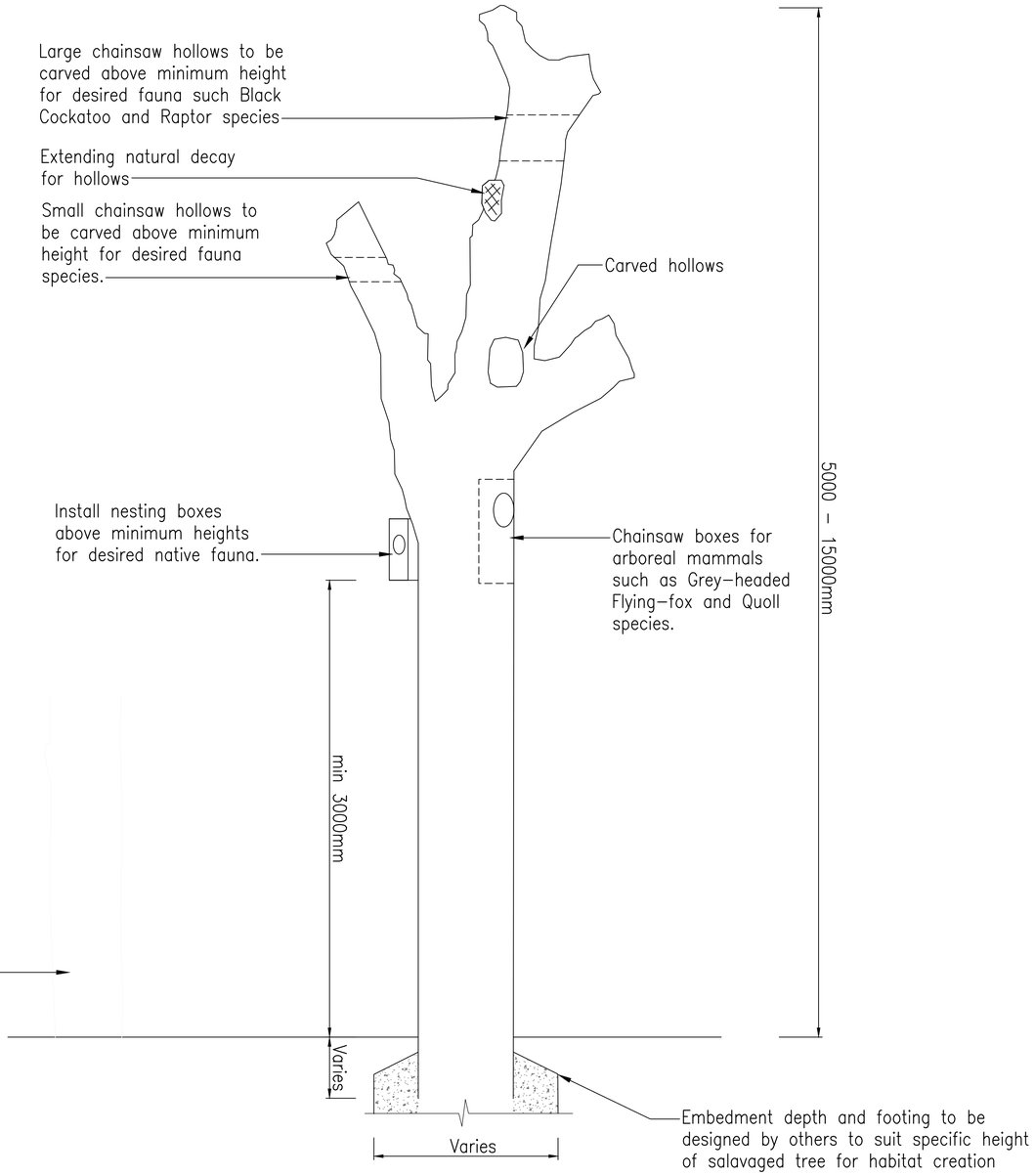
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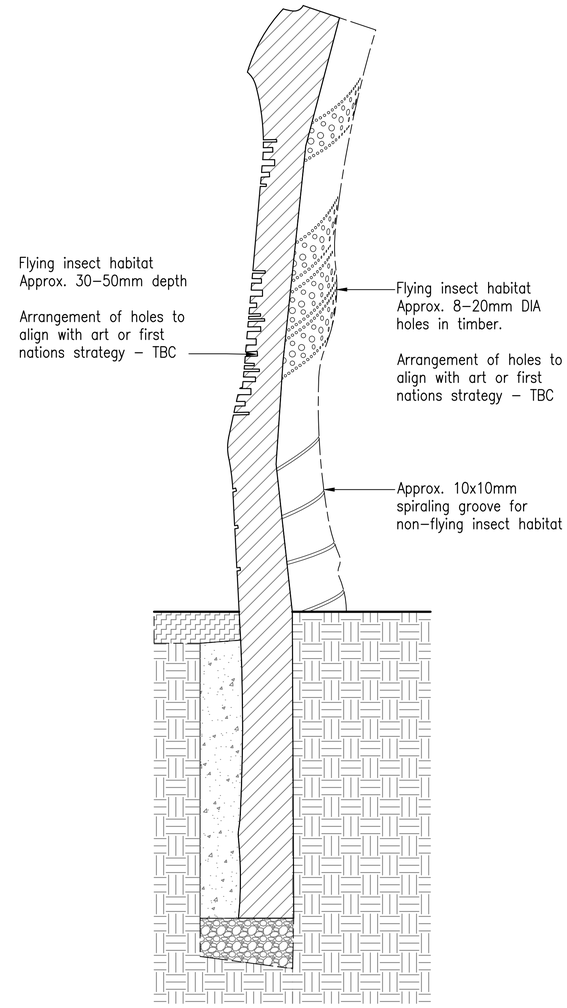
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HABITAT TREE DETAIL
N.T.S.



TIMBER REUSE BEE AND INSECT HOTEL SECTION
N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN DETAILS
SHEET 5 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANSDCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

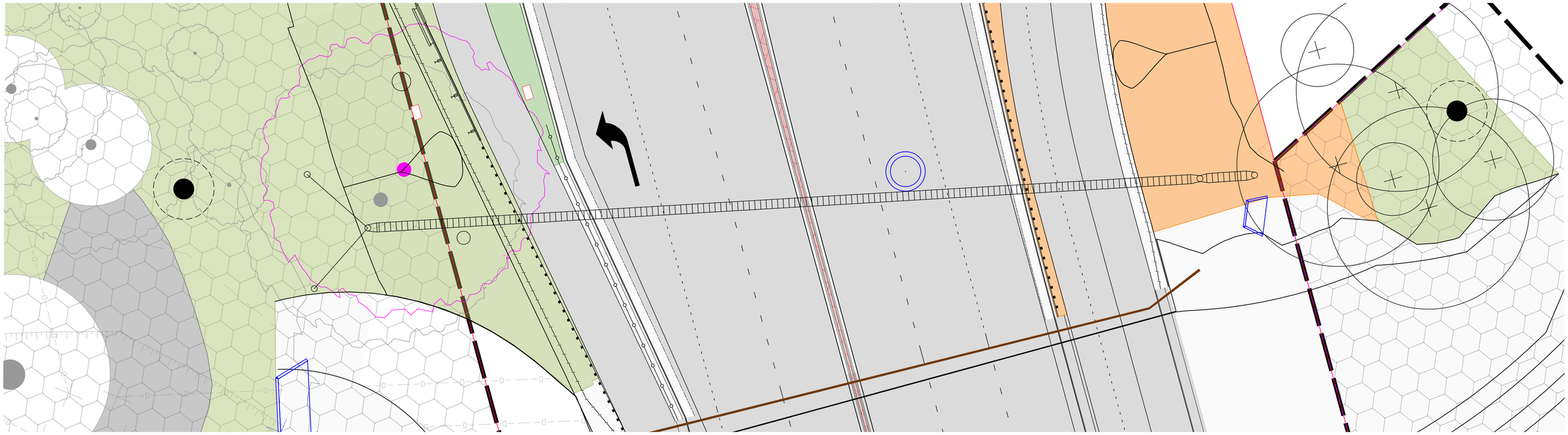
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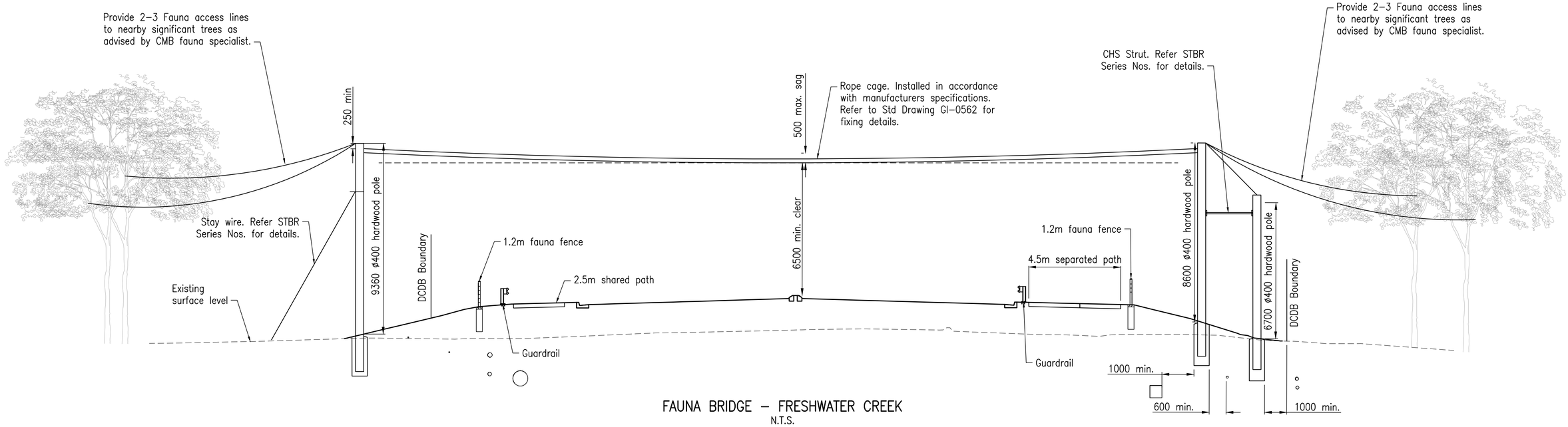
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PLAN
SCALE 1:100



FAUNA BRIDGE – FRESHWATER CREEK
N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GREEN INFRASTRUCTURE DETAILS SHEET 1 OF 5

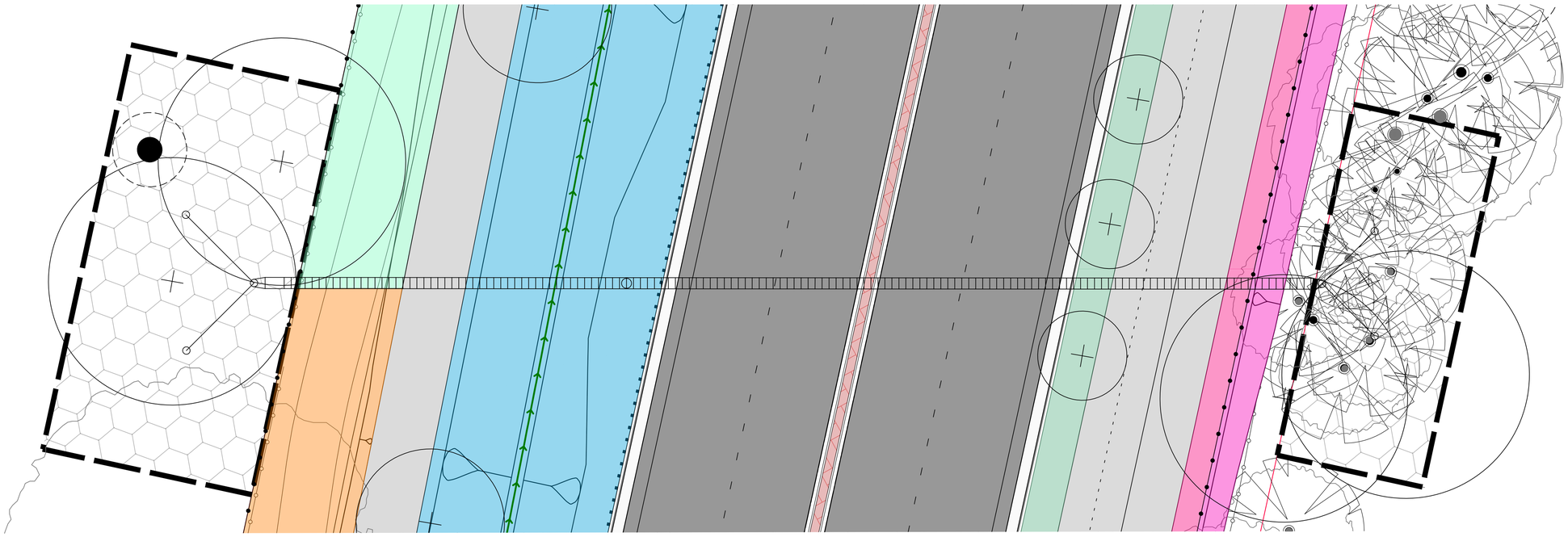
Drawn	Design Check
Fabian Baumann	Alexandra Brown
Designed	Approved
Jared Hall	Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANDSCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

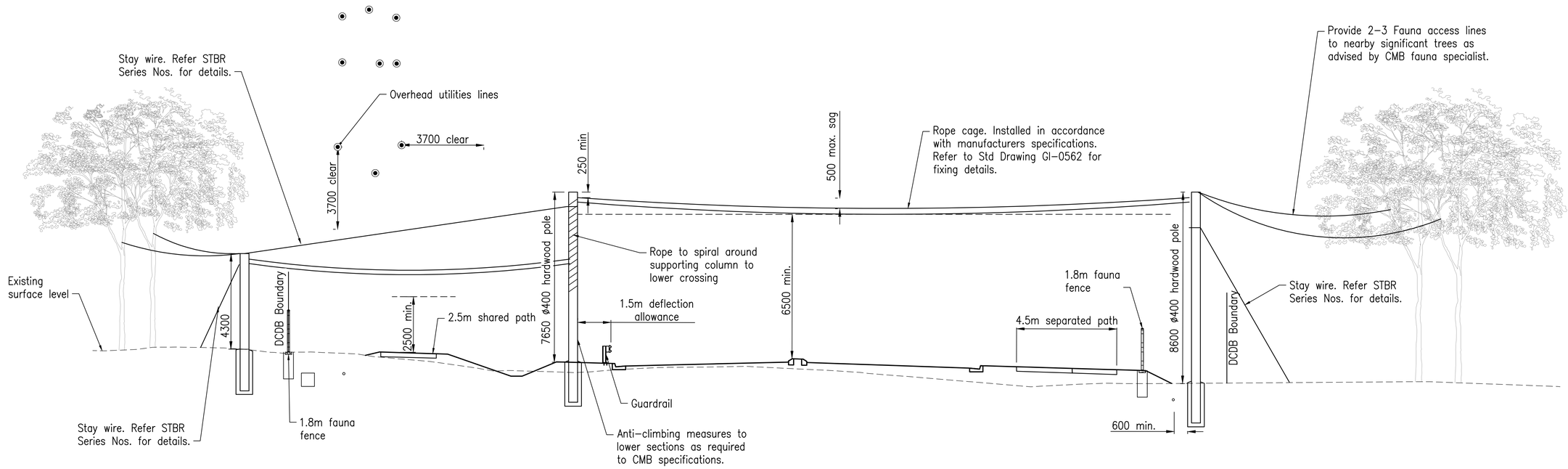
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Height Datum: AHD
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PLAN
SCALE 1:100



FAUNA BRIDGE – APPROX. CH4400
N.T.S.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title
LANDSCAPING AND URBAN DESIGN
GREEN INFRASTRUCTURE DETAILS
SHEET 2 OF 5

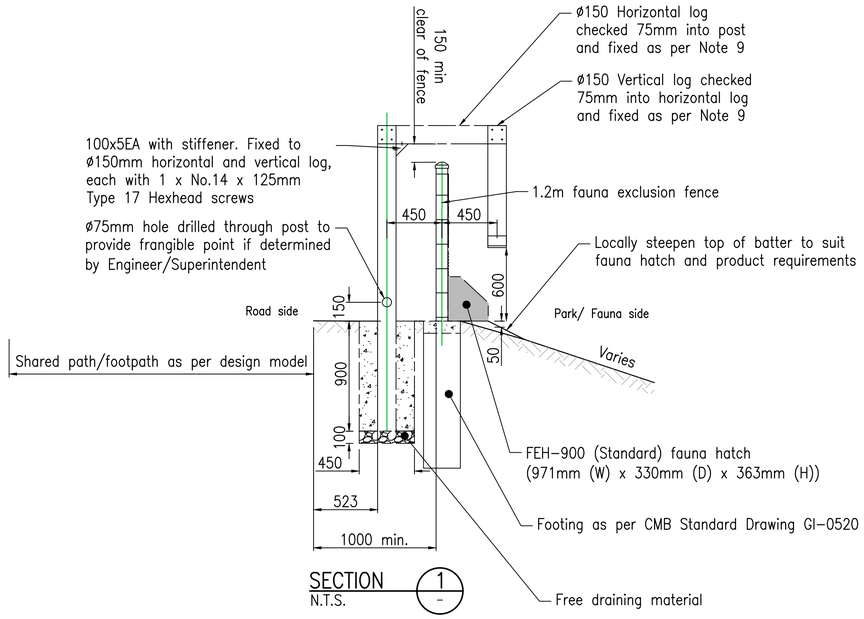
Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANDSCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

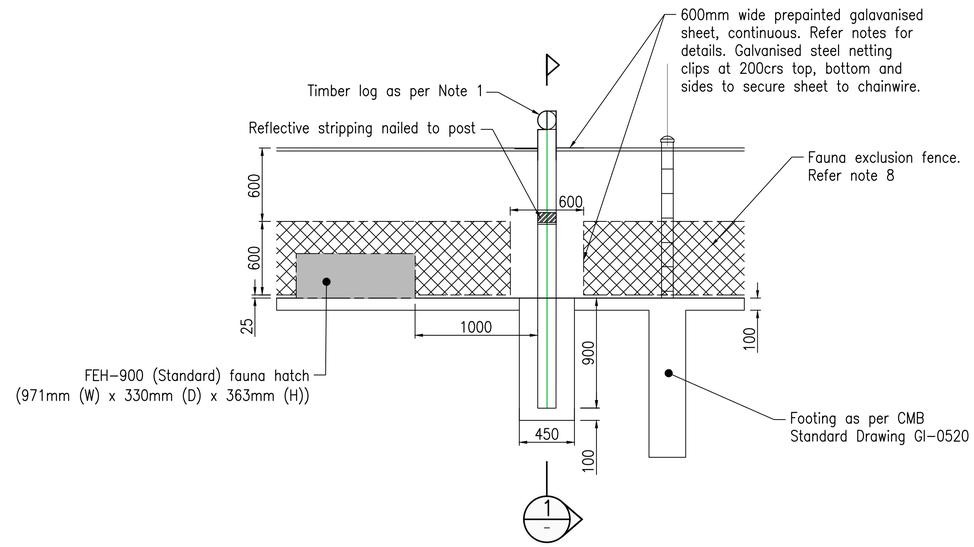
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Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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SECTION 1
N.T.S.



1.2m FAUNA EXCLUSION FENCE ESCAPE POLE ELEVATION
N.T.S.

NOTES:

1. Relatively straight lengths of durability class 1&2 to AS5604:2005 hardwood timber at 150–200mm diameter shall be salvaged from site clearing as material for log escape pole. To be prepared and left natural. 150mm diameter H4 treated pine logs may be used to supplement quality shortfall.
2. Fence posts to be powder–coated "Black" to AS2728
3. "Black" PVC coated chainwire mesh and tie wire shall be used
4. Galvanised steel sheet to be powder coated or prepainted to AS2728. The colour shall be "Black". Sheet shall be 0.4mm BMT.
5. Nails to be treated with 'Zenith–Tufcote' or 'Buildex–Climacoat' or approved equivalent, unless noted otherwise.
6. Pop rivets with aluminium shell and steel stem (large flanged) maximum grip 9.5mm, drill bit No.11 (4.9mm) shall be used.
7. Tie wire shall be 1.57mm green PVC coated galvanised wire unless specified otherwise.
8. 1.2m high fauna exclusion fence as per CMB Standard Drawing GI–0590.
9. Fixing with 4 x No.14 x 125mm Type 17 Hexhead screws.
10. Concrete shall be constructed with reference to MRTS70. Concrete strength N32/20.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

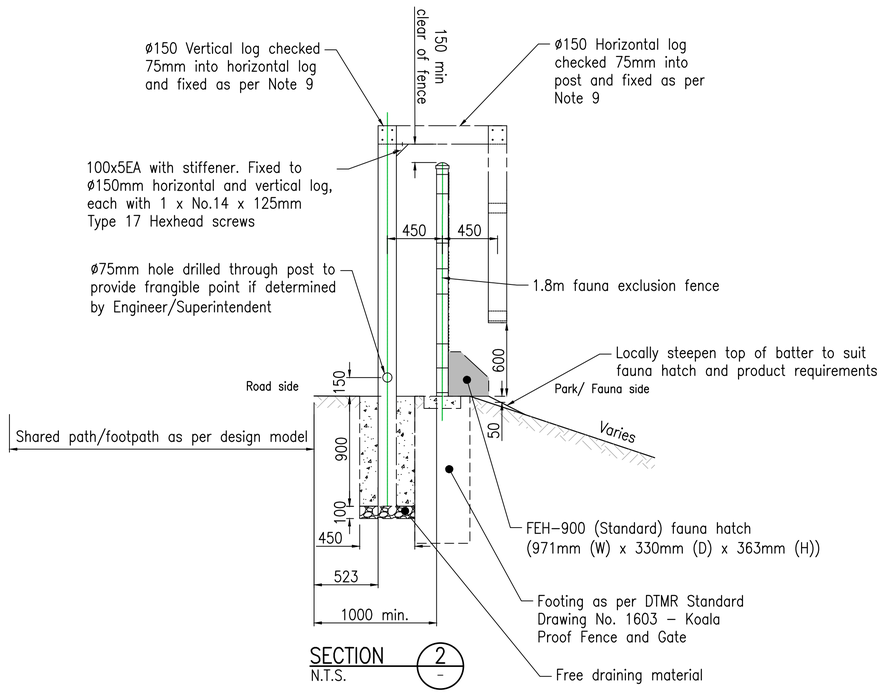
Drawing Title: LANDSCAPING AND URBAN DESIGN GREEN INFRASTRUCTURE DETAILS SHEET 3 OF 5

Drawn	Design Check
Fabian Baumann	Alexandra Brown
Designed	Approved
Jared Hall	Adam Robinson

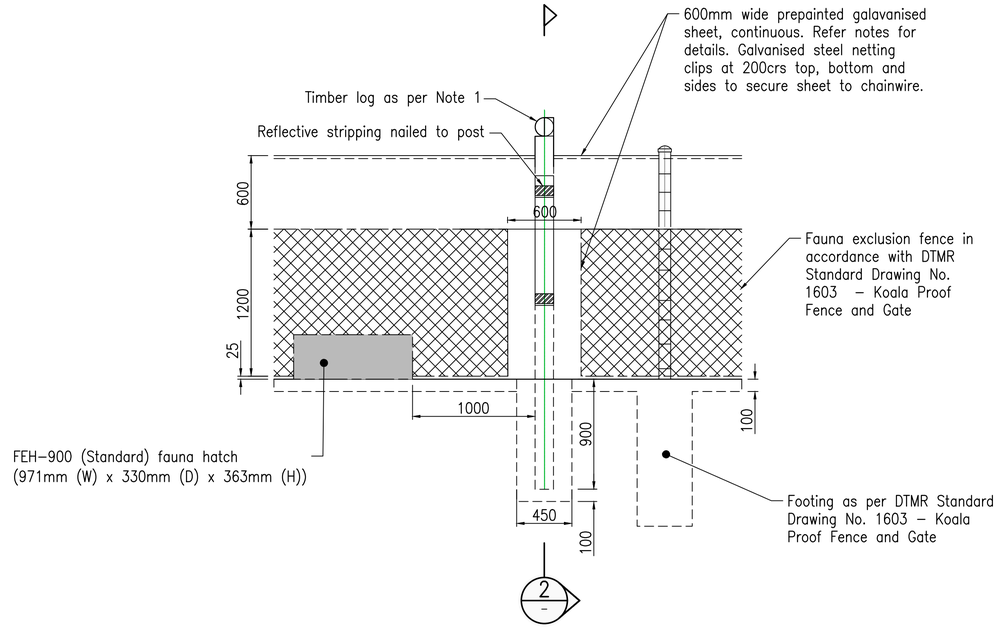
Scale at A1: NOT TO SCALE
Role: LANDSCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1
OGRU-ARU-10-LRMD-DRG-0103

Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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SECTION 2
N.T.S.



1.8m FAUNA EXCLUSION FENCE ESCAPE POLE ELEVATION
N.T.S.

NOTES:

1. Relatively straight lengths of durability class 1&2 to AS5604:2005 hardwood timber at 150–200mm diameter shall be salvaged from site clearing as material for log escape pole. To be prepared and left natural. 150mm diameter H4 treated pine logs may be used to supplement quality shortfall.
2. Fence posts to be powder–coated "Black" to AS2728
3. "Black" PVC coated chainwire mesh and tie wire shall be used
4. Galvanised steel sheet to be powder coated or prepainted to AS2728. The colour shall be "Black". Sheet shall be 0.4mm BMT.
5. Nails to be treated with 'Zenith–Tufcote' or 'Buildex–Climacoat' or approved equivalent, unless noted otherwise.
6. Pop rivets with aluminium shell and steel stem (large flanged) maximum grip 9.5mm, drill bit No.11 (4.9mm) shall be used.
7. Tie wire shall be 1.57mm green PVC coated galvanised wire unless specified otherwise.
8. 1.8m high fauna exclusion fence as per TMR Standard Drawing 1603
9. Fixing with 4 x No.14 x 125mm Type 17 Hexhead screws.
10. Concrete shall be constructed with reference to MRTS70. Concrete strength N32/20.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN GREEN INFRASTRUCTURE DETAILS SHEET 4 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

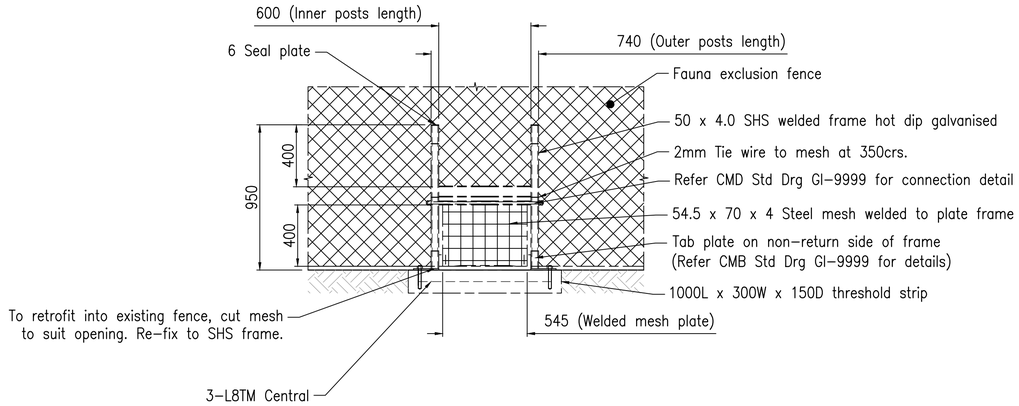
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Role: LANDSCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-LRMD-DRG-0104

Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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FAUNA PUSH-STYLE GATE
ELEVATION
N.T.S.

NOTES:

1. Refer CMB Std Drg GI-9999 for general notes, concrete and steelwork requirements.
2. Push-under fauna gate can be either constructed within a new fence or retrofitted to existing fence.
3. Macropod gate (CMB Std Drg GI-9999) modified for koala use by reducing clear opening height.
   Opening dimensions selected to permit koala passage while excluding larger fauna.

NOT FOR CONSTRUCTION

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: _____ Area: _____
Signature: _____ Date: _____
RPEQ No: _____

Drawing Title: LANDSCAPING AND URBAN DESIGN
GREEN INFRASTRUCTURE DETAILS
SHEET 5 OF 5

Drawn: Fabian Baumann
Design Check: Alexandra Brown
Designed: Jared Hall
Approved: Adam Robinson

Scale at A1: NOT TO SCALE
Role: LANDSCAPE
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-LRMD-DRG-0105

Do not scale
Coordinate System: MGA94 (Z56)
Height Datum: AHD
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NOT FOR CONSTRUCTION

DETAILED DESIGN

GENERAL

1.1 These drawings shall be read in conjunction with all reference drawings and specifications, including Transport and Main Roads (TMR) standard specifications, and with such other written instructions as may be issued during the course of the contract. All discrepancies shall be referred to the Design Engineer for decision before proceeding with work.

1.2 All materials and workmanship shall be in accordance with the relevant and current Australian Standards or codes and with the by-laws and ordinances of the relevant authorities except where varied by the project specification.

1.3 During construction, the site shall be maintained in a safe and stable condition. Temporary bracing shall be provided by the Contractor as required to keep the works and excavations stable at all times.

1.4 The Contractor shall implement erosion and sediment control measures during construction, and limit the disturbance of soils to that necessary for construction of the project.

1.5 Trade names have been used for a particular product requirement but equivalent products may be submitted for approval.

1.6 Formwork for the deck shall be supported by the girders. On no account shall the formwork be propped from the ground.

1.7 A permanent survey mark is to be cast into the top of Wingwall 1.

1.8 A date plate is to be cast into the outside face of Wingwall 1 at Abutment A. Provided date plate to be in accordance with MRSD2005.

1.9 All construction survey setting out and as-constructed requirements are to adhere to the procedures and guidelines as prescribed in the TMR Surveying Standards.

1.10 All drawing cross-references between drawings shall reference only the final four digits of the full 'Drawing Number'.

SERVICES

2.1 The locations of underground services have been obtained from existing records from which the accuracy cannot be guaranteed.

2.2 The location of all existing services shall be confirmed on site before commencing work.

2.3 All existing services must be protected before works are carried out in vicinity of bridge works.

2.4 Prior to any demolition, excavation or construction on the site, the Contractor shall contact the relevant authorities to ascertain the possible location of any additional services and the detailed location and depth of all service(s) and arrange for their relocation where necessary.

EARTHWORKS

3.1 This drawing set is to be read in conjunction with the Preliminary Design Geotechnical Assessment Report (304487-ARU-00GEGE-RPT-000001).

3.2 All earthworks to be carried out in accordance with MRTS04 and MRTS04.1.

DIMENSION/HEIGHT

4.1 Heights, chainages and co-ordinates are all in metres.

4.2 All other dimensions are in millimetres, UNO.

4.3 All heights are to Australian Height Datum.

4.4 Dimensions shall not be scaled from drawings.

4.5 Setout co-ordinates are to MGA2020 - Zone 56.

4.6 Heights are calculated allowing for Deck Wearing Surface (DWS) including bituminous waterproof membrane of minimum 60mm thick.

4.7 Substructure heights have been calculated based on precast girder design hogs at 150 days so as to achieve the minimum RC deck thickness at midspan (as shown on the drawings).

4.8 Should the measured hog values fall outside of the values on the drawings (including the tolerance allowed by MRTS73), then an adjustment is required to the bridge or road levels. This adjustment shall be carried out in consultation and the approval of the Design Engineer.

CONCRETE

5.1 Concrete grade to be as follows:

ELEMENT	EXPOSURE CLASS	CONCRETE GRADE
Blinding concrete	N/A	N20/20
RC Cast In Place Piles	B2	S50/20
RC Abutment	B2	S40/20
PSC Super-T Girders	B2	S50/20
Deck Slabs and Kerbs	B2	S40/20
RC Relieving Slabs	B2	S40/20
Footpath/Shared Path RC Slab	B2	S40/20

Note: The class designation specifies the required Class and Grade to AS 1379 and the nominal maximum aggregate size (mm).

5.2 All concrete work including compaction operations, curing and finishes shall be in accordance with MRTS70.

5.3 Concrete mix design including proportions of additives and cementitious replacement materials shall be in accordance with MRTS70 and shall be submitted for approval prior to the placement of any concrete.

5.4 The drying shrinkage strain for the RC deck slab shall be limited to a maximum of 600E-6 and shall be verified by testing in accordance with AS 1012.13.

5.5 Heat of hydration of concrete shall conform to MRTS70. In particular Clause 15.5 which limits maximum internal temperatures and maximum temperature differential of concrete for members with a minimum thickness exceeding 1m.

5.6 The maximum temperature in a section shall be limited to 80°C and the temperature differential between minimum and maximum temperature shall be limited to 25°C.
Thermal modelling of thick sections to meet the criteria above during detailed design. Estimated minimum formwork removal times and maximum concrete placement temperatures will be summarised in MRTS62.1 for substructure elements and MRTS63.1 for pile elements.

5.7 Thick sections shall be subject to temperature control and monitoring during construction and curing of the concrete. A procedure for controlling and reducing the peak and differential temperatures, including the above noted design assumptions, shall be submitted to the Design Engineer prior to construction, with construction control measures implemented in the event of the trigger temperatures being reached. Trigger temperatures are 75°C and 22°C for the peak and differential temperatures respectively.

5.8 All exposed edges having a contained angle of less than 120° to have 19x19 chamfers UNO.

5.9 Construction joints shall be in accordance with MRTS70 and used only as shown on the drawings. No construction joint shown on the drawings shall be omitted without the written approval of the Design Engineer.

5.10 No penetrations, chases or temporary fixtures other than those shown on the structural drawings, are permitted in the concrete members without prior approval of the Design Engineer.

5.11 At penetrations with dimensions less than 300mm do not cut reinforcement, rather gather reinforcement to each side of penetration unless noted otherwise on the plans. At penetrations with dimensions greater than 300mm, lay reinforcement in required position and cut out to suit penetration. Provide additional bars to match size, length and number of bars cut, and place equally on each side of the penetration UNO on the plans with additional length for anchorage. All details should be referred to the Design Engineer for approval.

REINFORCING STEEL

6.1 Reinforcing steel to be read in conjunction with MRSD 1043.

6.2 Reinforcing steel to be in accordance with AS/NZS 4671 and MRTS71.

6.3 Reinforcing steel nomenclature on this set of drawings is as follows:

8-N20-A-150 NF

- Location definition
- Maximum design spacing of reinforcing bars.
- Bar shape. Refer MRSD 1043.
- Bar size. Refer MRSD 1043.
- Grade of reinforcing bar. Where the grade of bar is not shown it is to be taken as D500N.
  Normal ductility class:
  - R Denotes R250N - Plain grade 250 bars to AS/NZS 4671. Normal ductility class.
  - N Denotes D500N - Deformed 500 grade bars to AS/NZS 4671. Normal ductility class.
  - SL or RL Denotes R500SL, R500RL, D500SL, D500RL, 1500SL, 1500RL, welded mesh: Plain, deformed and indented to AS/NZS 4671 square or rectangular. Low ductility class.
- Number of identical bars where applicable.

6.4 Location definitions:

BF	Denotes bottom face	EW	Denotes each way
TF	Denotes top face	LV	Denotes length varies
T&B	Denotes top and bottom	ALT	Denotes alternate bar
NF	Denotes near face	AP	Denotes alternatively placed
FF	Denotes far face	AS	Denotes alternatively spaced
EF	Denotes each face	ABR	Denotes alternate bar reversed
ES	Denotes equally spaced	NSOE	Not shown on Elevation

6.5 Manufacturers and processors of steel reinforcement must hold a valid certificate of approval, issued by the Australian Certification Authority for Reinforcing Steel (ACRS), and registered to MRTS71.

6.6 Nominal cover to reinforcing steel to be used in each element of the work shall be as follows UNO:-

ELEMENT	COVER
Blinding concrete	N/A
RC Cast In Place Piles	80
RC Abutment	60*
PSC Super-T Girders	40**
RC Deck Slabs and Kerbs	60
RC Deck Slabs (Underside)	30***
RC Relieving Slabs	60*
Footpath/Shared Path RC Slab	60

* Cover to be increased by 10mm where concrete is cast against ground on a damp-proof membrane or concrete blinding.
** Rigid forms and intense compaction.
*** 30 at Super-T step location as per detail shown during detailed design.

6.7 Spacing of ligatures in headstock may be altered slightly, if necessary, to clear pile head bars, cast in bolts and formed holes.

6.8 Reinforcement to be hot dip galvanised to AS/NZS 4680 where shown.

6.9 All reinforcement shall be firmly supported with placement and material of all chairs and spacers in accordance with MRTS70.

6.10 Laps and other splices in reinforcing steel shall only be made at the positions shown on the drawings unless alternative or extra locations are approved in writing by the Design Engineer.

6.11 Side and end laps in welded mesh reinforcement shall be in accordance with AS 5100.5 Clause 13.2.4.

6.12 All lapped bars shall be tied with 1.25 minimum diameter annealed wire at 600 maximum centres.

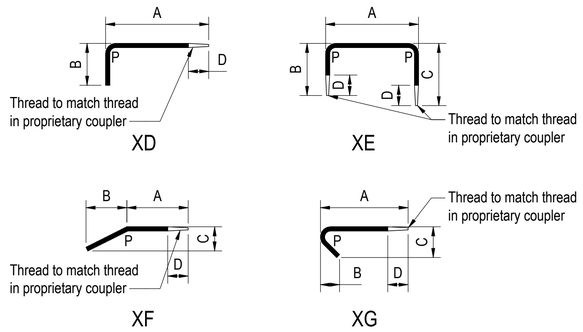
6.13 Welding of reinforcement shall only be used where prior approval of the Design Engineer has been obtained and shall be carried out in accordance with MRTS71.

6.14 Minimum splice lengths (based on a minimum S40 concrete as listed in Note 5.1 above) are as follows:

	BAR SIZE mm	N12	N16	N20	N24	N28	N32	N36	N40	SL81
Minimum Lap Length (mm)	Vertical bars and horizontal bars with <300mm concrete below the bar	500	650	800	1000	1250	1500	1800	2150	300
	Horizontal bars with ≥ 300 mm concrete below the bar			950	1300	1650	1950	2350	2800	

6.15 Reinforcing bars shown on the drawings are represented diagrammatically and not necessarily in true projection. Reinforcing bars to be laid coplanar to maintain specified clear concrete cover.

6.16 Non standard bar shapes:



STEELWORKS

7.1 Steelwork to be fabricated to MRTS78 'Fabrication of Structural Steelwork'.

7.2 Stainless steelwork to be fabricated to the requirements of MRTS78A 'Fabrication of Structural Stainless Steelwork'.

7.3 Hot rolled steel sections and flat bar to be Grade 300 to AS/NZS 3679.1.

7.4 RHS and SHS tube to be Grade C450L0 to AS/NZS 1163.

7.5 All Extra Light and Light CHS to AS/NZS 1163 to be grade C350L0
All Medium, Heavy, and Extra Heavy CHS to AS/NZS 1163 to be grade C250L0

7.6 Steel plate to be Grade 250 minimum to AS/NZS 3678, UNO.

7.7 Stainless steel flat bar and round bar to ASTM A276.

7.8 Stainless steel plate to ASTM A240.

7.9 All steelwork to be hot dip galvanised to AS/NZS 4680 unless noted otherwise. Prior to galvanising, all weld splatter and welding slag is to be removed.

7.10 All hollow section material manufactured to AS/NZS 1163 will require abrasive blasting to develop a surface profile of 50µm prior to hot dip galvanising.

7.11 All plate material manufactured to AS/NZS 1594 will require abrasive blasting to develop a surface profile of 50µm prior to hot dip galvanising.

7.12 All members to be branded with suitable type number after fabrication.

7.13 The Contractor shall prepare shop drawings for all steelwork members and submit to the Design Engineer for acceptance prior to fabrication. Fabrication shall not commence until approval has been given (review does not include the checking of dimensions).

7.14 The Contractor shall provide and leave in place (until permanent bracing elements are constructed) such temporary bracing as is necessary to stabilise the structure during erection. Details of temporary bracing and support and method statement for transportation and erection, shall be designed by a RPEQ and submitted to the Design Engineer for review prior to erection.

7.15 Cast-in and post-installed fastenings in concrete (including bolts) have been designed in accordance with AS 5216. Fastenings shall be tested and installed in accordance with AS 5216 and the manufacturer's recommendations. The installer of post-installed fasteners shall be accredited with AEFAC.

BOLTS:

7.16 Commercial grade bolt assemblies to be:-
- Bolts class 4.6 to AS 1111.1
- Nuts class 5 to AS 1112.1
- Washers for class 4.6 bolts to AS 1237.1
- Snug tightened to AS 5100.6

7.17 High strength bolt assemblies to be:-
- Bolts class 8.8 to AS/NZS 1252
- Nuts class 8 to AS/NZS 1252
- Washers for class 8.8 bolts to AS/NZS 1252
- Snug tightened to AS5100.6 unless noted otherwise

7.18 All bolts and nuts to be hot dip galvanised to AS/NZS 1214. All washers to be hot dip galvanised to AS/NZS 4680:2006 UNO.

7.19 Couplers (fasteners) to AS 1444 or approved equivalent. Threads for couplers to AS 1275.

7.20 Unless noted otherwise, all bolts shall be in 2mm clearance holes.

7.21 For supply of structural fasteners, refer to MRTS278.

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Scales

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL NOTES AND LEGEND SHEET 1

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1

Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0011

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Coordinate System MGA2020 Z56
Height Datum AHD Derived

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NOT FOR CONSTRUCTION

DETAILED DESIGN

WELDING

8.1 Welding symbols to AS 1101.3.

8.2 Structural Steel:-
- All welding to AS/NZS 1554.1.
- All welds, except location tack welds, to be SP category.
- Welding consumables to be controlled hydrogen type G493 to AS/NZS ISO 14341-B, or T493 to AS/NZS 17632-B unless noted otherwise.
- All welding shall be carried out in the fabrication yard. No field welding permitted.

8.3 Reinforcing Steel:-
- Welding of bar splices to AS/NZS 1554.3
- All welds, except location tack welds, to be SP category.
- Tack welding for location purposes to AS/NZS 1554.3 Clauses 3.3.1 and 3.3.2.
- Welding shall not be carried out within 75mm from any bent portion of bar.
- Welding consumables to be B-G49X or B-T49X.
- Welding consumables to AS/NZS ISO 17632 or AS/NZS 14341.

8.4 Stainless Steel:-
- Welding to AS/NZS 1554.6
- Weld quality - Category 28
- Welding consumables to be 3161 unless noted otherwise.
- Welding consumables to AS/NZS ISO 17777:2023 and/or AS/NZS 4854.

DECK

9.1 Construction of the reinforced concrete deck shall be to MRTS77 Bridge Deck.

9.2 Coat finished deck surface with bituminous waterproofing membrane for the full length of the bridge excluding relieving slabs. Refer pavement drawings.

9.3 Relieving slabs are to be constructed on blinding concrete.

9.4 Deck Casting Notes:-
- RC deck slab to be cast no later than 150 days from manufacture of the PSC Super-T girders.
- Deck topping slab to be carried out as a continuous operation.

9.5 Conduits:-
- All conduits to be in accordance with AS/NZS 61386.21:2015.
- Electrical conduits to be HD PVC orange.
- Communications conduits to be HD PVC white.

9.6 Expansion joints shall be supplied and installed in accordance with the manufacturer's specifications and MRTS82.

9.7 The finished surface of the footpaths shall have a slip resistance rating 'V' in accordance with HB 197:1999 and S4586-2013.

ABBREVIATIONS

10.1 Abbreviations used are in accordance with AS 1100, TMR 'Drafting and Design Presentation Standards' and TMR 'Bridge Design Drafting Manual'.

10.2 Additional abbreviations used throughout the set are as follows: -

Abut	-	Abutment	NFC	-	No Chamfer or Fillet
AHD	-	Australian Height Datum	NSOP	-	Not shown on plan
CIP	-	Cast-In-Place	NTS	-	Not To Scale
CJ	-	Construction joint	PSC	-	Pre-stressed concrete
Dia	-	Diameter	R	-	Radius
DN	-	Nominal diameter	RC	-	Reinforced concrete
DWS	-	Deck wearing surface	RCBC	-	Reinforced concrete box culvert
EGL	-	Approximate existing ground level	SIM	-	Similar
ES	-	Each side	SOP	-	Setout point
EX	-	Denotes section the element was originally cut from	SS	-	Stainless steel
			TMR	-	Department of Transport and Main Roads
FSL	-	Finished surface level	typ	-	Typical
galv	-	Hot dip galvanised	UG	-	Underground
Ht	-	Height or reduced levels to Australian Height Datum	UNO	-	Unless noted otherwise
			VC	-	Vertical Curve
MRSD	-	Queensland Government Department of Transport and Main Roads Standard Drawing	WPM	-	Waterproof membrane
MRTS	-	Queensland Government Department of Transport and Main Roads Technical Specification			

DESIGN LOADS

11.1 Design loads for have been determined in accordance with AS/NZS 1170 and AS 5100.2-2017 using the following parameters: -

DESCRIPTION	LOAD
Concrete unit weight (including steel reinforcement)	25kN/m³ Insitu
	26kN/m³ Precast
Asphalt deck wearing surface allowance	Thickness as shown on drawings. Unit weight 22kN/m³
Vehicle	SM1600
	HLP400 - lateral positioning as shown in diagram below
Shared Path Loading	5kPa with live load reductions as per Figure 8.1 of AS5100.2
Design Speed	70km/hr.
Design Lanes	5 No. Standard design lanes
Dynamic load allowance	In accordance with AS5100.2 Table 6.7.2 - HLP Loading: 0.1 - M1600 tri-axle: group 0.35 - M1600 loads: 0.3
Traffic barriers	Regular performance barrier
Design Wind Parameters (In accordance with AS1170.2)	Ultimate limit state - Return Period: 2000 years
	Service limit state - Return Period: 20 years
	Region B1 – Basic wind speed: V2000 = 63m/s V20 = 38m/s
	Terrain category 3 Mt = 1.0 Ms = 1.0
Design Earthquake Category	BEDC-3 in accordance with AS5100.2
Design Life	100 years
Average bridge temperature	4.7°C to 48.0°C
Differential settlement	10mm between spans
Flood Data	Ultimate limit state - 2000 years ARI Flood velocity (Abutment A) = 3.0m/s / (Abutment B) = 3.1m/s Flood level (RL) = 17.6 AHD
	Service limit state - 100 years ARI Flood velocity (Abutment A) = 2.2m/s / (Abutment B) = 2.4m/s Flood level (RL) = 16.9 AHD
	Scour depth at Abutments = 3.2m
	Depth of debris mat = 3m substructure 3m superstructure Length of debris mat = 25m
	Log impact mass = 2 tonnes

TMR STANDARD DRAWINGS

MRSD	Version	Description
1043	R	Reinforcing steel - standard bar shapes
1116	F	Subsoil drains - outlets and cleanouts
2005	A	Standard bridge date plate
2200	E	Post and Rail Traffic Barriers Regular Performance Level

TMR SPECIFICATIONS

MRTS	Issue Date	Description
MRTS01	03/2025	Introduction to Technical Specifications
MRTS03	03/2025	Drainage, Retaining Structures and Protective Treatments
MRTS04	03/2025	General Earthworks
MRTS14	03/2025	Road Furniture
MRTS27	03/2025	Geotextiles Separation and Filtration
MRTS30	03/2024	Asphalt Pavements
MRTS62	11/2023	Bridge Substructure
MRTS63	11/2020	Cast-In-Place Piles
MRTS68	07/2017	Dynamic Testing of Piles
MRTS70	07/2022	Concrete
MRTS71	07/2025	Reinforcing Steel
MRTS73	07/2019	Manufacture of Prestressed Concrete Members and Stressing Units
MRTS75	11/2018	Supply and Erection of Prestressed Concrete Girders
MRTS77	07/2019	Bridge Deck
MRTS78	11/2020	Fabrication of Structural Steelwork
MRTS80	07/2017	Supply and Erection of Bridge Barrier
MRTS82	07/2021	Bridge Deck Expansion Joints
MRTS83	07/2025	Anti-Graffiti Protection
MRTS84	07/2019	Deck Wearing Surface
MRTS88	07/2017	Protective Coating for New Work
MRTS100	03/2023	High Strength Geosynthetic Reinforcement in Road Embankments
MRTS278	11/2020	Supply of Structural Fasteners
MRTS1033	07/2020	Kerb and Channel Profiles

LEGEND

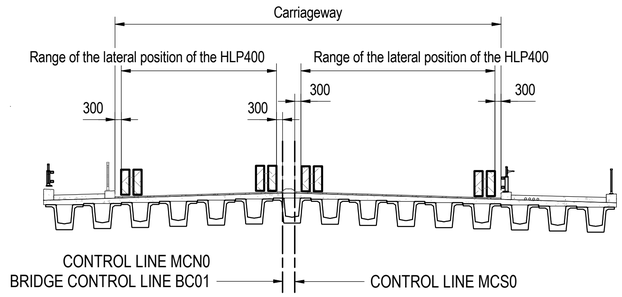
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- Existing Surface Level
- Refer to Design Package
- Carriageway Clearance Envelope
- Property Boundary
- BH** — Completed Project Borehole location
- **-**** — Historical Investigation location
- Subsoil Drain
- Spoon Drain
- Koala fauna log rail and terminal end Refer to Fauna Crossing package OGRU-ARU-10-FCGA for details

UTILITIES LEGEND PROPOSED PUP

- (E)(E)(E) — Electrical aboveground
- (E) — Electrical underground
- (SRM) — Sewer main rising underground
- (S) — Sewer main underground
- (T)(T)(T) — Telecomms aboveground (Optus)
- (T) — Telecomms underground (Optus)
- (T) — Telecomms underground (Telstra)
- (G) — Gas main underground
- (W) — Water main underground
- (D) — Drainage main

UTILITIES LEGEND EXISTING PUP

- E — Existing electrical aboveground
- E — Existing electrical underground
- dSRM — Existing sewer main rising underground
- dS — Existing sewer main underground
- T — Existing telecomms aboveground
- T — Existing telecomms underground
- dG — Existing gas main underground
- dWM — Existing water main underground
- (D) — Existing drainage main
- X X X — Removed utilities



HLP VEHICLE LIMITS DIAGRAM
NTS

2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design
Issue	Date	Description

Scales

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL NOTES AND LEGEND SHEET 2

Drawn: Mick Aguis Design Check: Emmanuel Joy
Designed: Kobe Vetter Approved: Eoin O'Donovan

Scale at A1

Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00 Rev: 2

OGRU-ARU-10-STBR-DRG-0012

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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NOT FOR CONSTRUCTION

DETAILED DESIGN

ROSS RESERVE

ROSEANN STREET

Existing stormwater 750 Dia. pipe to be removed

Fauna Crossing rope bridge refer to drg. package

Abutment A

Abutment B

15.000 m

14.000 m

14.000 m

15.000 m

16.000 m

Bridge traffic barrier connection to thrie beam barrier, typ

Pedestrian fence connection

BH01

Existing culvert to be demolished

Light pole, typ, refer to package OGRU-ARU-10-RLLD for details

3m relieving slab, typ

2.5% Crossfall

3% Crossfall

2.5% Crossfall

Shared Path 2500

Shld 1600

Lane 3300

Lane 3300

Between kerbs 8200

Lane 3300

Lane 3300

Between kerbs 10100

Lane 3300

Shld 500

Shld 1500

Cycle Path 2300

Foot Path 2000

1300

1300

1325

1325

1350

1350

CT 1323.744

TO BRISBANE

OLD GYMPIE ROAD (SOUTHBOUND)

BH02

Pedestrian fence connection

BRICKWORKS ROAD

ITS communations and electrical pits, refer to package OGRU-ARU-10-ITLD for details, typ

Bridge traffic barrier connection to thrie beam barrier, typ

Fauna log rail terminal end, typ

Low flow channel

FLOW

Fresh Water Creek

10.000 m

15.000 m

14.000 m

14.000 m

15.000 m

16.000 m

Rock scour protection
750 thick
D100 = 550 mm
D50 = 400 mm
D10 = 200 mm

Fresh Water Creek Catchment Area = 3.76km²

BH03

OLD GYMPIE ROAD (NORTHBOUND)

TO GYMPIE

TC 1365.666

CONTROL LINE MCN0

BRIDGE CONTROL LINE BC01

1375

1375

CONTROL LINE MCS0

TC 1356.454

CT 1372.894

BH04

15.000 m

16.000 m

16.000 m

16.000 m

LILLYBROOK SHOPPING VILLAGE

LILYBROOK SHOPPING CENTRE

PLAN

SCALE 1:150

LEGEND

(F) Denotes Fixed end of PSC Girder

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL ARRANGEMENT SHEET 1

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0101

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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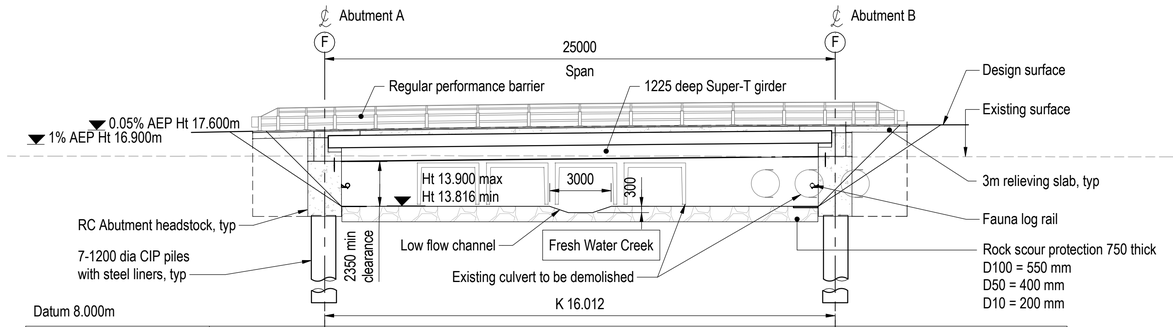
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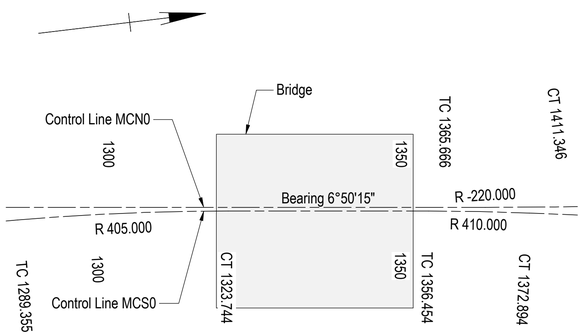
DETAILED DESIGN



FINISHED ROAD PAVEMENT HEIGHT	17.608	17.854
EXISTING SURFACE HEIGHT	16.334	16.318
CHAINAGE (m) BRIDGE CONTRO LINE BC01	***1325.312*** **ABUT A**	***1350.312*** **ABUT B**

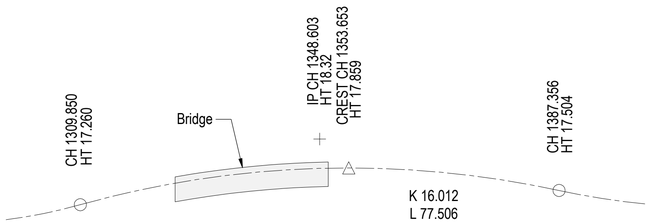
LONGITUDINAL SECTION

SCALE 1:150



MCN0 HORIZONTAL ALIGNMENT DETAILS

NTS



MCN0 VERTICAL ALIGNMENT DETAILS

NTS

LEGEND

(F) Denotes Fixed end of PSC Girder

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 1.5 3 4.5 6 m

1:150(A1) / 1:300(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm

Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL ARRANGEMENT SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: **304487-00**
Rev: **2**

OGRU-ARU-10-STBR-DRG-0102

Coordinate System MGA2020 Z56

Height Datum AHD Derived

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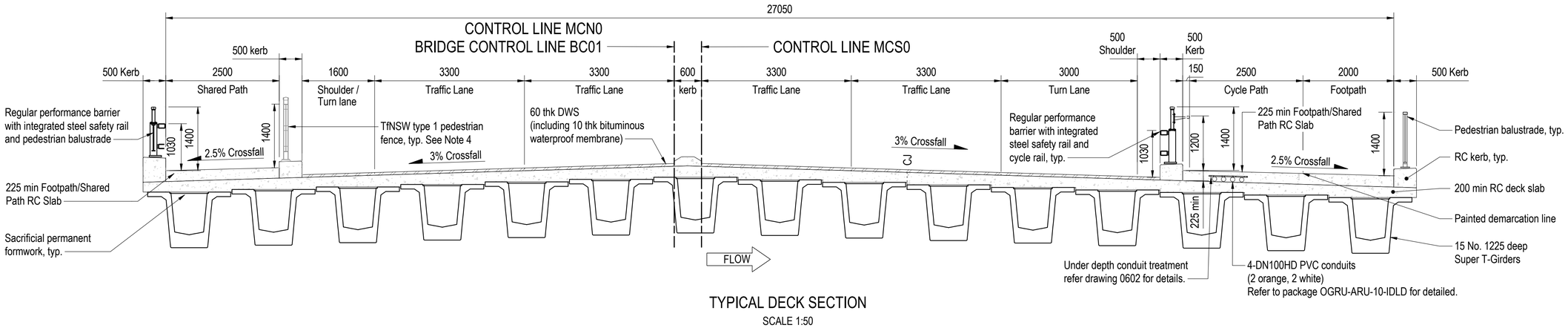
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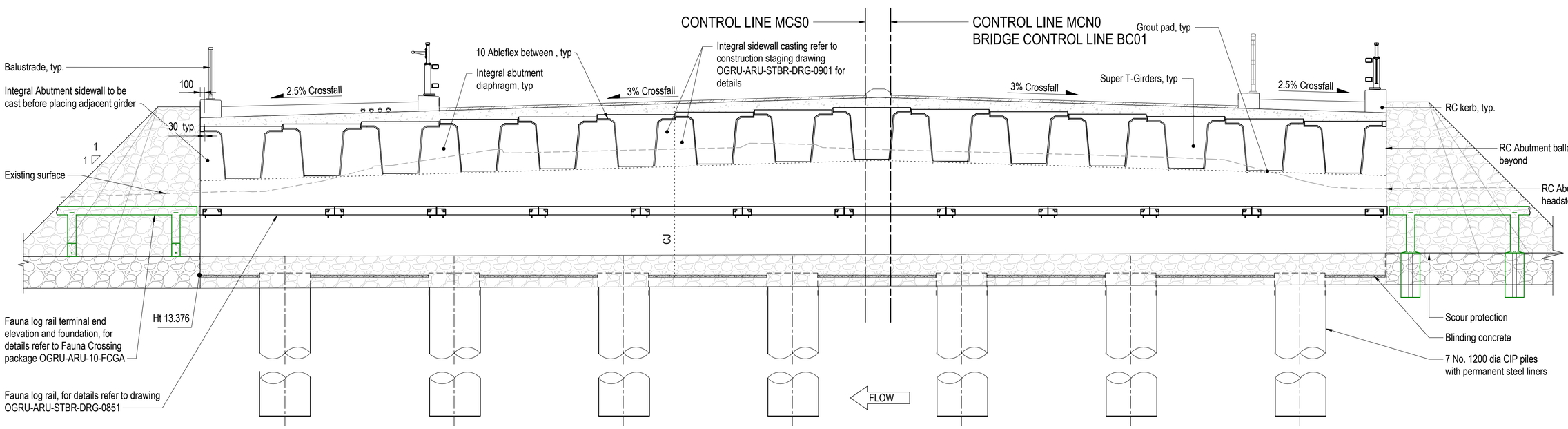
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DETAILED DESIGN



TYPICAL DECK SECTION

SCALE 1:50



ELEVATION AT ABUTMENT A

SCALE 1:50

ABUTMENT B SIMILAR

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. Cushioning rock to be D85 < 100mm, placed to protect the geotextile.
3. Rock for scour protection shall have a crushing strength of not less than 25 MPa.
4. Pedestrian fence as per TfNSW RMS standard drawing R0800 series. Fence may be installed post construction as required by road authority.

Scales 0 1 2 m
1:50(A1) / 1:100(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL ARRANGEMENT SHEET 3

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0103

Coordinate System MGA2020 Z56
Height Datum AHD Derived

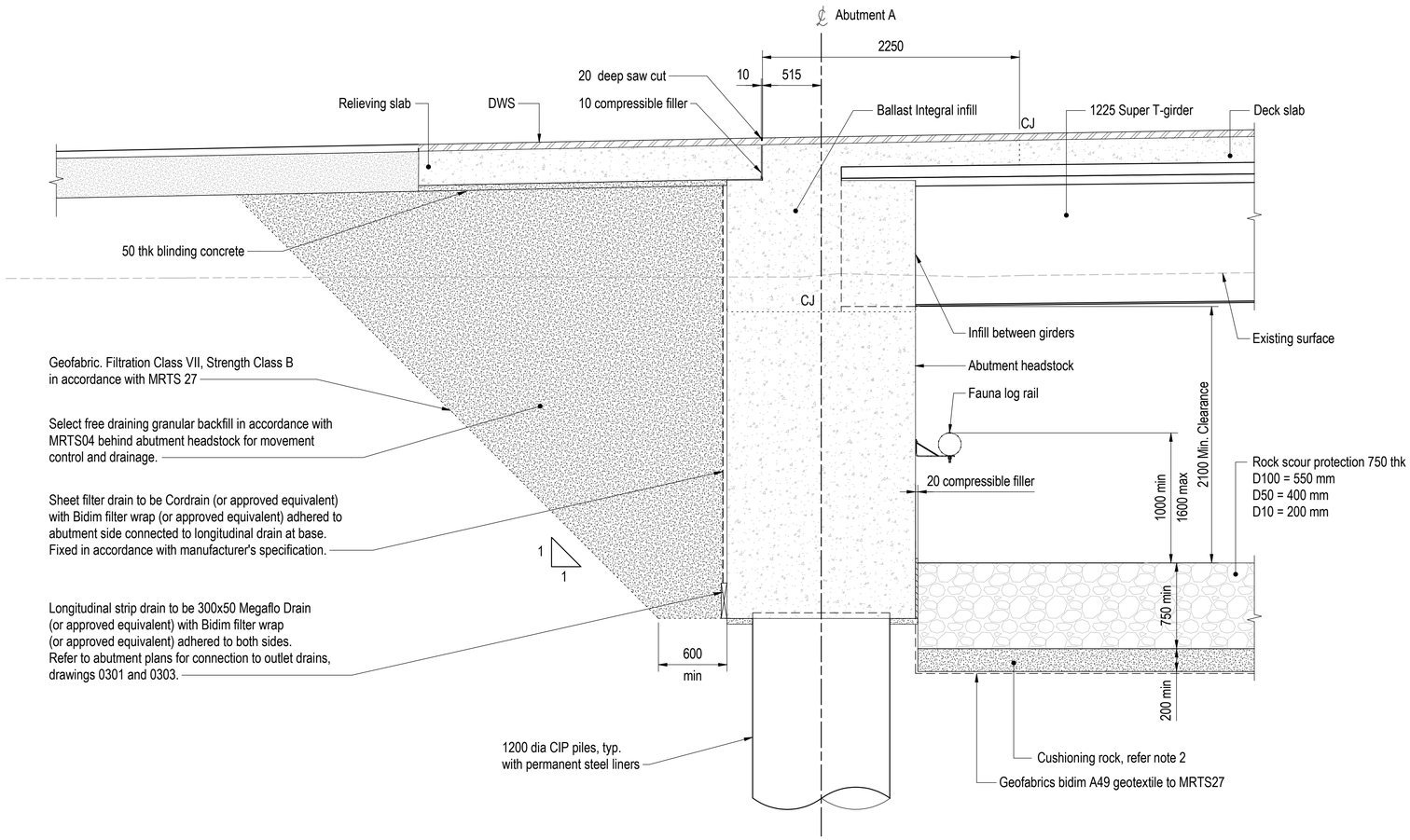
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NOT FOR CONSTRUCTION

DETAILED DESIGN



SECTION AT INTEGRAL ABUTMENT

SCALE 1:25

ABUTMENT A SHOWN, ABUTMENT B SIMILAR OPPOSITE HAND

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. Cushioning rock to be D85 < 100mm, placed to protect the geotextile.
3. Rock for scour protection shall have a crushing strength of not less than 25 MPa.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
GENERAL ARRANGEMENT
SHEET 4

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

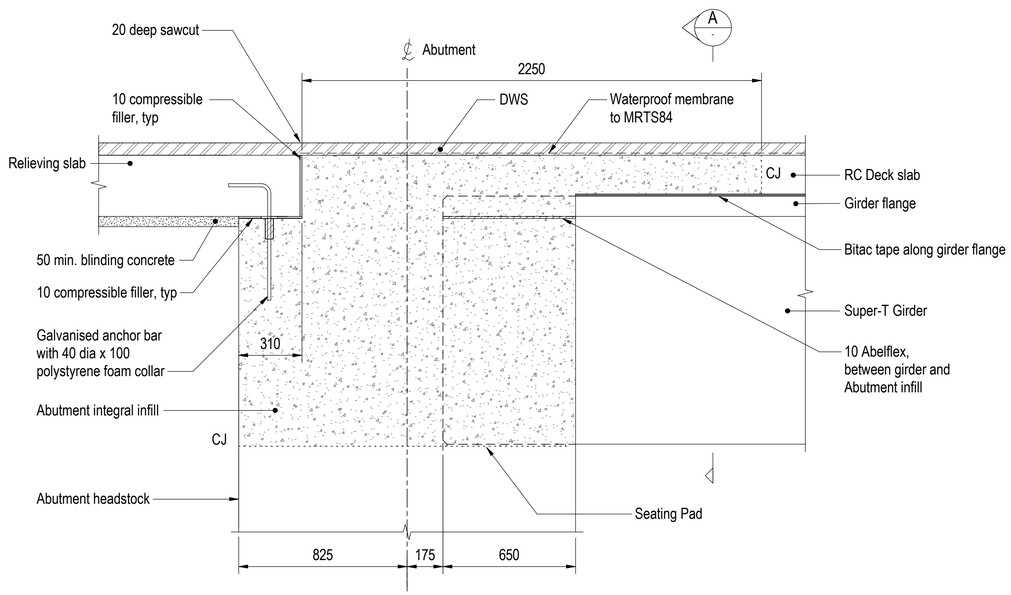
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Height Datum AHD Derived
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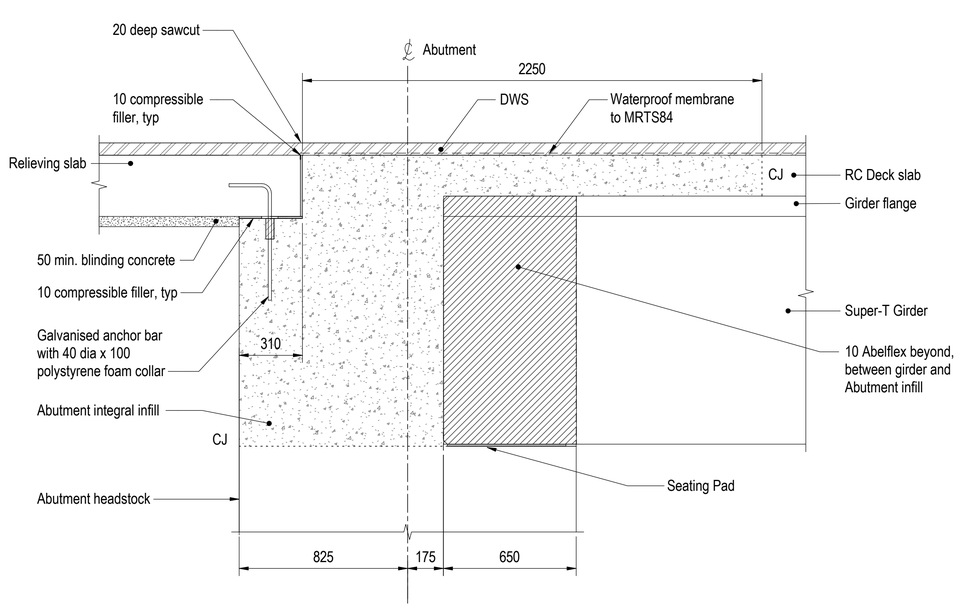
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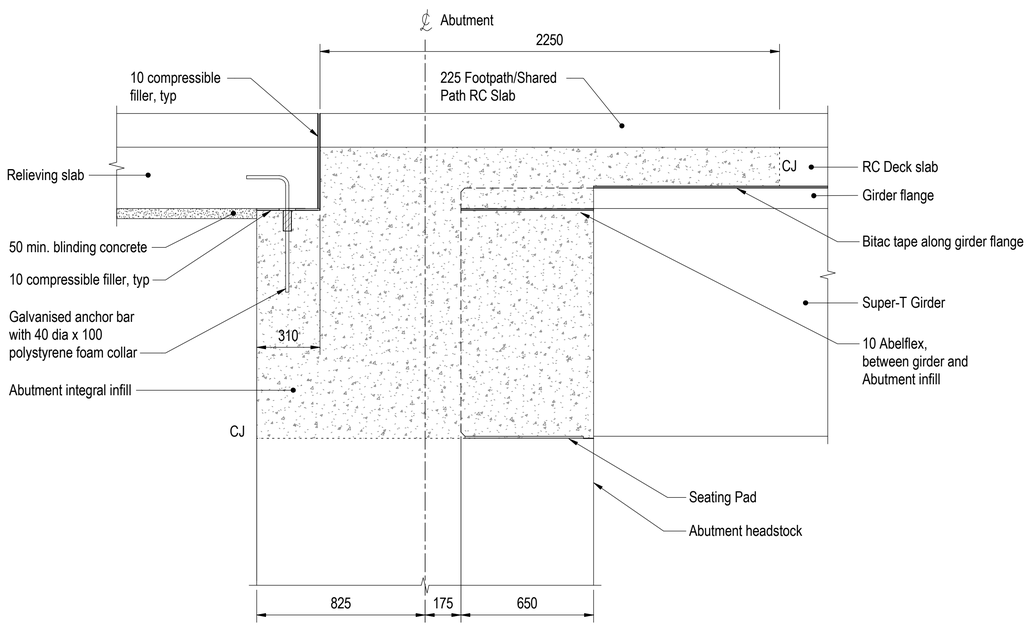
DETAILED DESIGN



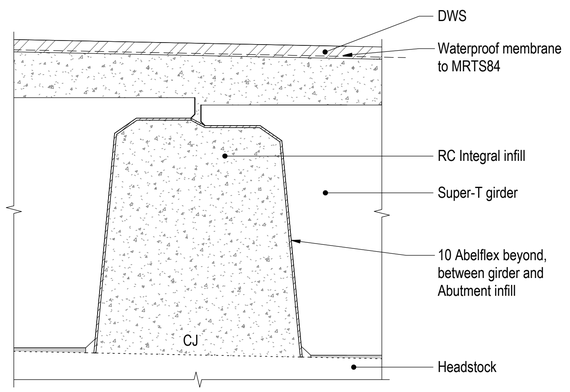
ABUTMENT A - AT ROADWAY AT INTEGRAL INFILL BETWEEN GIRDERS
NTS



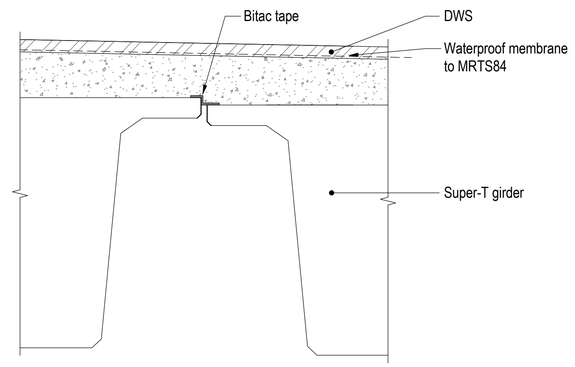
ABUTMENT A - AT ROADWAY AT GIRDERS
NTS



ABUTMENT A - AT SHARED PATH
NTS



ELEVATION - ABUTMENT A AT ROADWAY AT GIRDERS
NTS



SECTION A
SCALE NTS

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Area: Structural
Signature:
Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK GENERAL ARRANGEMENT SHEET 5

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: NTS
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0105

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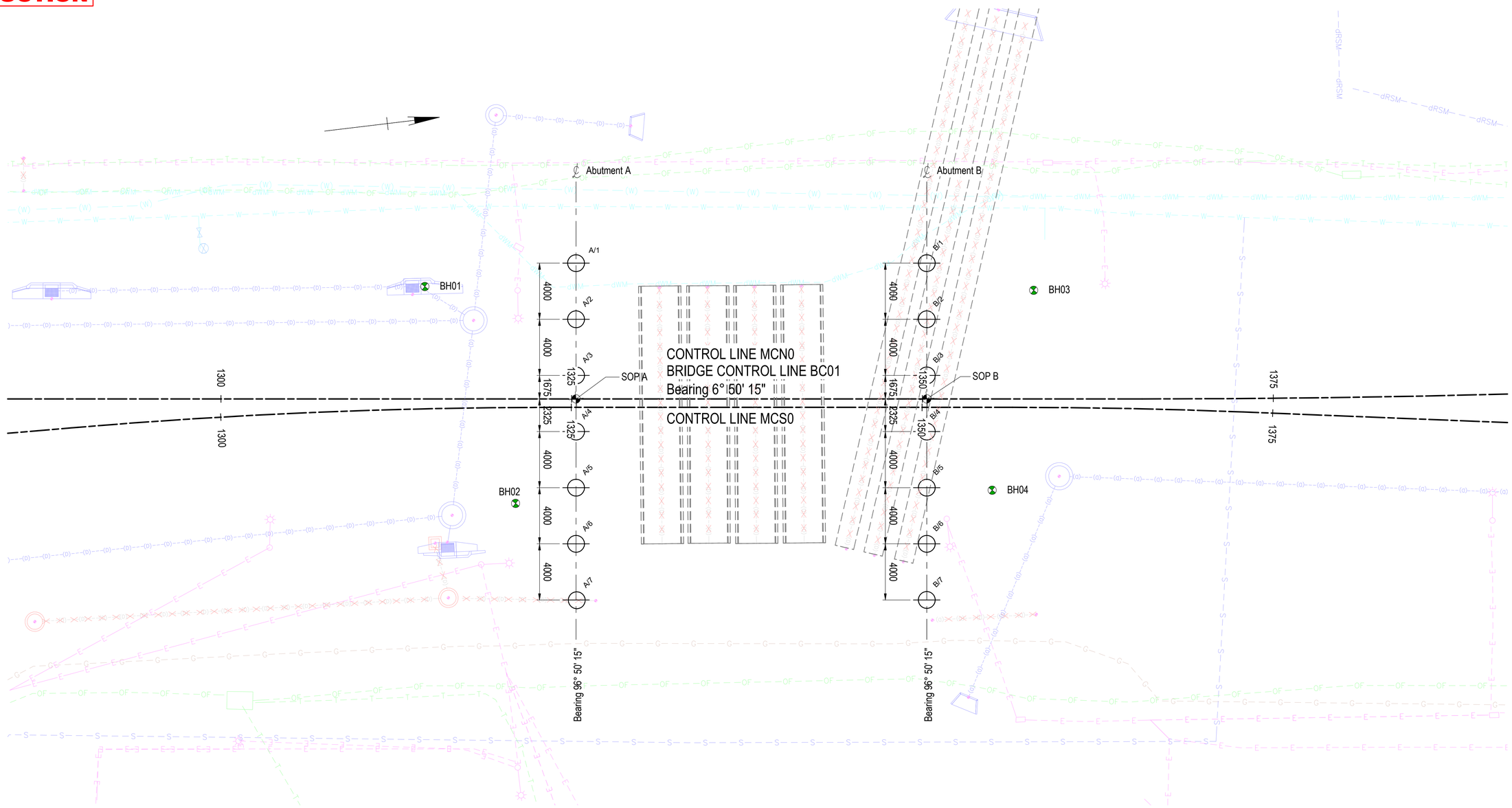
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NOT FOR CONSTRUCTION

DETAILED DESIGN



FOUNDATION PLAN

SCALE 1:150

PROPERTY BOUNDARIES ARE OMITTED FOR CLARITY

PILE SETOUT DATA

REF	LOCATION	CONTROL LINE	CHAINAGE	EASTING (m)	NORTHING (m)
SOP A	Abutment A	MCN0	1321.213	499252.095	6986762.397
SOP B	Abutment B	MCN0	1346.213	499255.072	6986787.219

LEGEND

- BH** — Completed Project Borehole location
- Denotes Cast-in-place pile
- A/1 — Denotes sequential pile number / Denotes Abutment location

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK FOUNDATION LAYOUT AND SETOUT DETAILS

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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Coordinate System MGA2020 Z56
Height Datum AHD Derived

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NOT FOR CONSTRUCTION

DETAILED DESIGN

CIP PILES - NOTES

1. For General Geotechnical Notes, refer to Drg Series No.ALNL
2. Cast in place piles shall be installed in accordance with MRTS63.
3. Refer to the Deatiled Design Geotechnical Assessment Report 304487-ARU-00GEGE-RPT-000001 for details of the interpreted geotechnical conditions, design assumptions and criteria. Ground conditions assumed for the design are to be verified by a Geotechnical Assessor. The Geotechnical Assessor shall be appointed by the Contractor and shall be a RPEQ Geotechnical Engineer in accordance with MRTS63 (11/2020).
4. Pile socket lengths into rock given in the Pile Schedule are minimum lengths.
5. No piles shall be terminated above the pile toe levels in the pile schedule unless approved otherwise by the Administrator.
6. Pile socket length can be increased if deemed necessary by the Geotechnical Assessor. No reduction to the pile socket length is to be made unless approved otherwise by the Administrator.
7. The design socket length into rock specified in the Pile Schedule shall be verified and confirmed by the Geotechnical Assessor. The Geotechnical Assessor shall prepare a detailed log of the strata encountered in the pile bore alongside any strength testing undertaken to confirm the minimum socket strength requirements.
8. A geotechnical reduction factor of 0.55 has been adopted for the pile socket design in accordance with AS2159-2009 and GDSMR.
9. The base of the pile shall be cleaned from debris so that full contact between the pile and the founding rock can be achieved. The pile base shall be inspected from the surface or by video camera depending upon visibility to ensure the base cleaning is adequate in accordance with MRTS63.
10. The design assumes the pile sockets are cast as dry piles and have a wall roughness of R2 or rougher. Grooves of depth 1-4mm (or larger), width greater than 2mm, at 50-200mm spacing will need to be formed during pile construction.
11. Minimum of two pile integrity tests (low strain echo method in accordance with AS2159-2009) shall be performed at each abutment in accordance with MRTS63 (11/2020).
12. Whilst the designer intends the piles to be 'dry' piles (liner socketed into compontent rock), groundwater inflows are possible during pile socket excavations. Therefore both 'dry' and 'wet pile' designs have been provided. The definition of what defines a 'wet' pile is as per MRTS63 clause 11.6.6
13. The side socket shall be clean without significant auger smear to ensure good bonding between the rock and concrete.
14. Steel liner lengths are not to be terminated higher than the levels specified in the Pile Schedule unless practical liner refusal is met at a higher level during installation.
15. The Contractor's method statement for construction of the piles shall be submitted to the Administrator not less than 28 days prior to construction of piles and shall meet the requirements and hold points as outlined in MRTS63.
16. Where the Geotechnical Assessor requires pile toe levels to be extended beyond the anticipated pile toe levels, the pile reinforcement shall be extended to 100mm above the final rock socket base levels.
17. The top 50mm of the abutment piles is to be prepared as a construction joint and well scabbled prior to casting of the abutment headstock.
18. Reinforcement steel is to be in accordance with MRTS71 (11/2021).
19. Where prefabricated reinforcement cages are joined, the centre to centre spacing between the ends of the helical reinforcement shall not exceed 125mm.
20. Steelwork fabrication is to be in accordance with MRTS78 (11/2020). Steel liners to be of minimum Grade 250 to AS/NZS 3678.
21. The permanent steel liner shall have a minimum thickness of 12mm for 1200mm piles. The Contractor shall confirm that the liner thickness is adequate for the construction methods proposed.
22. Stiffening band/driving shoe shown indicatively only and to be confirmed by the Contractor.
23. Maximum ULS and SLS loads are provided in the load table. Any changes to the piles and/or pile layout that does not comply with the design may significantly alter the behaviour of the the structure as well as the pile loads and shall be submitted to the Design Engineer for approval.

PILE SCHEDULE

					DRY PILES			WET PILES								
LOCATION	PILE NO.	PILE DIA. (mm)	PILE CUT OFF LEVEL (mAHD)	ESTIMATED LINER TOE LEVEL (mAHD)	DESIGN PILE LENGTH FROM CUTOFF LEVEL (m)	DESIGN ROCK SOCKET LENGTH (m)	DESIGN PILE TOE LEVEL (mAHD)	DESIGN PILE LENGTH FROM CUTOFF LEVEL (m)	DESIGN ROCK SOCKET LENGTH (m)	DESIGN PILE TOE LEVEL (mAHD)	ROCK SOCKET MATERIAL	ADOPTED Is(50)	DESIGN MAXIMUM AXIAL COMPRESSION LOAD AT TOP OF PILES		DESIGN MAXIMUM AXIAL TENSION LOAD AT TOP OF PILES		DESIGN MAXIMUM RESOLVED BENDING ALONG PILES		DESIGN MAXIMUM RESOLVED SHEAR ALONG PILES	
												(MPa)	ULS (kN)		ULS (kN)		ULS (kN)		ULS (kN)	
ABUTMENT A	A/1	1200	13.426	-1.400	17.226	2.400	-3.800	17.826	3.000	-4.400	MW-SW: LOW STRENGTH SILTSTONE & SANDSTONE	0.15	4100	2650	0	0	5250	3000	1150	700
	A/2																			
	A/3																			
	A/4																			
	A/5																			
	A/6																			
	A/7																			
ABUTMENT B	B/1	1200	13.426	1.300	14.526	2.400	-1.100	15.126	3.000	-1.700	MW-SW: LOW STRENGTH SILTSTONE & SANDSTONE	0.15	4100	2650	0	0	4800	3000	1150	700
	B/2																			
	B/3																			
	B/4																			
	B/5																			
	B/6																			
	B/7																			

Scales

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK FOUNDATION NOTES AND LEGEND

Drawn: Mick Aguis Design Check: Emmanuel Joy
Designed: Kobe Vetter Approved: Eoin O'Donovan

Scale at A1

Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00 Rev: 2

OGRU-ARU-10-STBR-DRG-0202

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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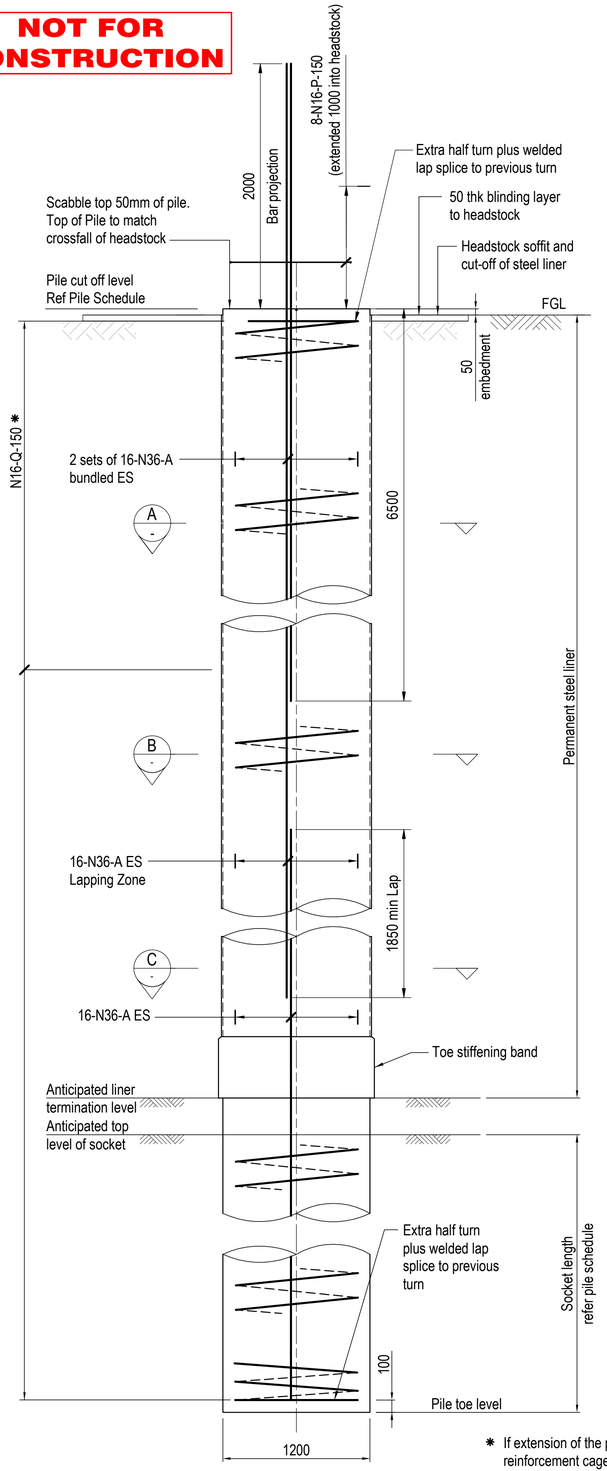
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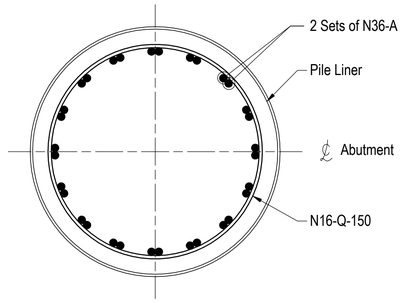
NOT FOR CONSTRUCTION

DETAILED DESIGN



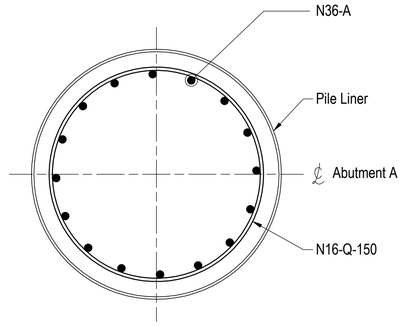
* If extension of the pile reinforcement cage is required, provide additional N12-P-150 ligs.

TYPICAL 1200 DIA CAST IN PLACE PILE
SCALE 1:25



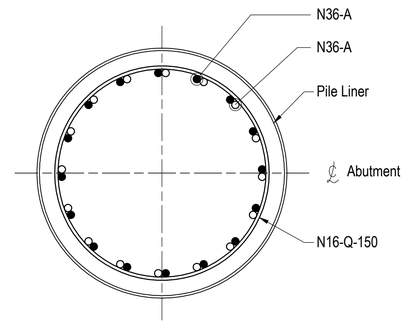
TYPICAL SECTION - BUNDLED BAR LOCATION

SECTION A
SCALE 1:15



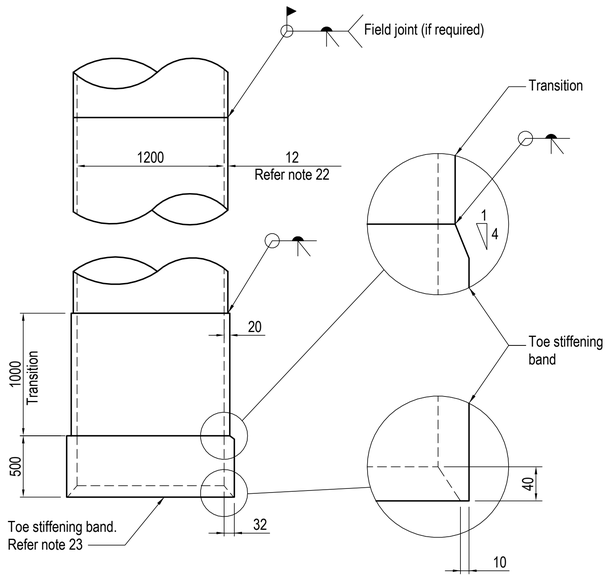
TYPICAL SECTION - CURTAILED LOCATION

SECTION B
SCALE 1:15

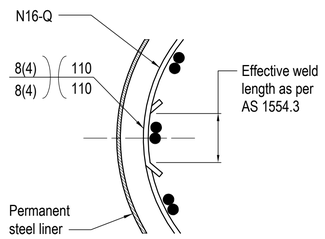


TYPICAL SECTION - LAPPED BAR LOCATION

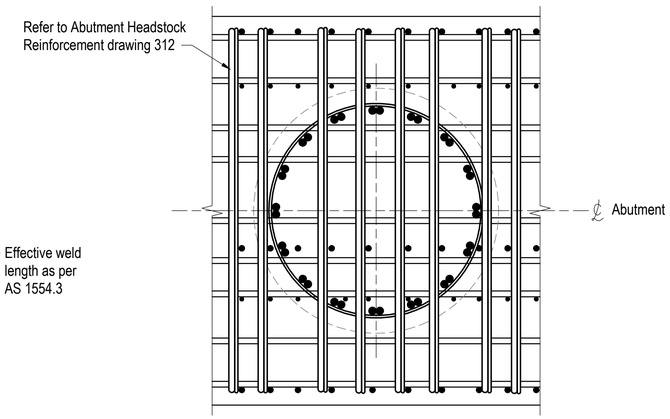
SECTION C
SCALE 1:15



PILE STEEL LINER DETAIL
SCALE 1:25



TYPICAL WELDED LAP SPLICE DETAIL
NTS



TYPICAL PLAN - PILE FOUNDATION AND ABUTMENT HEADSTOCK REINFORCEMENT
SCALE 1:15

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)
0 150 300 450 600 mm
1:15(A1) / 1:30(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK FOUNDATION CAST-IN-PLACE PILES DETAILS

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:25, 1:15
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0203

Coordinate System MGA2020 Z56
Height Datum AHD Derived

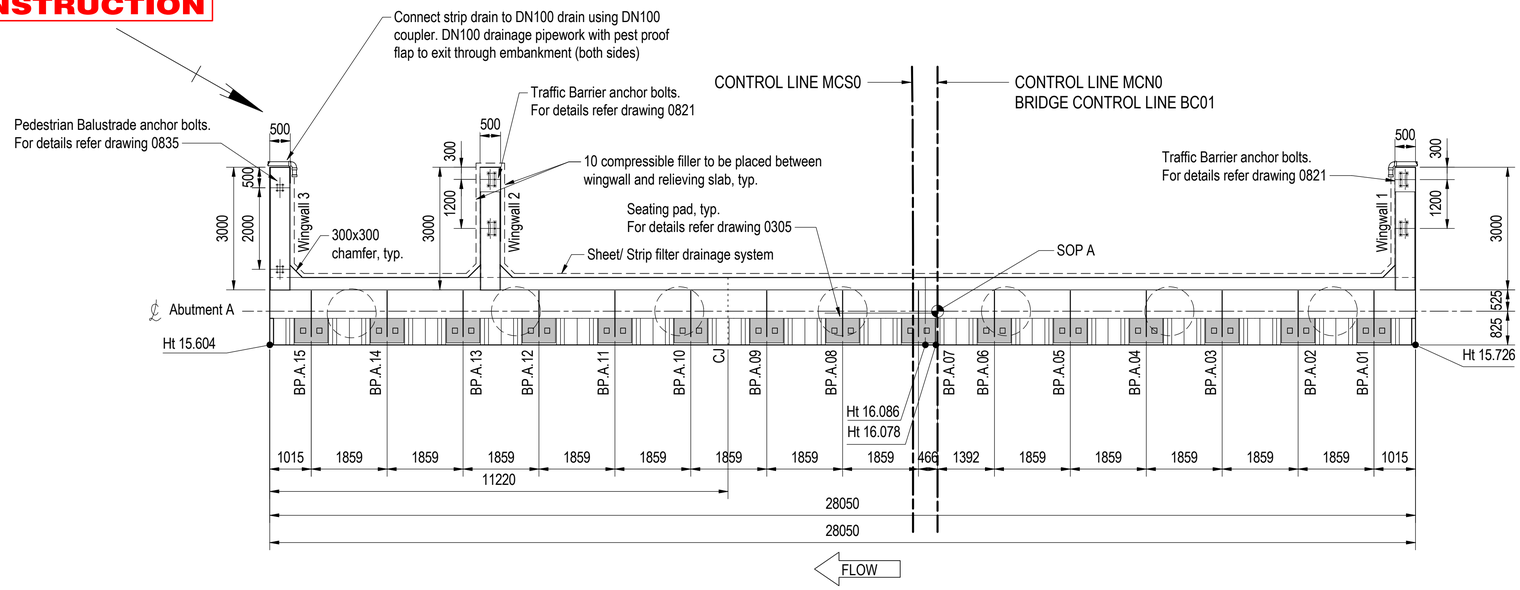
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Aug_A1h_Frame_r2024_v1.dwg 27/06/2024 9:02:55 AM

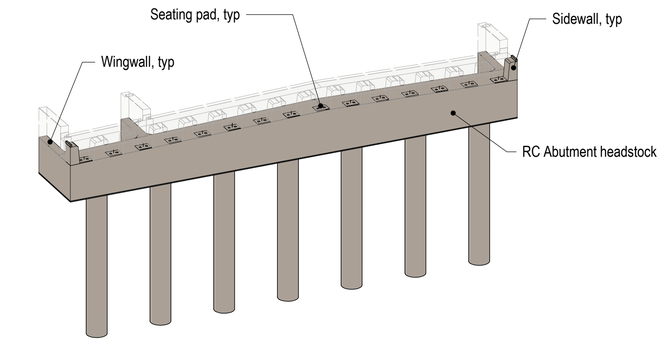
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DETAILED DESIGN



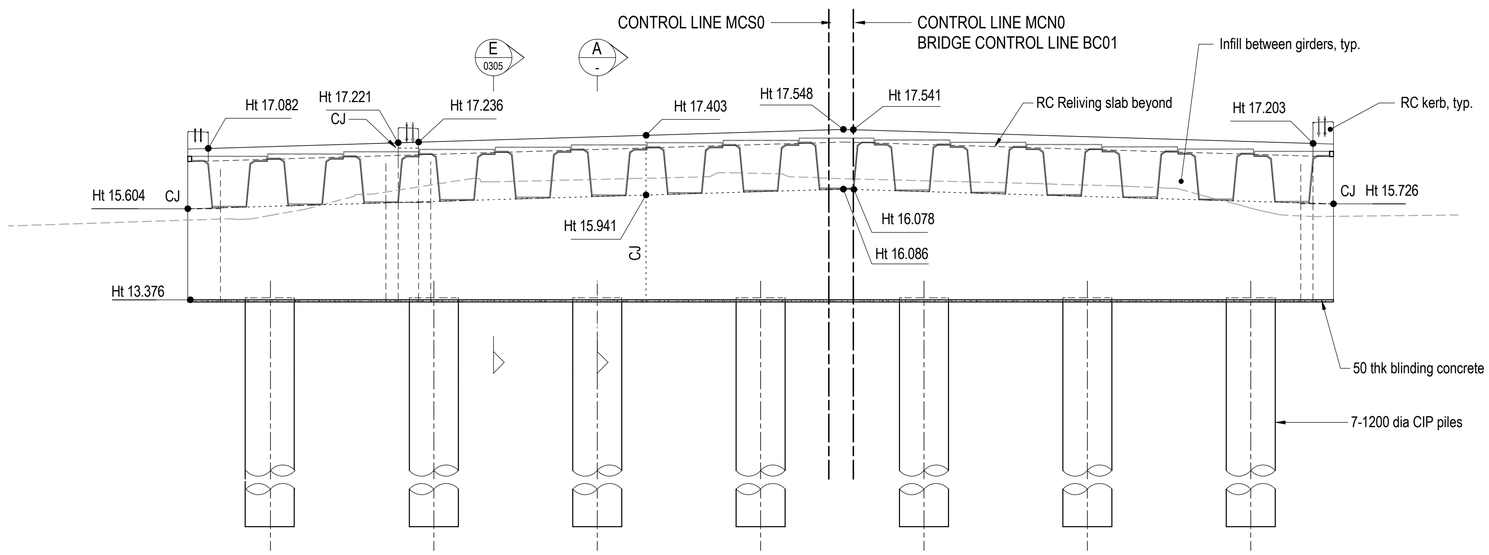
PLAN - ABUTMENT A HEADSTOCK

SCALE 1:75



ISOMETRIC VIEW - ABUTMENT A

NTS



ELEVATION - ABUTMENT A

SCALE 1:75

SECTION A -

SCALE 1:25

LEGEND

SOP Denotes Setout point

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 0.8 1.5 2.3 3 m
1:75(A1) / 1:150(A3)
0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
ABUTMENT A - ARRANGEMENT

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:75, 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0301

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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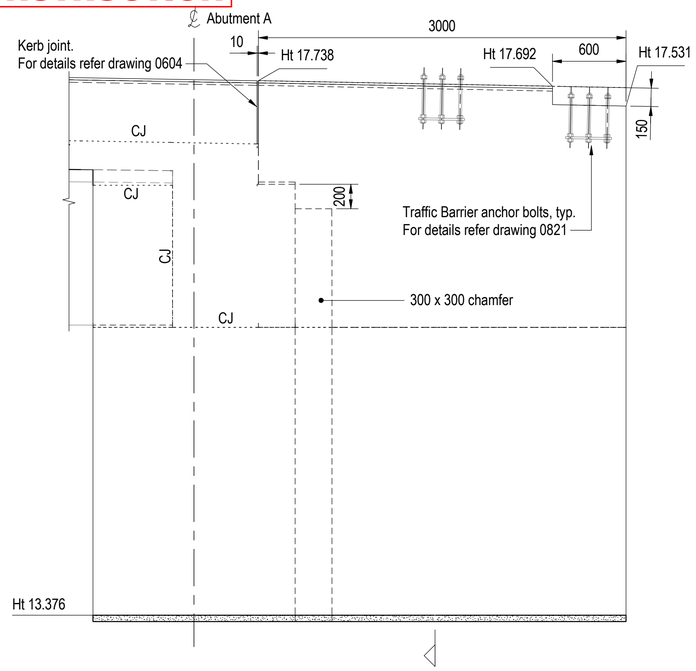
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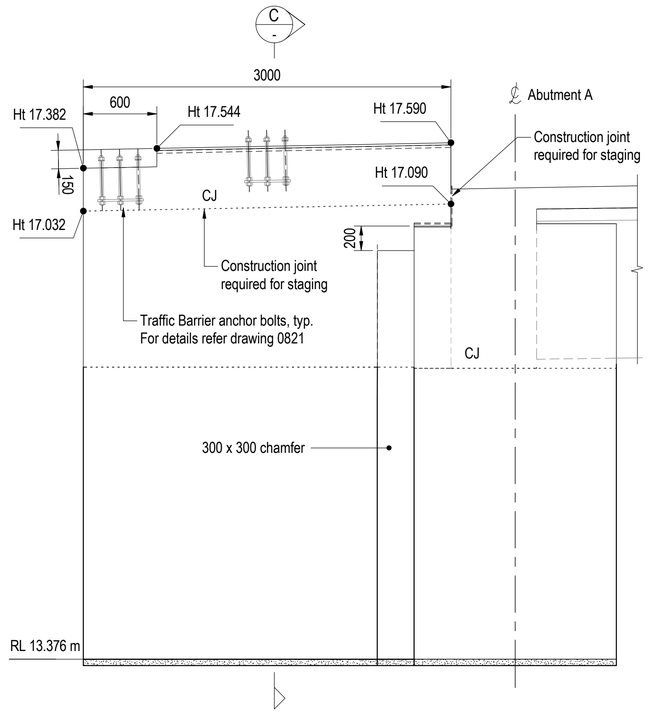
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NOT FOR CONSTRUCTION

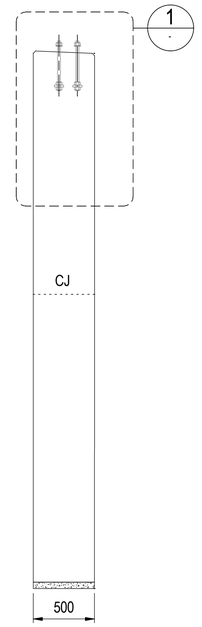
DETAILED DESIGN



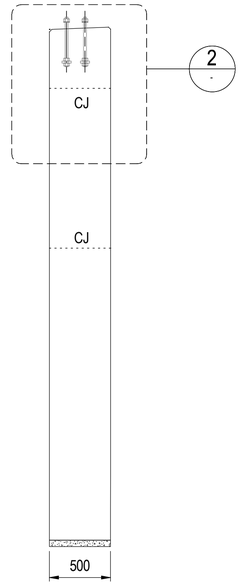
ELEVATION - WINGWALL 1
SCALE 1:25



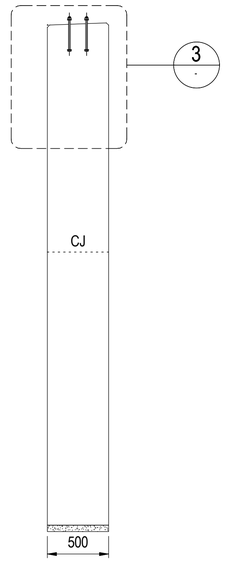
ELEVATION - WINGWALL 2
SCALE 1:25



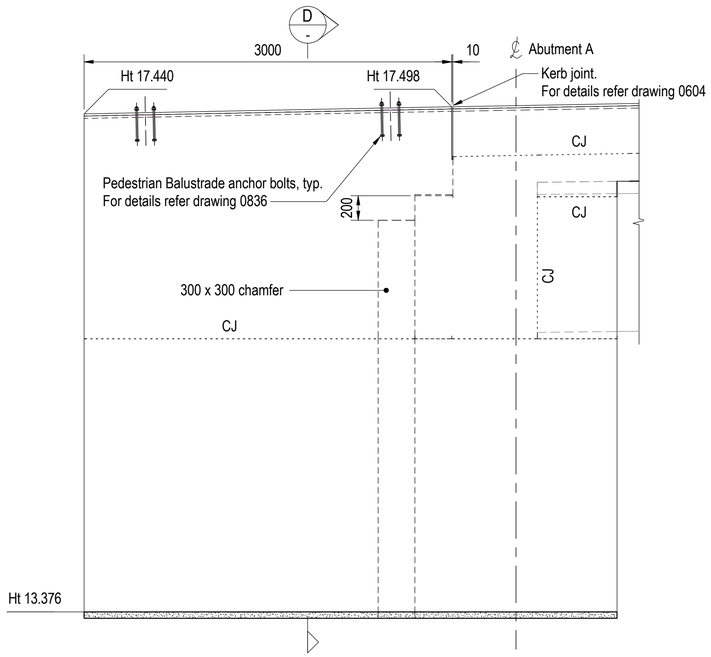
SECTION B
SCALE 1:25



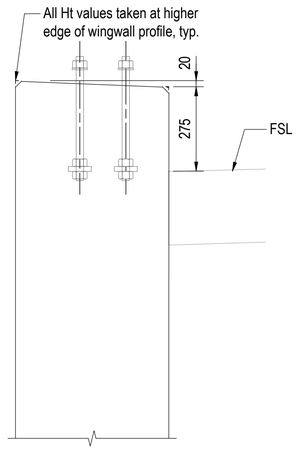
SECTION C
SCALE 1:25



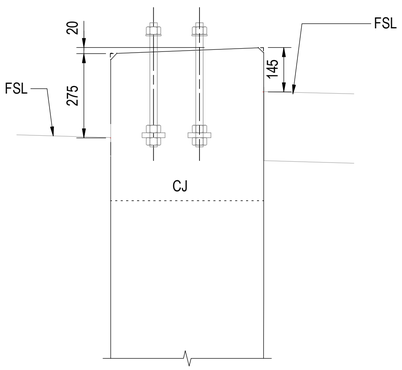
SECTION D
SCALE 1:25



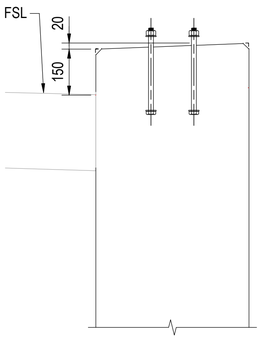
ELEVATION - WINGWALL 3
SCALE 1:25



DETAIL 1
SCALE 1:10



DETAIL 2
SCALE 1:10



DETAIL 3
SCALE 1:10

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
ABUTMENT A - WINGWALLS - DETAILS

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:25, 1:10
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: **304487-00**
Rev: **2**

OGRU-ARU-10-STBR-DRG-0302

Coordinate System MGA2020 Z56
Height Datum AHD Derived

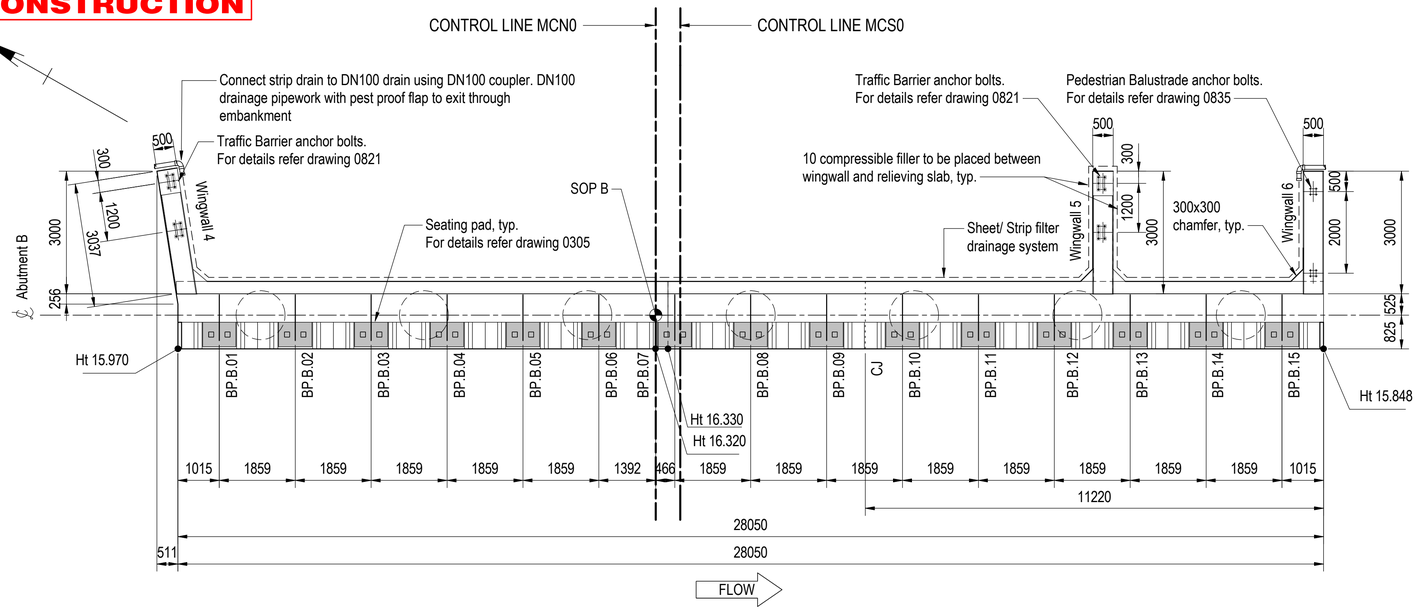
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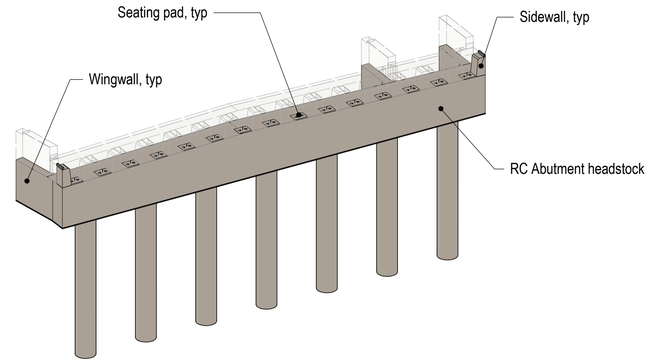
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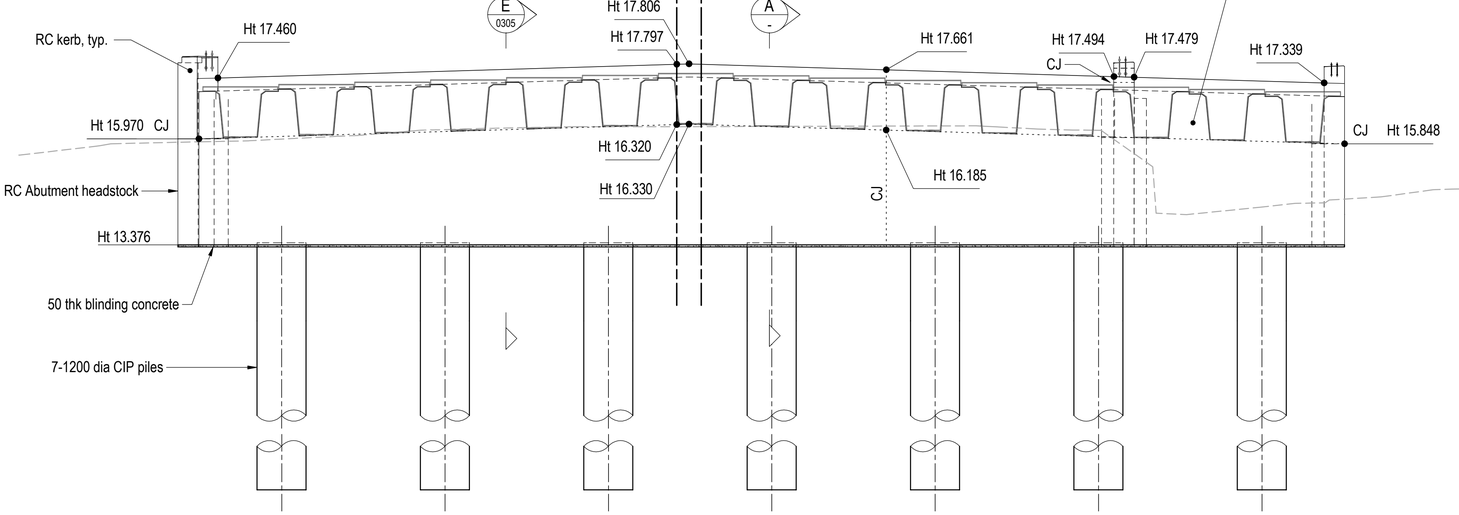
PLAN - ABUTMENT B HEADSTOCK

SCALE 1:75



ISOMETRIC VIEW - ABUTMENT B

NTS



ELEVATION - ABUTMENT B

SCALE 1:75

SECTION A -

SCALE 1:25

LEGEND

SOP Denotes Setout point

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 0.8 1.5 2.3 3 m
1:75(A1) / 1:150(A3)
0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK ABUTMENT B - ARRANGEMENT

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:75, 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0303

Coordinate System MGA2020 Z56
Height Datum AHD Derived

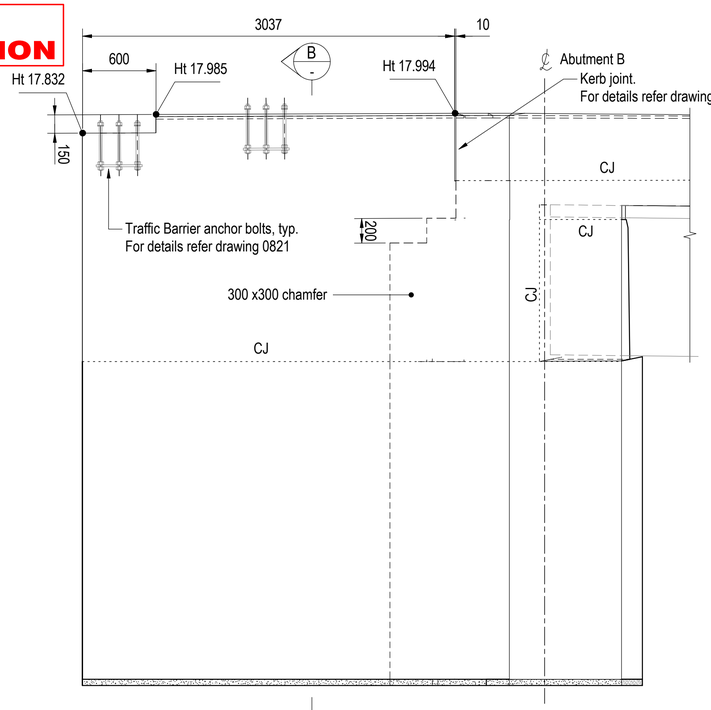
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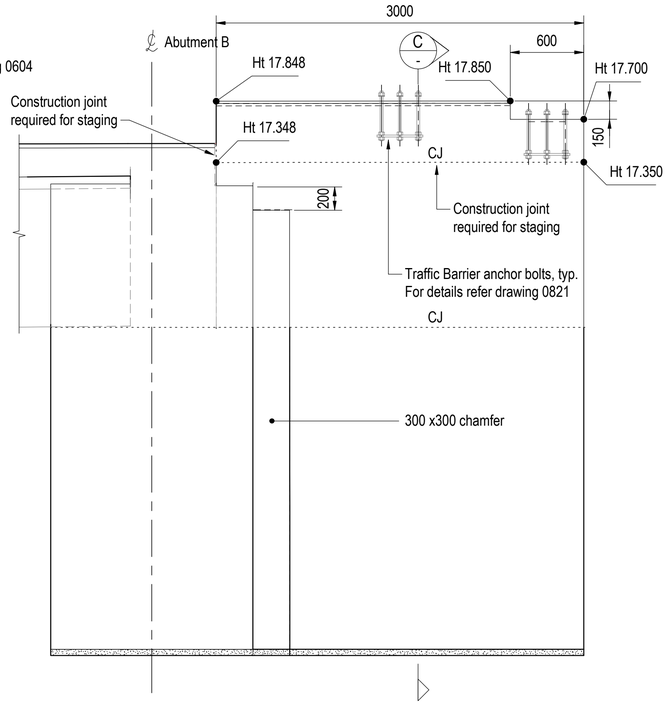
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DETAILED DESIGN



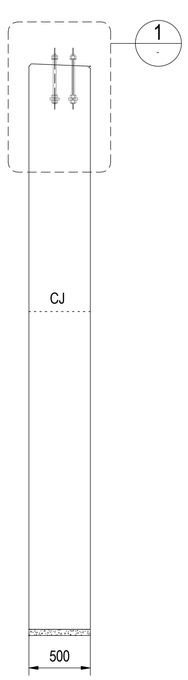
ELEVATION - WINGWALL 4

SCALE 1:25

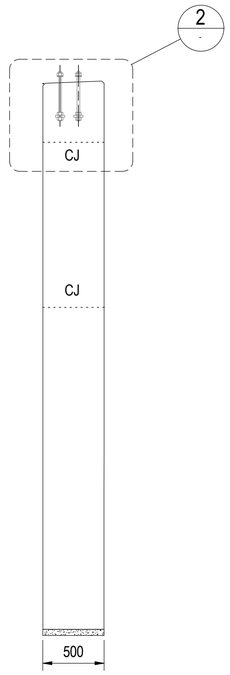


ELEVATION - WINGWALL 5

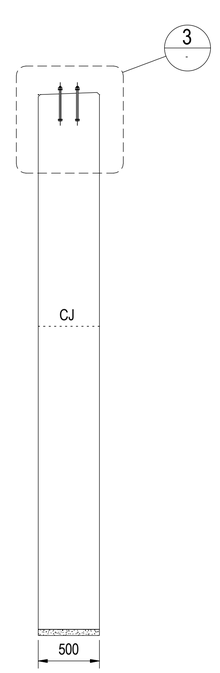
SCALE 1:25



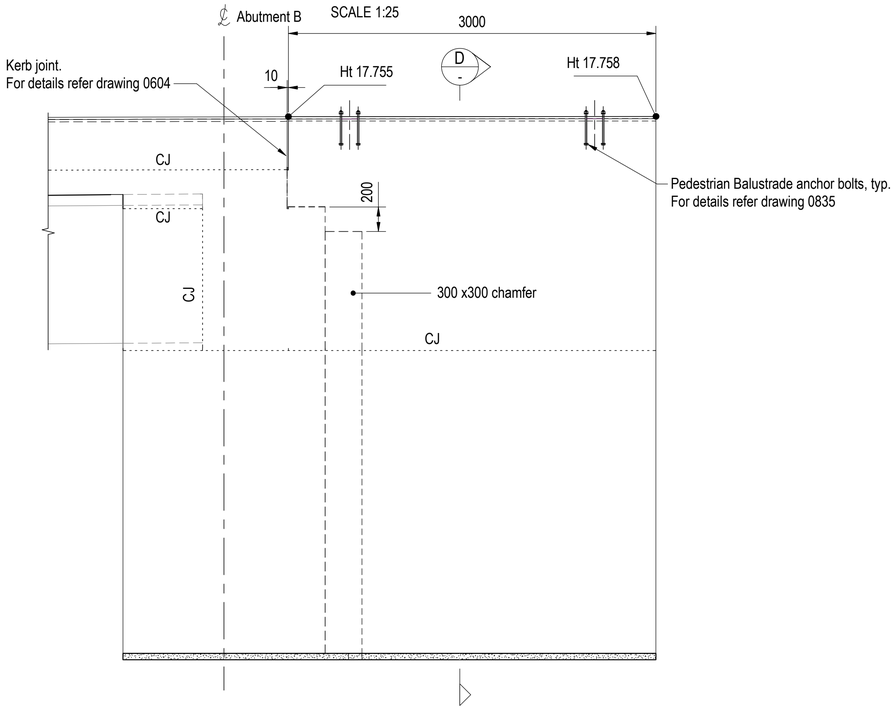
SECTION B - SCALE 1:25



SECTION C - SCALE 1:25

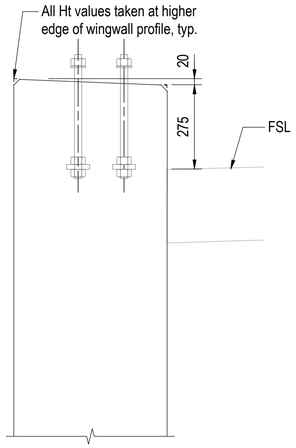


SECTION D - SCALE 1:25

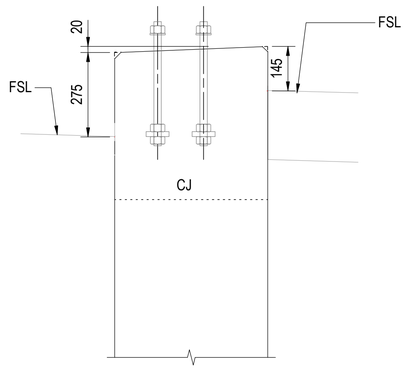


ELEVATION - WINGWALL 6

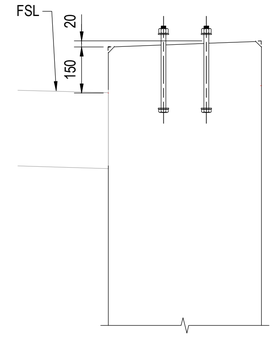
SCALE 1:25



DETAIL 1 - SCALE 1:10



DETAIL 2 - SCALE 1:10



DETAIL 3 - SCALE 1:10

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
ABUTMENT B - WINGWALLS - DETAILS

Drawn	Design Check
Mick Aguis	Emmanuel Joy
Designed	Approved
Kobe Vetter	Eoin O'Donovan

Scale at A1: 1:25, 1:10
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0304

Coordinate System MGA2020 Z56
Height Datum AHD Derived

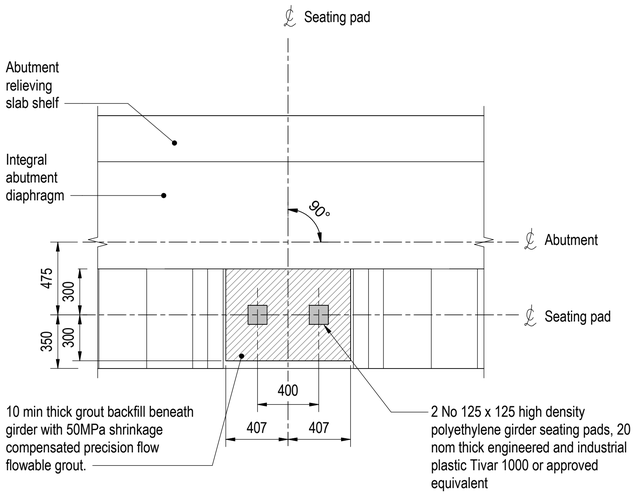
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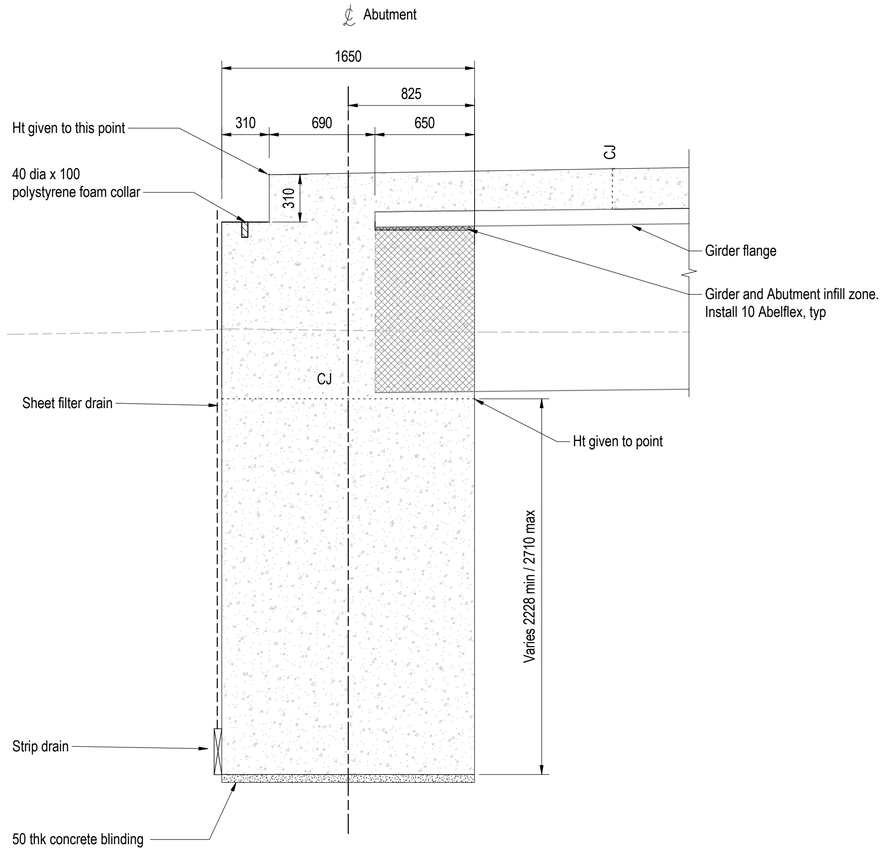
NOT FOR CONSTRUCTION

DETAILED DESIGN



PLAN - TYPICAL SEATING PAD SETOUT

SCALE 1:20



SECTION E 0301 / E 0303

SCALE 1:20

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 200 400 600 800 mm

1:20(A1) / 1:40(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm

Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK ABUTMENT DETAILS

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:20
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: **304487-00**
Rev: **2**

OGRU-ARU-10-STBR-DRG-0305

Coordinate System MGA2020 Z56

Height Datum AHD Derived

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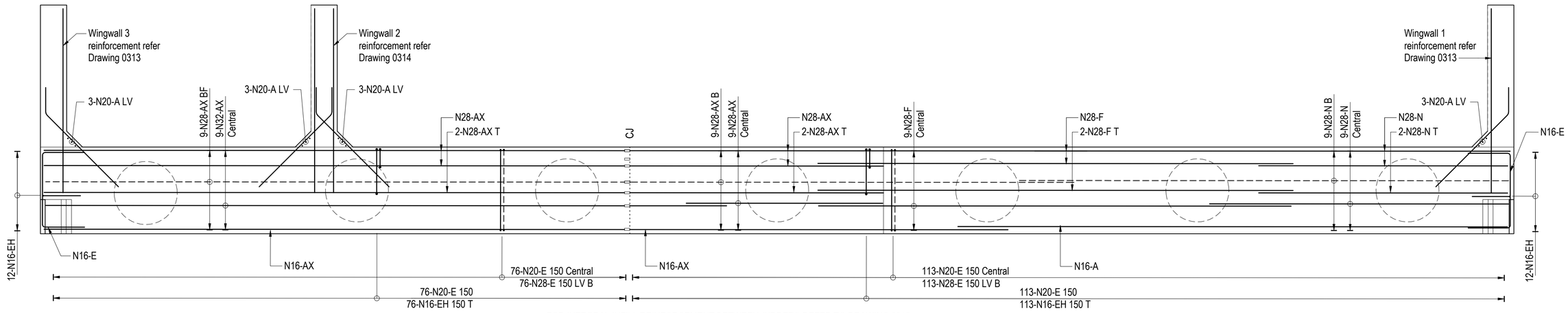
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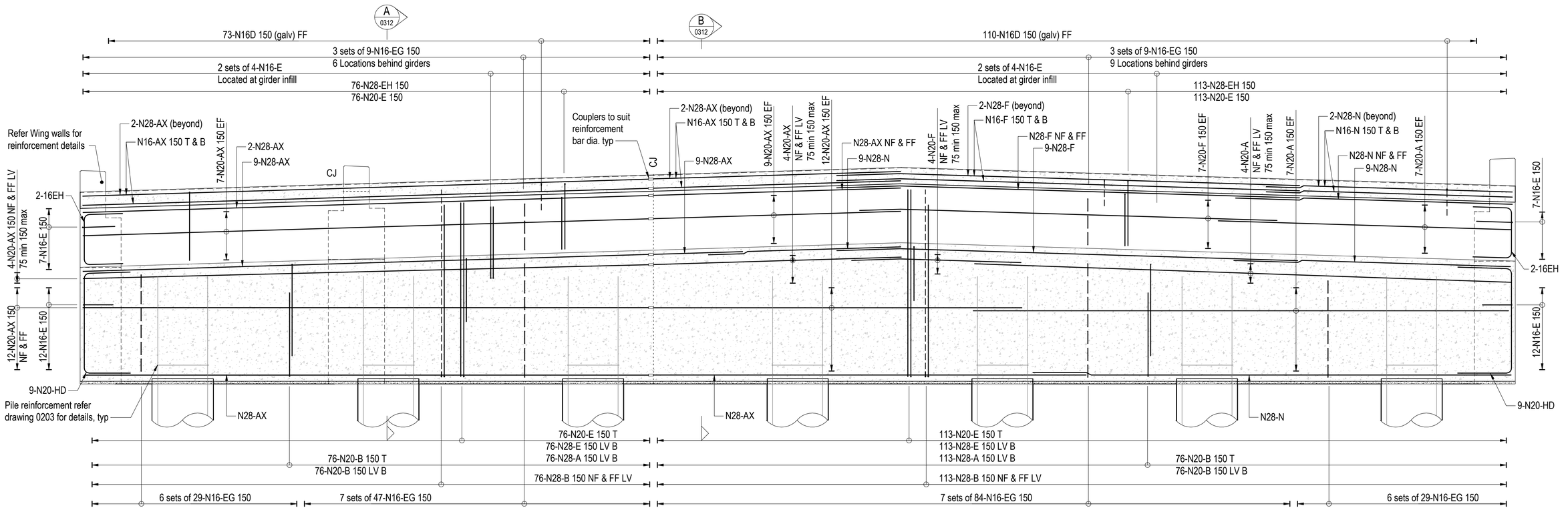
DETAILED DESIGN



FOR INTEGRAL INFILL REINFORCEMENT BETWEEN GIRDERS REFER TO DRAWING 0312

PLAN - ABUTMENT A REINFORCEMENT

SCALE 1:40



ABUTMENT A SHOWN, ABUTMENT B SIMILAR
WINGWALL AND PILE REINFORCEMENT NOT SHOWN FOR CLARITY
Note: All couplers to suit connected rebar dia and to be installed with plastic plug on exposed coupler thread

ELEVATION - ABUTMENT A REINFORCEMENT

SCALE 1:40

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 400 800 1200 1600mm
1:40(A1) / 1:80(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title
BRIDGE OVER FRESH WATER CREEK
ABUTMENT A - REINFORCEMENT
SHEET 1

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:40
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0311

Coordinate System MGA2020 Z56
Height Datum AHD Derived

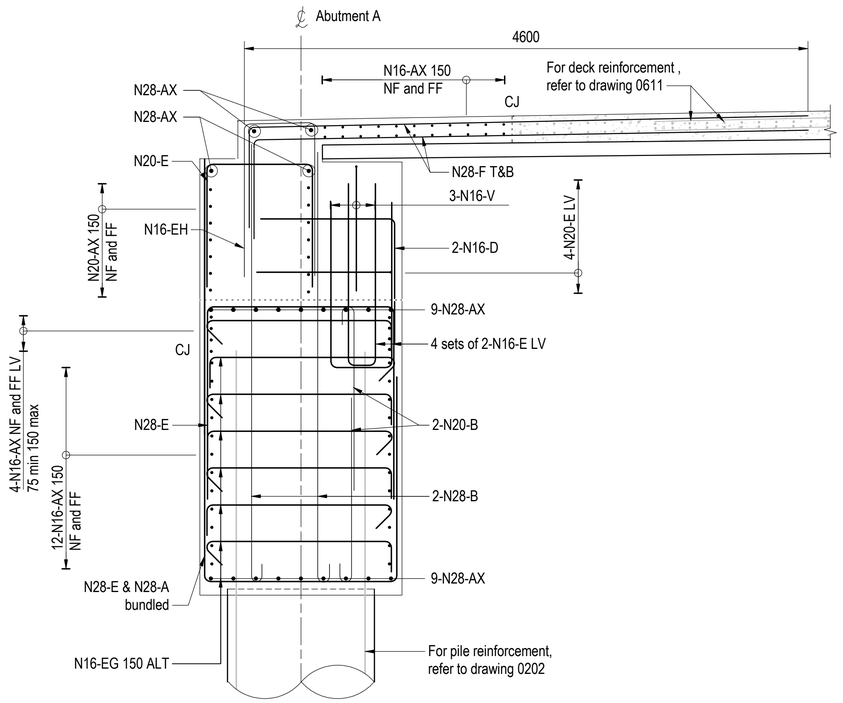
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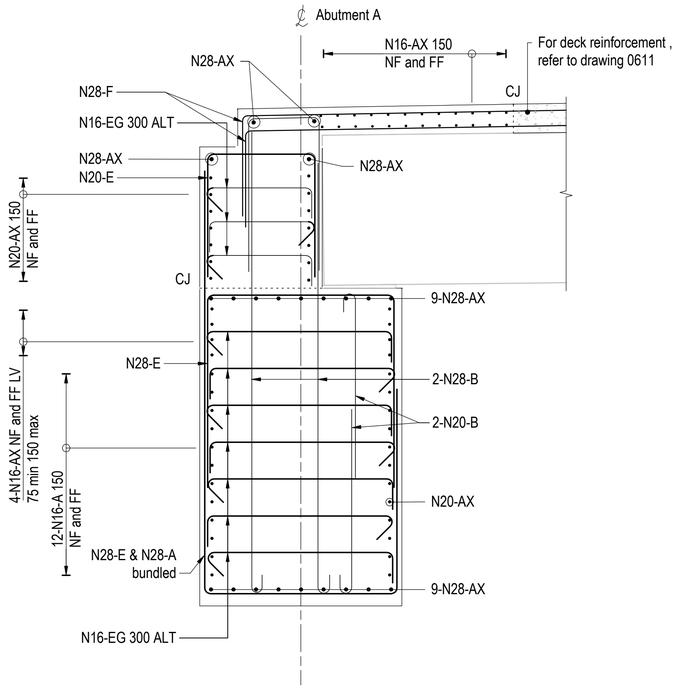
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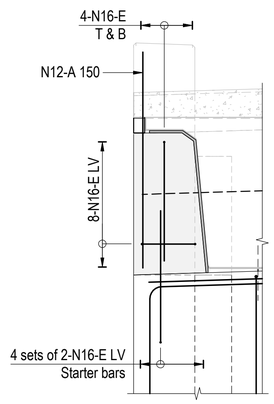
ABUTMENT A SHOWN, ABUTMENT B SIMILAR
TYPCIAL SECTION TAKE BETWEEN GIRDERS

SECTION A
SCALE 1:25 0311

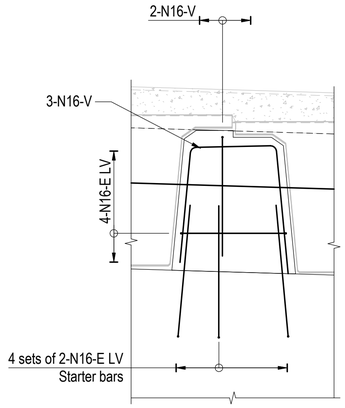


ABUTMENT A SHOWN, ABUTMENT B SIMILAR
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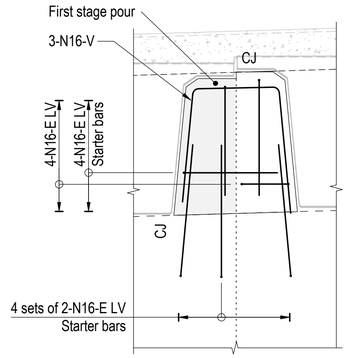
SECTION B
SCALE 1:25 0311



TYPICAL ELEVATION - ABUTMENT INTEGRAL SIDE WALL
SCALE 1:25



TYPICAL ELEVATION - ABUTMENT INTEGRAL INFILL
SCALE 1:25



TYPICAL ELEVATION - ABUTMENT INTEGRAL INFILL AT STAGED CJ
SCALE 1:25

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Area: Structural
Signature:
Date:
RPEQ No: 33726

Drawing Title
BRIDGE OVER FRESH WATER CREEK
ABUTMENT A - REINFORCEMENT
SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0312

Coordinate System MGA2020 Z56
Height Datum AHD Derived

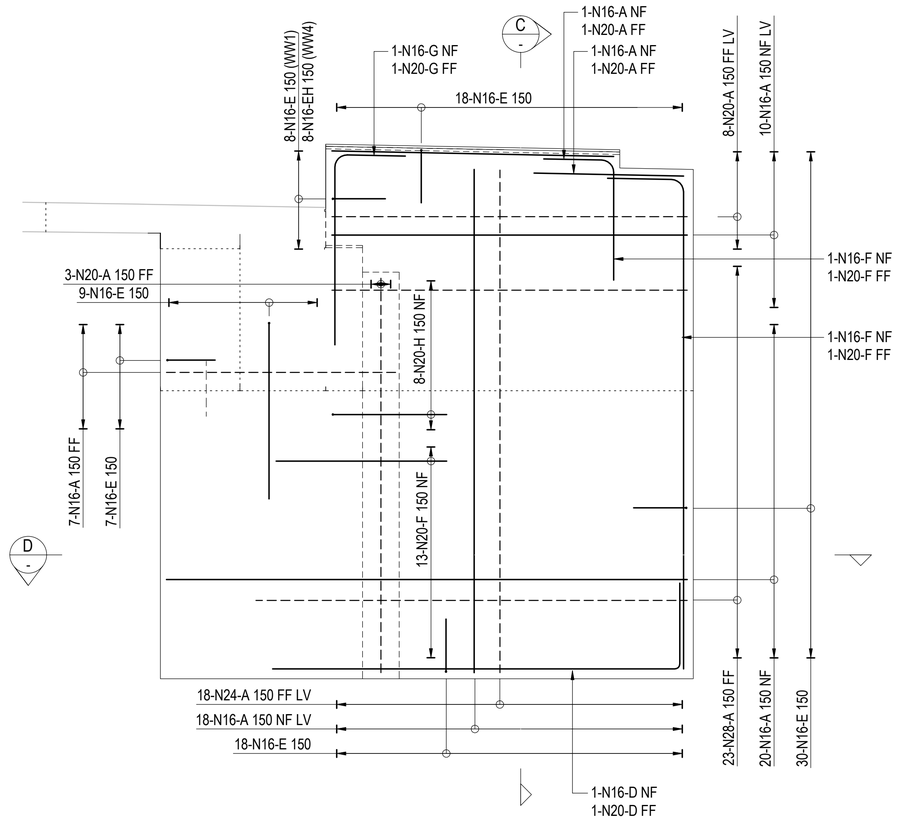
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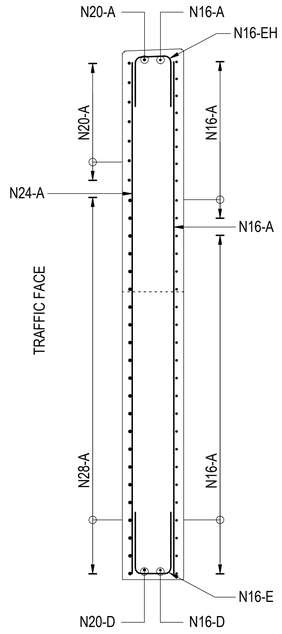
DETAILED DESIGN



ELEVATION - WINGWALL 1

SCALE 1:25

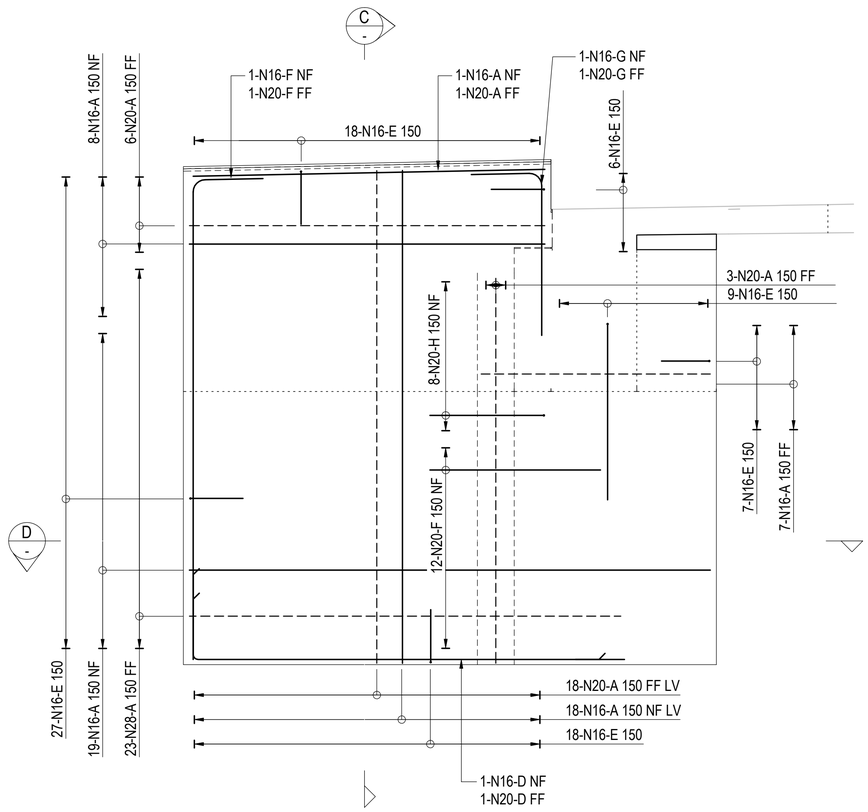
WINGWALL 1 SHOWN
WINGWALL 4 SIMILAR



SECTION C

SCALE 1:25

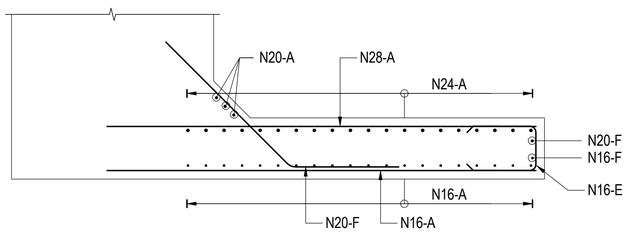
WINGWALL 1 SHOWN
WINGWALL 3 SIMILAR BUT HANDED



ELEVATION - WINGWALL 3

SCALE 1:25

WINGWALL 3 SHOWN
WINGWALL 6 SIMILAR



SECTION D

SCALE 1:25

WINGWALL 1 SHOWN
WINGWALL 3 SIMILAR BUT HANDED

WINGWALL 1 SHOWN
WINGWALL 3 SIMILAR

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK
ABUTMENT A - REINFORCEMENT
SHEET 3

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0313

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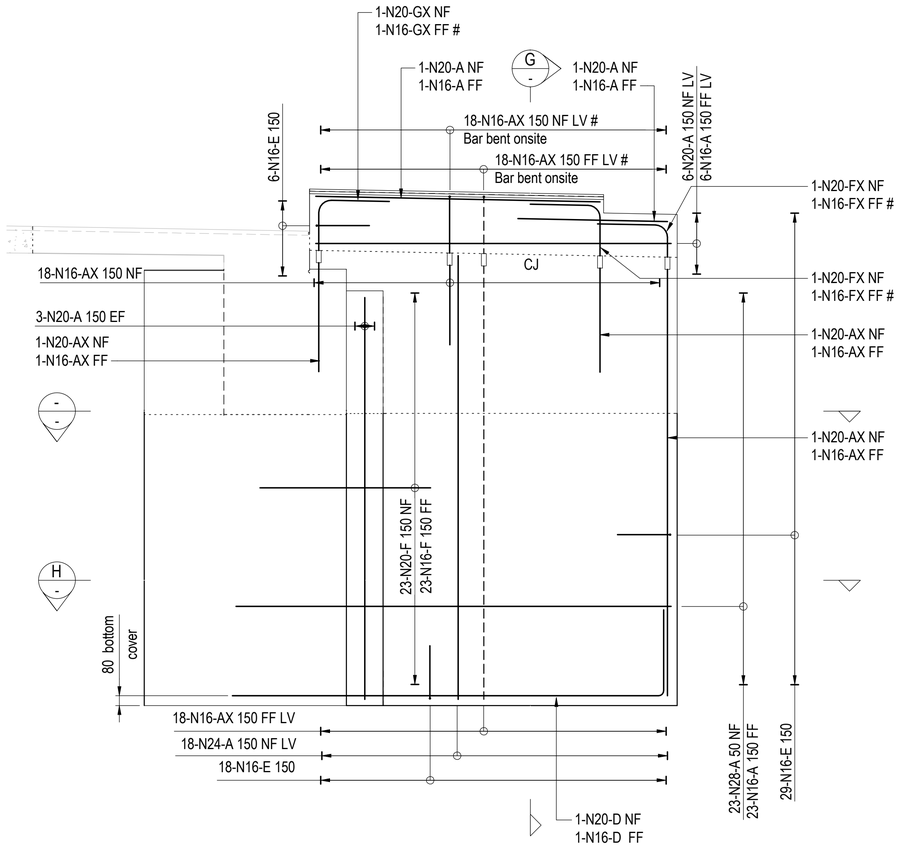
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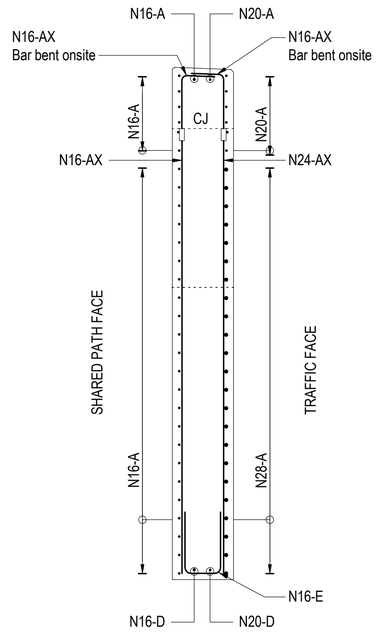
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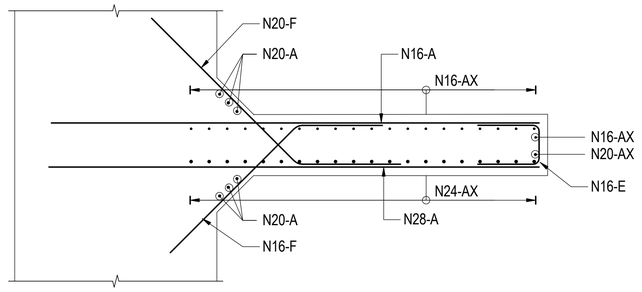
WINGWALL 2

SCALE 1:25

WINGWALL 2 SHOWN
WINGWALL 5 SIMILAR



SECTION G
SCALE 1:25



SECTION H
SCALE 1:25

Note: All couplers to be installed with plastic plug on exposed coupler thread.

Denotes, where required, reinforcement to be installed as "AX" bar shape and bent on site to designated bar shape.

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales 0 500 1000mm
1:25(A1) / 1:50(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK ABUTMENT A - REINFORCEMENT SHEET 4

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:25
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0314

Coordinate System MGA2020 Z56
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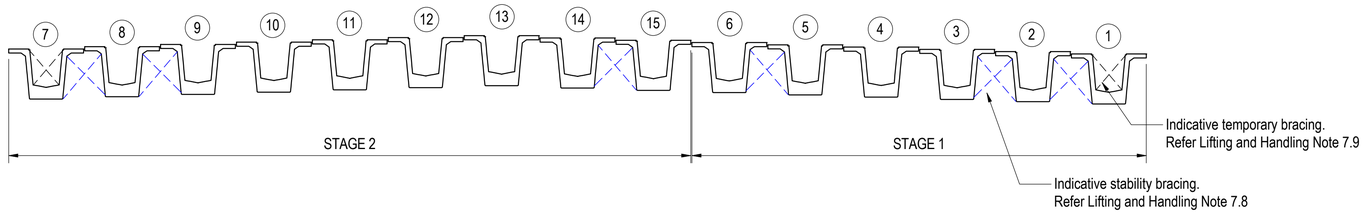
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DETAILED DESIGN

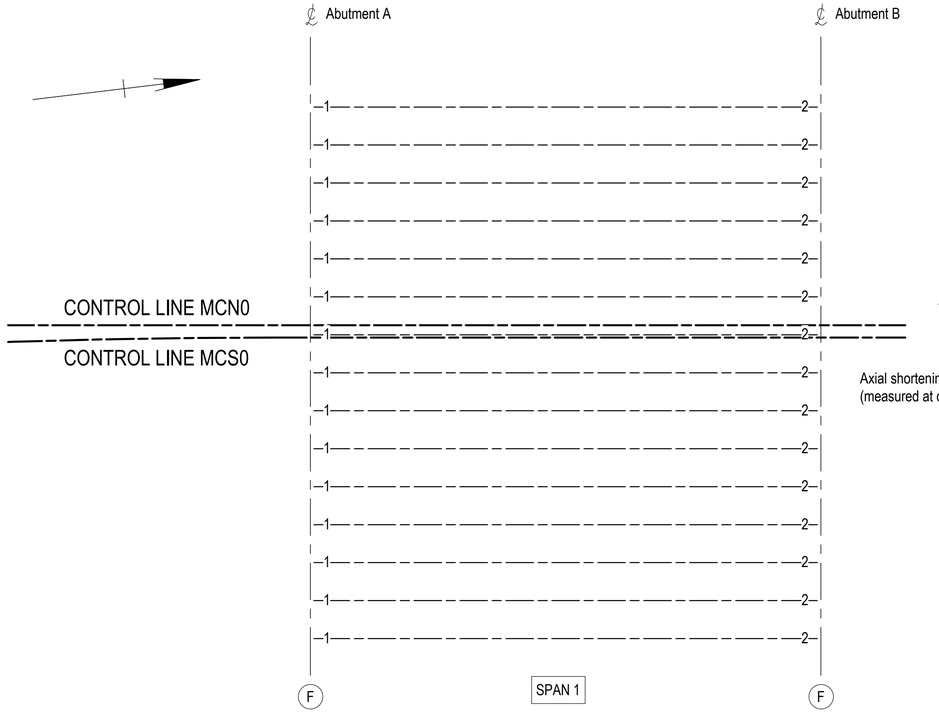


GIRDER ERECTION SEQUENCE

SCALE 1:75

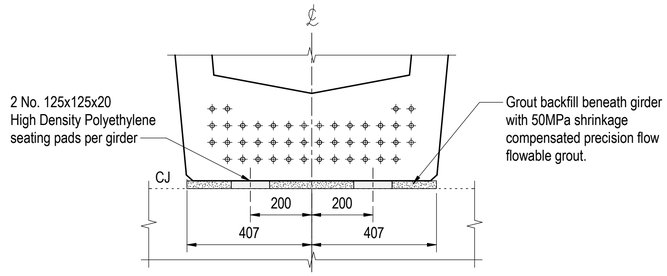
(1) Denotes order of girder erection.
The Contractor may submit an alternative girder installation sequence for approval.

The Contractor is to submit an installation procedure to the Administrator with regard to ensuring the stability of the Super-T girder during construction in accordance with MRTS75 Clause 7.1.



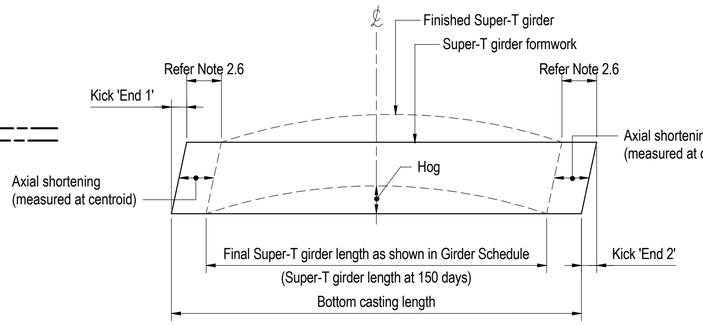
GIRDER LAYOUT DIAGRAM

SCALE 1:150



SEATING PADS

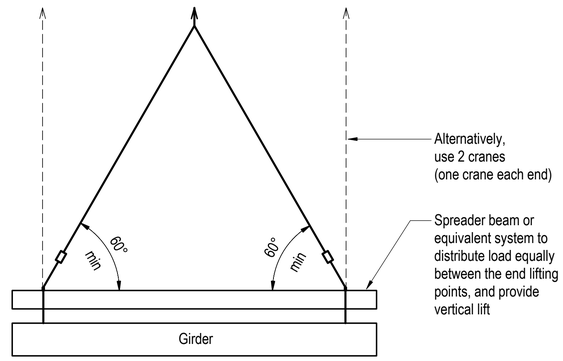
NTS



ELEVATION - FORMWORK KICK OVER DIAGRAM

NTS

* Refer to Design Kick table for girder end location



VERTICAL LIFTING DIAGRAM

NTS

DESIGN HOG

GIRDER DESIGN	HOG (mm)			
	TRANSFER	30 DAYS	100 DAYS	150 DAYS
G1	44	67	81	85

GIRDER SCHEDULE

NUMBER OF GIRDERS	MASS EACH (tonne)
15	46.5

DESIGN KICK

GIRDER DESIGN	KICK 'End 1' (mm)				KICK 'End 2' (mm)			
	TRANSFER	30 DAYS	100 DAYS	150 DAYS	TRANSFER	30 DAYS	100 DAYS	150 DAYS
G1	23	17	13	12	1	8	11	12

NOTES

1.1 For General Notes, refer drawings 0011 and 0012.
1.2 For Girder Layout Plan, refer drawing 0501.
1.3 Girders to be manufactured to MRTS73.

CONCRETE

2.1 Concrete shall conform to MRTS70 and be classed as S50/20.
2.2 Strength at transfer shall be a minimum of 40MPa.
2.3 Exposure classification B2.
2.4 Concrete shall be cast in rigid forms and subjected to intense vibration utilising external vibrators.
2.5 Top surface of all girders and where cross girders located to be treated as CJ to MRTS70 UNO.
2.6 When casting girders the Manufacturer shall make allowance in formwork for axial shortening (equal amounts each end) as determined by Manufacturer and formwork kick "End 1" and "End 2".

REINFORCING STEEL

3.1 Reinforcing steel shall be read in conjunction with MRSD1043.
3.2 Reinforcing steel shall be in accordance with AS/NZS 4671 and MRTS71.
3.3 Deformed bars Grade D500N. Round bars Grade R250N.
3.4 Minimum cover to reinforcing steel and strands shall be 40mm UNO.
3.5 All reinforcing steel shall be Australian Certification Authority for Reinforcing Steel (ACRS) and registered to MRTS71.
3.6 Welding consumables shall be B-G49X or B-T49X to AS/NZS ISO 17632 or AS/NZS 14341.

STRANDS

4.1 Strands shall be to AS/NZS 4672.1-7 wire ordinary-15.2-1830-Relax 2 and testing requirement to AS/NZS 4672.2.
4.2 For strands construction requirements refer to MRTS73.
4.3 Pretensioning force at stressing = 196kN per strand.
4.4 After transfer of prestress. Strands shall be cut to length & left exposed as shown for integral abutment connection.
4.5 A snug fitting plastic tube shall be used for debonding of strands.
4.6 This snug fitting tube shall be fastened to the strand in such a manner that the efficiency of the bond-break shall not be impaired by the entry of cement mortar, and such that it shall not move along the strand during placement of concrete.

COUPLERS

5.1 Couplers shall be a Proprietary Cast-in item to MRTS72.
5.2 Couplers shall be exposed prior to delivery on site.

VOIDS

6.1 Alternative void arrangements to those shown in the drawings may be submitted to the Administrator for approval in accordance with MRTS73. Minimum end block length of 2.025m is required.

LIFTING & HANDLING

7.1 Refer to the Girder Schedule for the calculated mass of each girder. The mass calculation is based on a concrete density of 2700kg/m3. Owing to fabrication methods and tolerances, the mass of the girder may vary from that noted on the Schedule.
7.2 The Manufacturer shall verify the actual mass of each girder.
7.3 Lifting loops shown on plan and elevation are sized for the calculated mass and in accordance with MRTS73 with a dynamic factor of 1.7. The Manufacturer may propose alternative lifting devices to the Administrator for consideration.
7.4 The precast Manufacturer shall be responsible for the final design and RPEQ Certification of the lifting device should the girder mass or lifting mass required to be increased during the manufacturing process.
7.5 Storage, transport and handling the girders shall comply with MRTS75.
7.6 Girders shall be kept in an upright position and supported no more than 600mm from each end.
7.7 The Contractor shall be responsible for the stability of the girder during storage, transport, handling and erection.
7.8 Girders shall be braced for stability in accordance with the Contractor's Temporary Works design details. Girders shall be braced, as necessary, to ensure horizontal and rotational restraint prior to and during casting and installation of the composite deck slab. The design of the bracing/restraint system shall include provision for direct and eccentric load effects from any attached walkways, Handrails or formwork systems. The Temporary Works design shall be undertaken, by an RPEQ Temporary Works Engineer, to suit the Contractor's Safe Work Method Statement and shall be submitted to the Administrator, for review and approval at least 21 days prior to deck unit erection.
7.9 Indicative bracing shown should be provided such that the torsional capacity of the precast section is not exceeded.
7.10 Girders shall be lifted by means of lifting loops only.
7.11 Formwork Anchors and holes for transport tie-down, if required, to be confirmed by the Contractor's Temporary Works Designer. Size and setout to be confirmed with the Administrator.

GIRDER PLACEMENT

8.1. The Measured Hog of each girder shall be surveyed during manufacture in accordance with MRTS72 and 14 days prior to transport to site. Tolerances of Hog values shall be to MRTS73.
8.2. Where the Measured Hog values vary from these values, adjustment may be required to bridge levels. Refer Note 4.8 on drawing 0011.
8.3. Measured Hog values outside the tolerance allowed by MRTS73 shall be submitted to the Administrator prior to casting of the Abutment Headstock (HOLD POINT).
8.4. Girders older than 150 days at the time of casting the RC Deck Slab are considered to be a Non-Conformance and are to be subject to review by the Designer.
8.5. The Contractor shall ensure that the top of the Seating Pads at each girder are level prior to landing the girder.
8.6. Set out of the Seating Pad on the Abutment Headstock shall be within +/-3mm of the correct plan position on the Abutment Headstock.
8.7. Girders shall be seated in accordance with MRTS75.

GIRDER INSTALLATION

9.1. The girders shall be installed as per girder erection sequences shown.
9.2. Alternate landing sequences may be possible subject to the approval of the Administrator.
9.3. The Contractor shall submit a procedure for the installation of the Grout Pad to the Administrator for acceptance and approval 28 days prior to the installation of the girders.
9.4. The Contractor is responsible for ensuring the stability of the girders (longitudinally and laterally) during construction. This may involve temporary bracing between the girders, or temporary propping of the girders.

Scales 0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)
0 0.8 1.5 2.3 3 m
1:75(A1) / 1:150(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
SUPER-T GIRDERS
NOTES AND TYPICAL DETAILS

Drawn: Mick Aguis Design Check: Emmanuel Joy
Designed: Kobe Vetter Approved: Eoin O'Donovan

Scale at A1: 1:150, 1:75
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00 Rev: 2

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Coordinate System MGA2020 Z56
Height Datum AHD Derived
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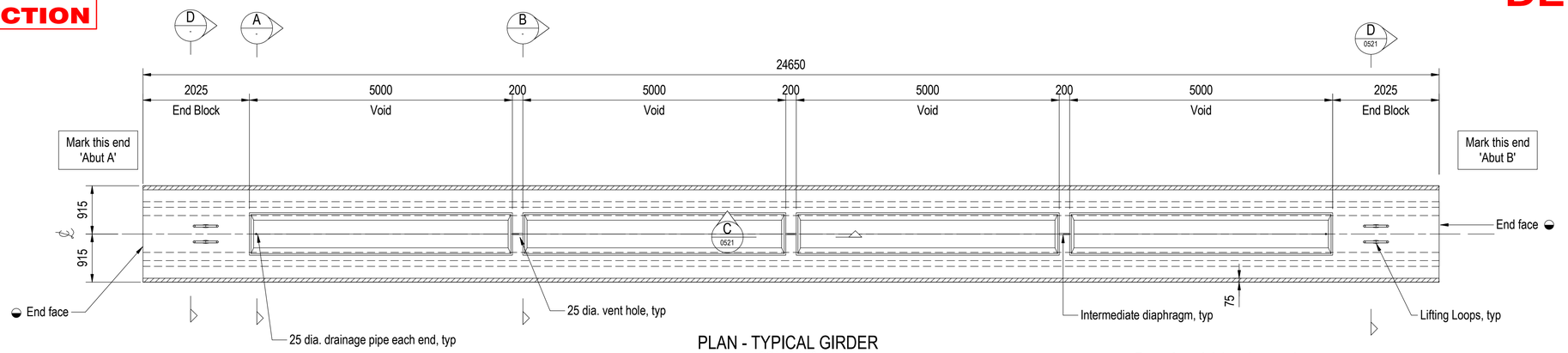
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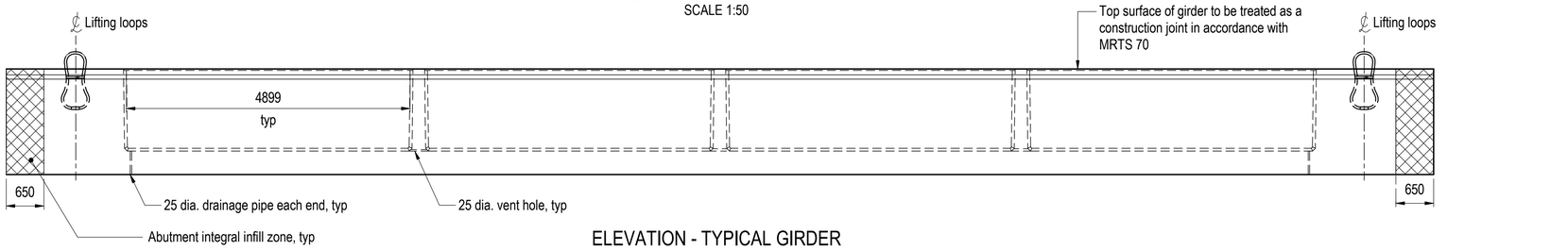
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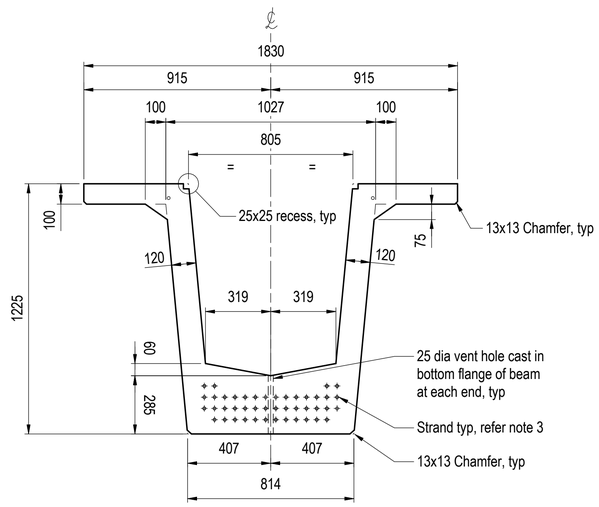
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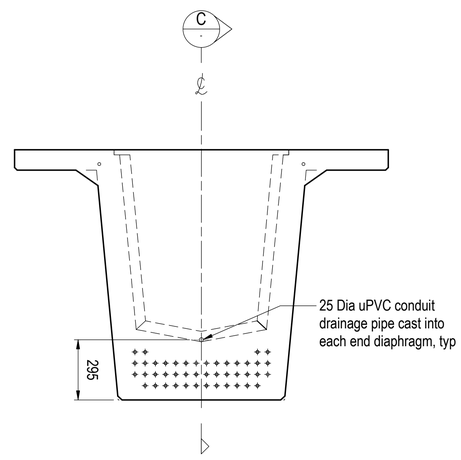
PLAN - TYPICAL GIRDER
SCALE 1:50



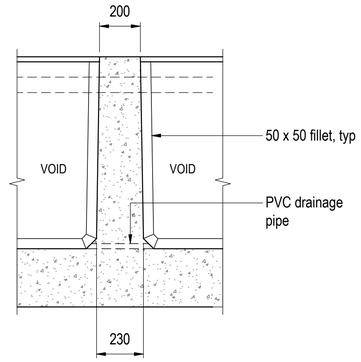
ELEVATION - TYPICAL GIRDER
SCALE 1:50



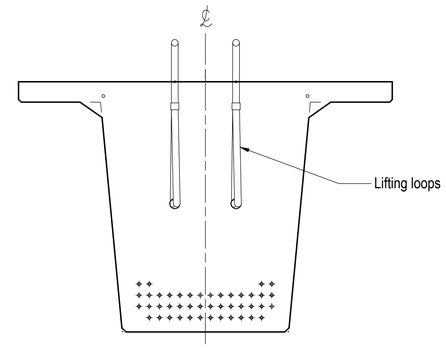
SECTION A
SCALE 1:15



SECTION B
SCALE 1:15



SECTION C
SCALE 1:15



SECTION D
SCALE 1:15

LEGEND

*	Denotes final Super T-Girder length. Refer to formwork kick over diagram on drawing 0501.
	Denotes area to be treated as a construction joint. Refer MRTS70
	Denotes area of top flange to be steel trowel finished.

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. For Super-T Girder Notes refer to drawing 0501.
3. Strand pattern shown indicatively. For pattern refer to drawing 0531.
4. All dimensions taken at bottom of Super-T Girder UNO.

Scales
0 1 2 m
1:50(A1) / 1:100(A3)
0 150 300 450 600 mm
1:15(A1) / 1:30(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

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Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title
BRIDGE OVER FRESH WATER CREEK
SUPER-T GIRDERS
GENERAL ARRANGEMENT

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50, 1:15
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

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Coordinate System MGA2020 Z56
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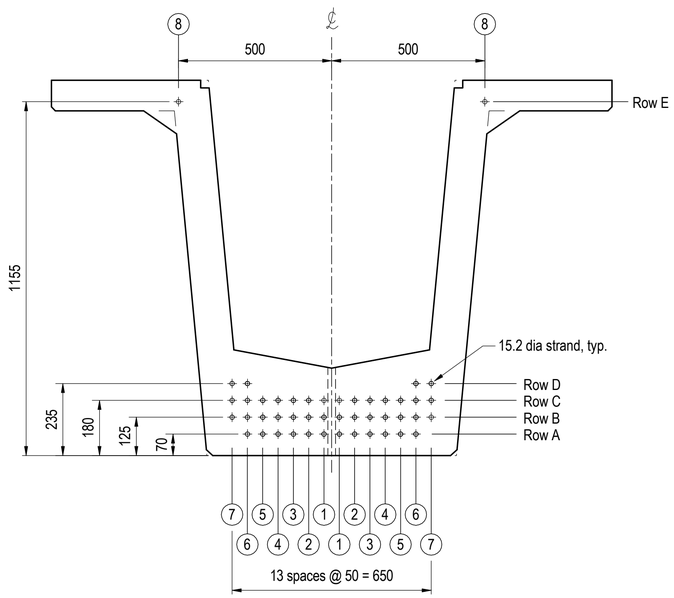
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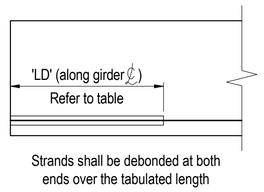
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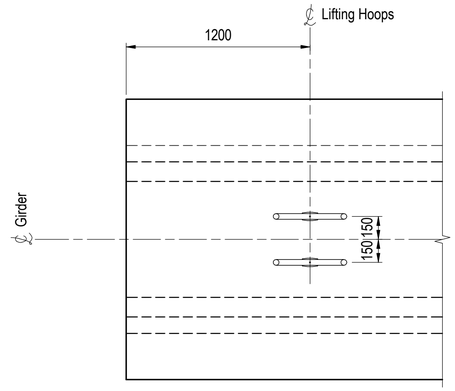
DETAILED DESIGN



GIRDER TYPE G1
STRAND PATTERN ARRANGEMENT
SCALE 1:10



STRAND DEBONDING DETAIL
NTS



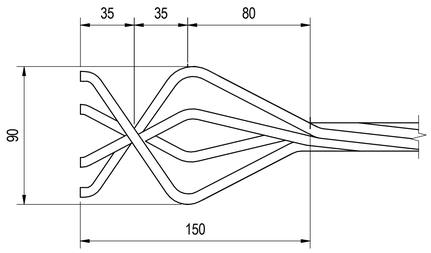
PLAN - END BLOCK
SCALE 1:20

STRAND DEBONDING TABLE - GIRDER TYPE G1

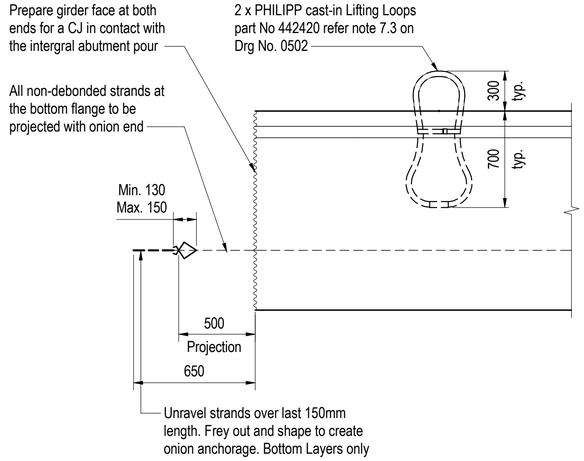
STRAND No.	STRAND LOCATION AND LENGTH OF DEBONDING 'LD' (mm)								STRANDS
	1	2	3	4	5	6	7	8	PER ROW
ROW E								0	2
ROW D						9000	0		8
ROW C	6000	0	9000	0	9000	0	6000		14
ROW B	0	4000	0	4000	0	4000	0		14
ROW A	0	0	2000	0	2000	0			12
						TOTAL STRANDS PER GIRDER			50

LEGEND

	No Strand
0	Strand with no debonding
2000	Strand with debonding



TYPCIAL STAND 'ONION' SHAPE END
SCALE 1:2



ELEVATION - END BLOCK
SCALE 1:20

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. For Super-T Girder Notes refer to drawing 0501.
3. Strand pattern shown indicatively. For pattern refer to drawing 0531.
4. All dimensions taken at bottom of Super-T Girder UNO.

Scales
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 20 40 60 80 mm
1:2(A1) / 1:4(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
SUPER-T GIRDERS
STRAND AND DEBONDING

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:10, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0531

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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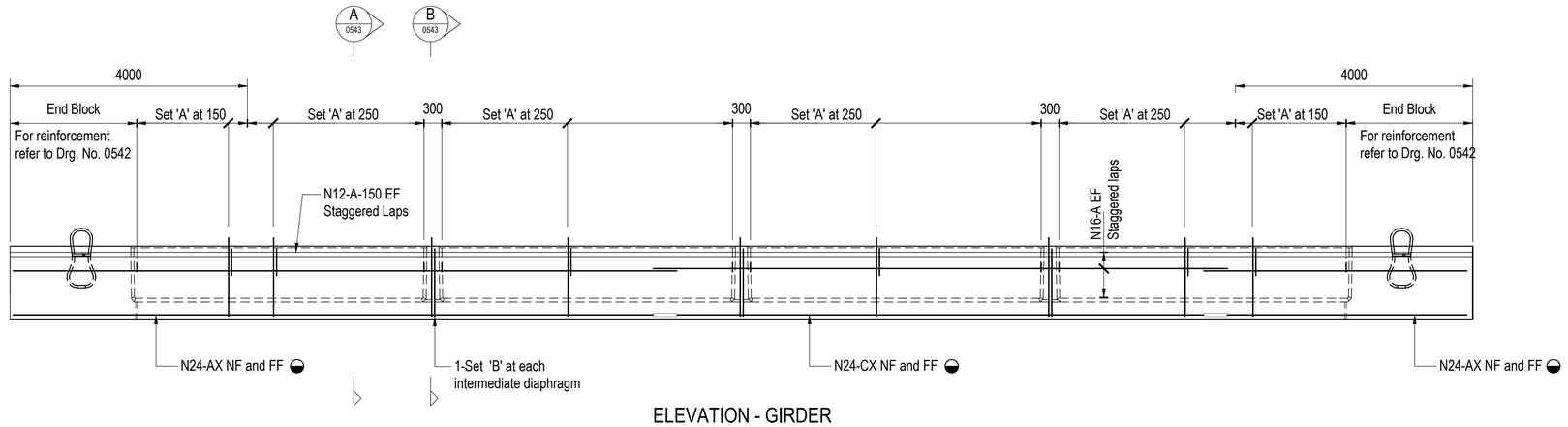
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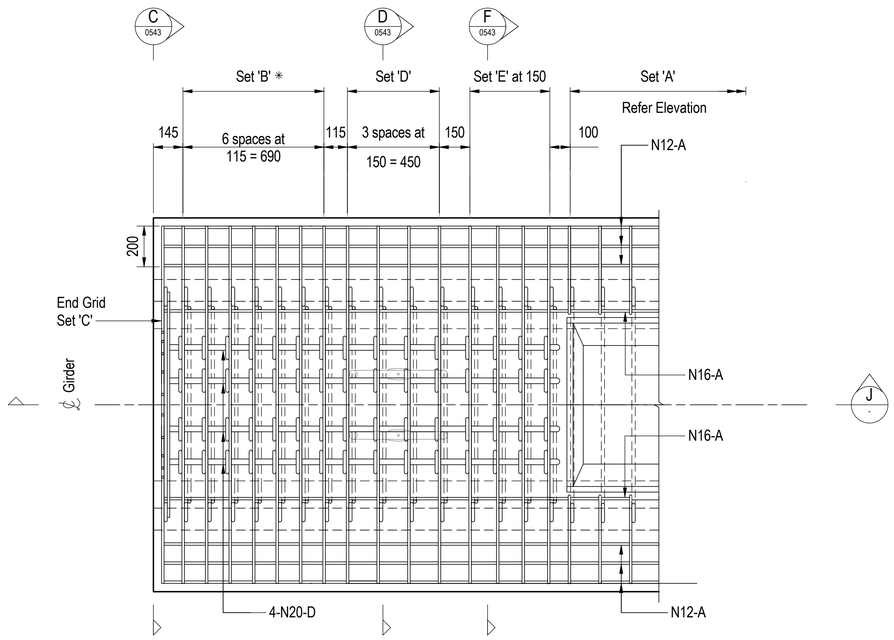
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NOT FOR CONSTRUCTION

DETAILED DESIGN

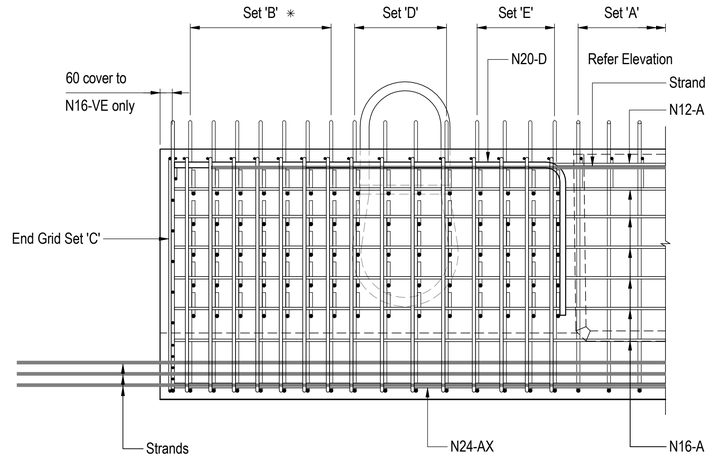


ELEVATION - GIRDER
SCALE 1:50



STRANDS NOT SHOWN FOR CLARITY

PLAN - END BLOCK REINFORCEMENT
SCALE 1:15



SECTION J -
SCALE 1:15

LEGEND

✳	Denotes N16-V sits inside N16-VE, such that bars are in the same place
×	Denotes weld
◒	Denotes bars to be joint by coupler

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. For Super-T Girder Notes refer to drawing 0501.

Scales 0 1 2 m
1:50(A1) / 1:100(A3)
0 150 300 450 600 mm
1:15(A1) / 1:30(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK SUPER-T GIRDERS REINFORCEMENT - SHEET 1

Drawn	Design Check
Mick Aguis	Emmanuel Joy
Designed	Approved
Kobe Vetter	Eoin O'Donovan

Scale at A1: 1:50, 1:15
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0541

Coordinate System MGA2020 Z56
Height Datum AHD Derived

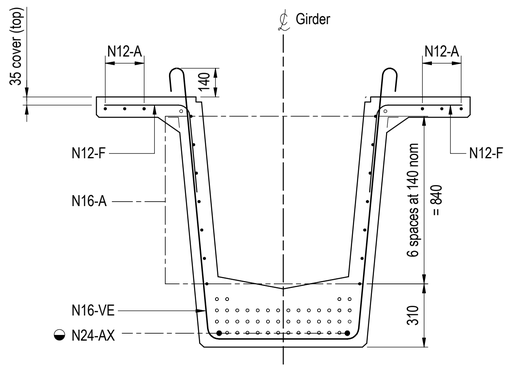
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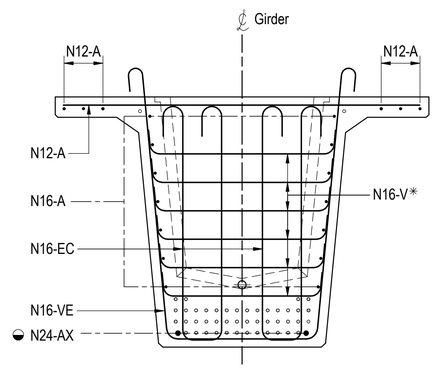
DETAILED DESIGN



Set 'A' comprises
1-16-VE
2-N12-F

REINFORCEMENT SET 'A'

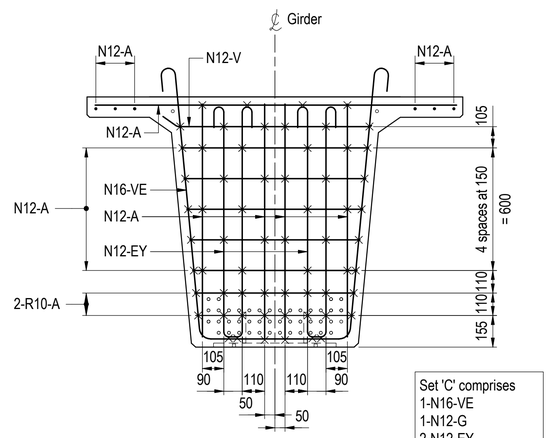
SECTION A
SCALE 1:15 0541



Set 'B' comprises
1-16-VE
1-N12-A
2-N16-EC
6-N16-V

REINFORCEMENT SET 'B'

SECTION B
SCALE 1:15 0541



Set 'C' comprises
1-N16-VE
1-N12-G
2-N12-EY
1-N12-V
4-N12-A
5-N12-A
2-R10-A

END GRID REINFORCEMENT SET 'C'

SECTION C
SCALE 1:15 0542

Set 'E' comprises
1-N16-VE
1-N12-A
2-N16-EC
6-N16-V

REINFORCEMENT SET 'D'

SECTION D
SCALE 1:15 0542

Set 'F' comprises
1-N16-VE
1-N12-A
2-N16-EC
6-N16-V

REINFORCEMENT SET 'E'

SECTION E
SCALE 1:15 0542

LEGEND

*	Denotes N16-V sits inside N16-VE, such that bars are in the same place
×	Denotes weld
◒	Denotes bars to be joint by coupler

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. For Super-T Girder Notes refer to drawing 0501.

Scales 0 150 300 450 600 mm
1:15(A1) / 1:30(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
SUPER-T GIRDERS
REINFORCEMENT - SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:15
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: **304487-00**
Rev: **1**

OGRU-ARU-10-STBR-DRG-0542

Coordinate System MGA2020 Z56
Height Datum AHD Derived

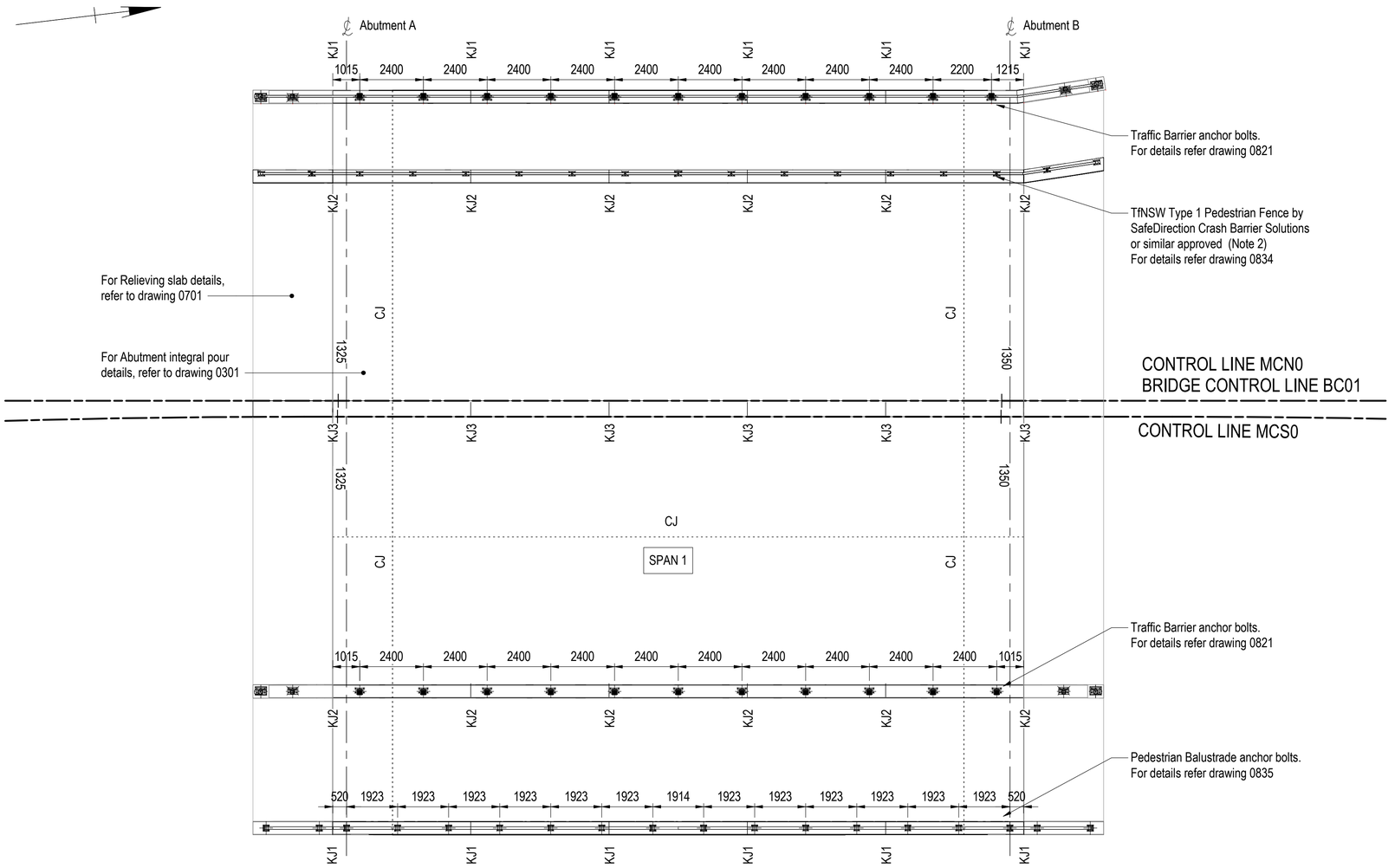
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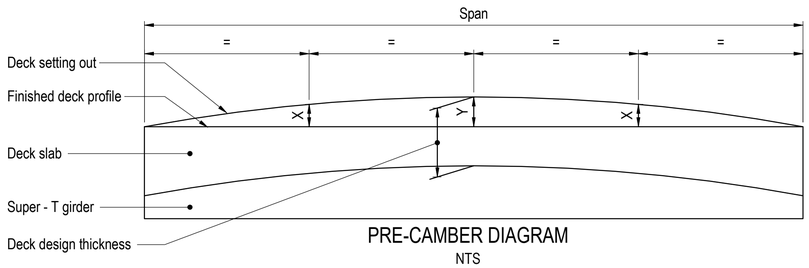
NOT FOR CONSTRUCTION

DETAILED DESIGN



PLAN - DECK ARRANGEMENT

SCALE 1:100



PRE-CAMBER DIAGRAM

NTS

PRE-CAMBER SCHEDULE

SPAN	DIMENSION (mm)	
	X	Y
1	10.6	15

Deck formwork heights at barriers to be set with an upward camber to the dimensions shown above to compensate for the downward deflection of the girders due to the mass of the RC deck slab.
Note: the hog in the girders preclude their use as a datum for setting out the formwork heights.

LEGEND

KJ1 Denotes Kerb Joint Type
HB1 Denotes Hold Down Bolt Group Type

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. Pedestrian fence as per TfNSW RMS standard drawing R0800 series. Fence may be installed post construction if required by road authority.

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

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - ARRANGEMENT
SHEET 1

Drawn: Mick Aguis Design Check: Emmanuel Joy
Designed: Kobe Vetter Approved: Eoin O'Donovan

Scale at A1: 1:100
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00 Rev: 2

OGRU-ARU-10-STBR-DRG-0601

Coordinate System MGA2020 Z56
Height Datum AHD Derived

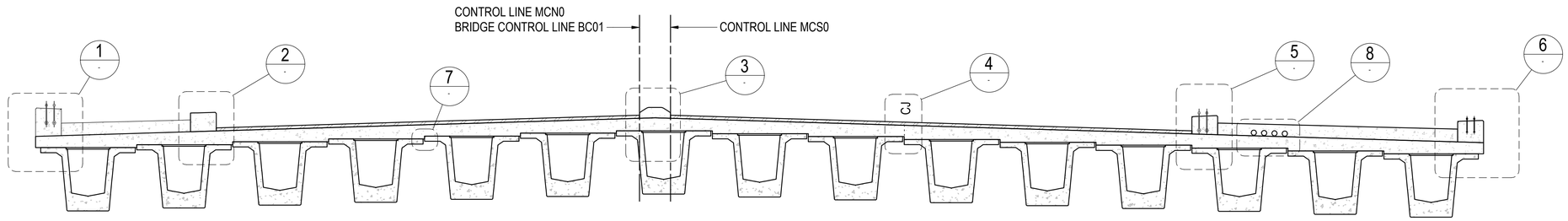
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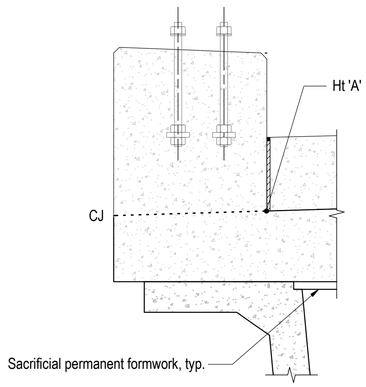
DETAILED DESIGN



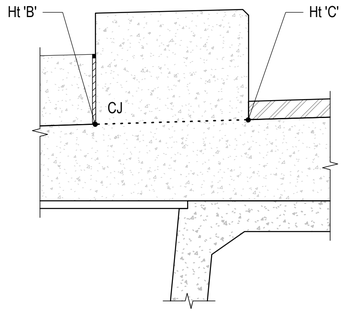
TYPICAL DECK CROSS SECTION

SCALE 1:50

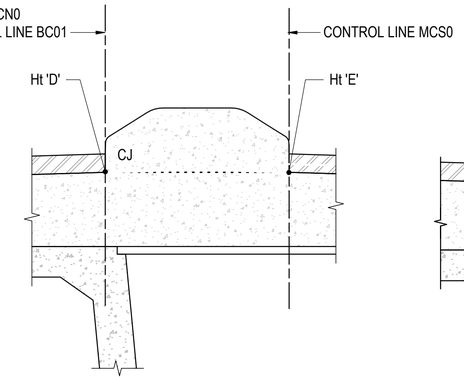
Note: Deck setout levels indicated are given to the top surface of the concrete deck and are perpendicular to the Control Line BC01



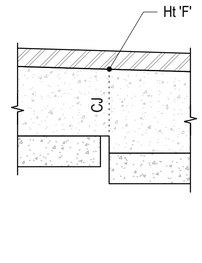
DETAIL 1 SCALE 1:10



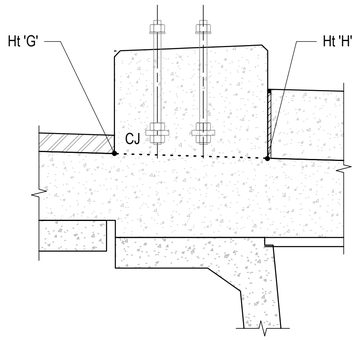
DETAIL 2 SCALE 1:10



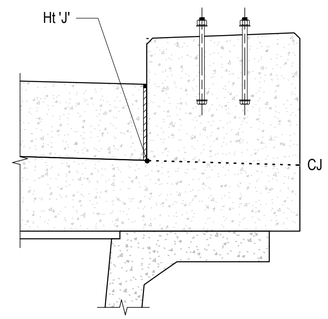
DETAIL 3 SCALE 1:10



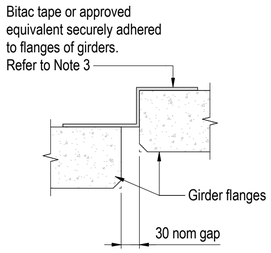
DETAIL 4 SCALE 1:10



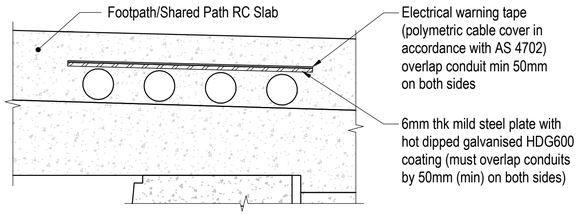
DETAIL 5 SCALE 1:10



DETAIL 6 SCALE 1:10



SECTION 7 SCALE 1:5



UNDER-DEPTH CONDUIT TREATMENT
FOR HD CONDUITS IN CYCLE WAY

DETAIL 8 SCALE 1:10

BRIDGE DECK LEVELS

LOCATION	CHAINAGE	Ht 'A'	Ht 'B'	Ht 'C'	Ht 'D'	Ht 'E'	Ht 'F'	Ht 'G'	Ht 'H'	Ht 'J'	COMMENTS
END OF DECK ABUTMENT A	1324.797	17.202	17.277	17.292	17.538	17.538	17.402	17.235	17.220	17.080	REFER STAGING, END OF DECK POURED WITH BALLAST INTEGRAL INFILL
CJ	1327.047	17.241	17.316	17.331	17.577	17.577	17.441	17.274	17.259	17.119	
	1330	17.287	17.362	17.377	17.623	17.623	17.487	17.320	17.305	17.166	
	1335	17.354	17.429	17.444	17.690	17.690	17.554	17.387	17.372	17.232	
MIDSPAN	1337.812	17.384	17.459	17.474	17.720	17.720	17.584	17.417	17.402	17.263	
	1340	17.404	17.479	17.494	17.740	17.740	17.604	17.437	17.422	17.283	
	1345	17.439	17.514	17.529	17.775	17.775	17.639	17.472	17.457	17.318	
CJ	1348.062	17.453	17.528	17.543	17.789	17.789	17.653	17.486	17.471	17.332	
END OF DECK ABUTMENT B	1350.827	17.460	17.535	17.550	17.796	17.796	17.661	17.493	17.478	17.339	REFER STAGING, END OF DECK POURED WITH BALLAST INTEGRAL INFILL

NOTES

1. For General Notes refer drawings 0011 and 0012.
2. Deck setout heights indicated are given to the top surface of the concrete deck.
3. The sealing details between girders to support the weight of fresh concrete and to prevent loss of cement paste shall be confirmed by the Contractor. The detail shall be in compliance with MRTS77.
4. The concrete bridge deck shall be cleaned without concrete slurry/dust and also free from concrete deck curing compound prior to placing the DWS.

Scales
0 1 2 m
1:50(A1) / 1:100(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - ARRANGEMENT
SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50, 1:10, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

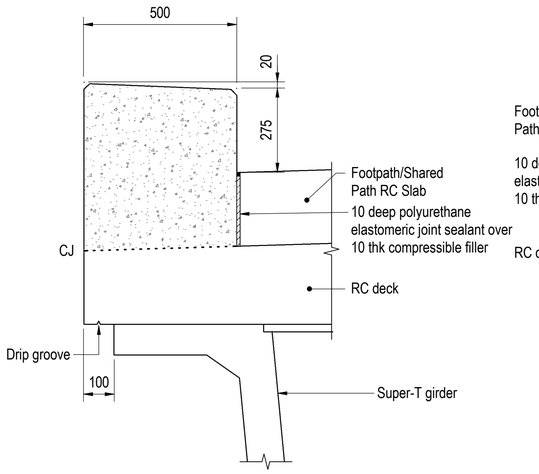
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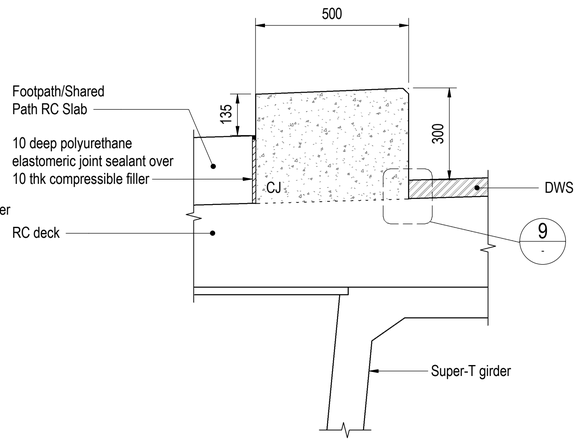
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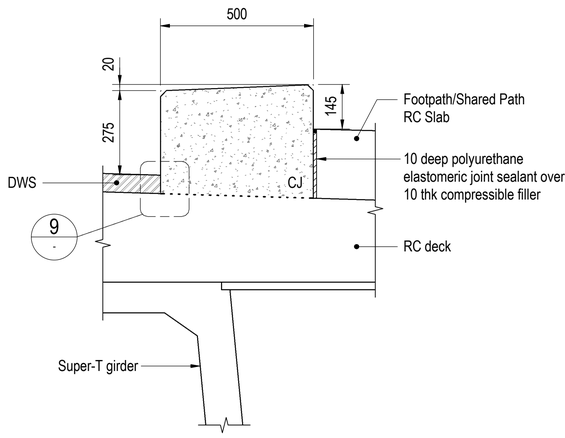
DETAILED DESIGN



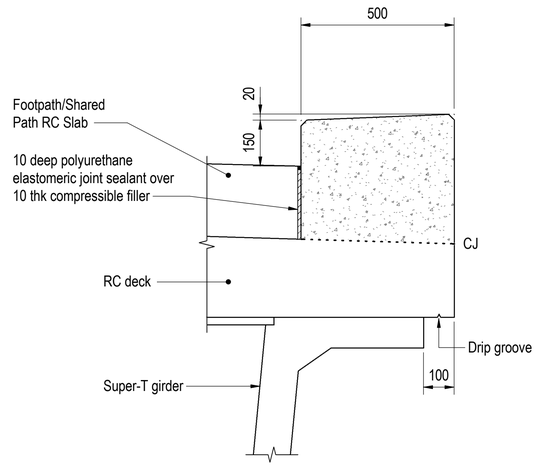
TYPICAL SECTION
NORTHBOUND INSITU CONCRETE EDGE KERB
SCALE 1:10



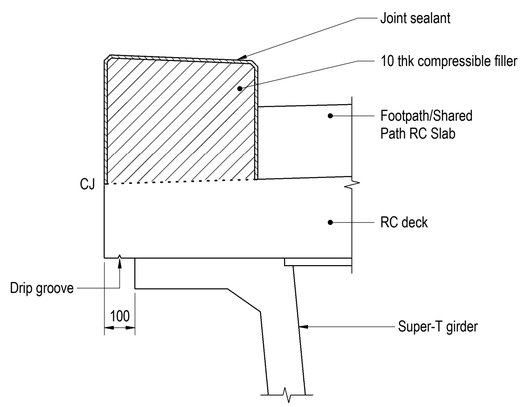
TYPICAL SECTION
NORTHBOUND INSITU CONCRETE INNER KERB
SCALE 1:10



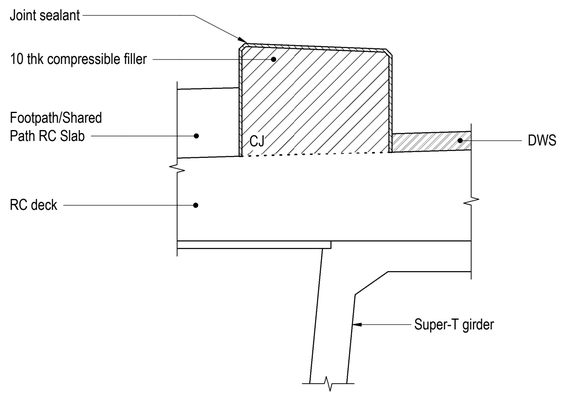
TYPICAL SECTION
SOUTHBOUND INSITU CONCRETE INNER KERB
SCALE 1:10



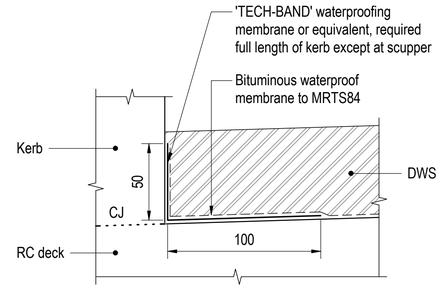
TYPICAL SECTION
SOUTHBOUND INSITU CONCRETE EDGE KERB
SCALE 1:10



EDGE KERB JOINT DETAIL - KJ1
SCALE 1:10



INNER KERB JOINT DETAIL - KJ2
SCALE 1:10



DETAIL 9 / -
SCALE 1:2

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 20 40 60 80 mm
1:2(A1) / 1:4(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - ARRANGEMENT
SHEET 3

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:10, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0603

Coordinate System MGA2020 Z56
Height Datum AHD Derived

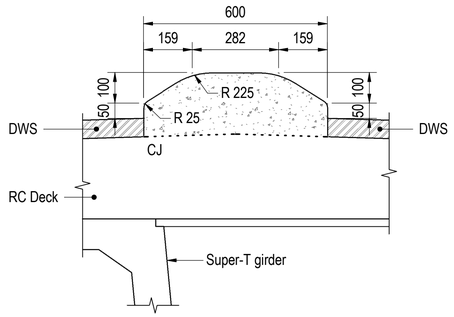
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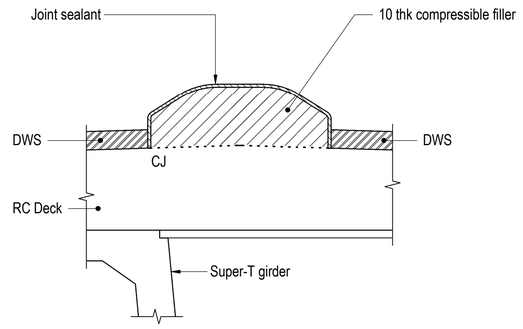
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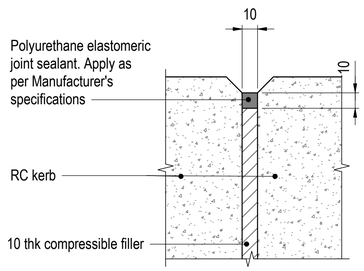
DETAILED DESIGN



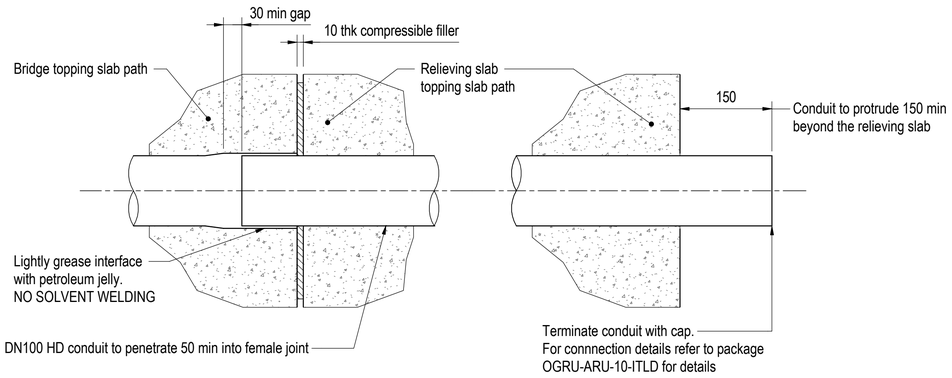
TYPICAL SECTION
INSITU CONCRETE MEDIAN KERB
SCALE 1:10



MEDIAN KERB JOINT DETAIL - KJ3
SCALE 1:10



JOINT SEALANT DETAIL - TYPES KJ1 AND KJ2
JOINT SEALANT TYPE KJ3 SIMILAR
SCALE 1:2



PLAN - CONDUIT JOINT IN PATH
AT FIXED JOINT
SCALE 1:5

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)
0 20 40 60 80 mm
1:2(A1) / 1:4(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title
BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - ARRANGEMENT
SHEET 4

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:10, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0604

Coordinate System MGA2020 Z56
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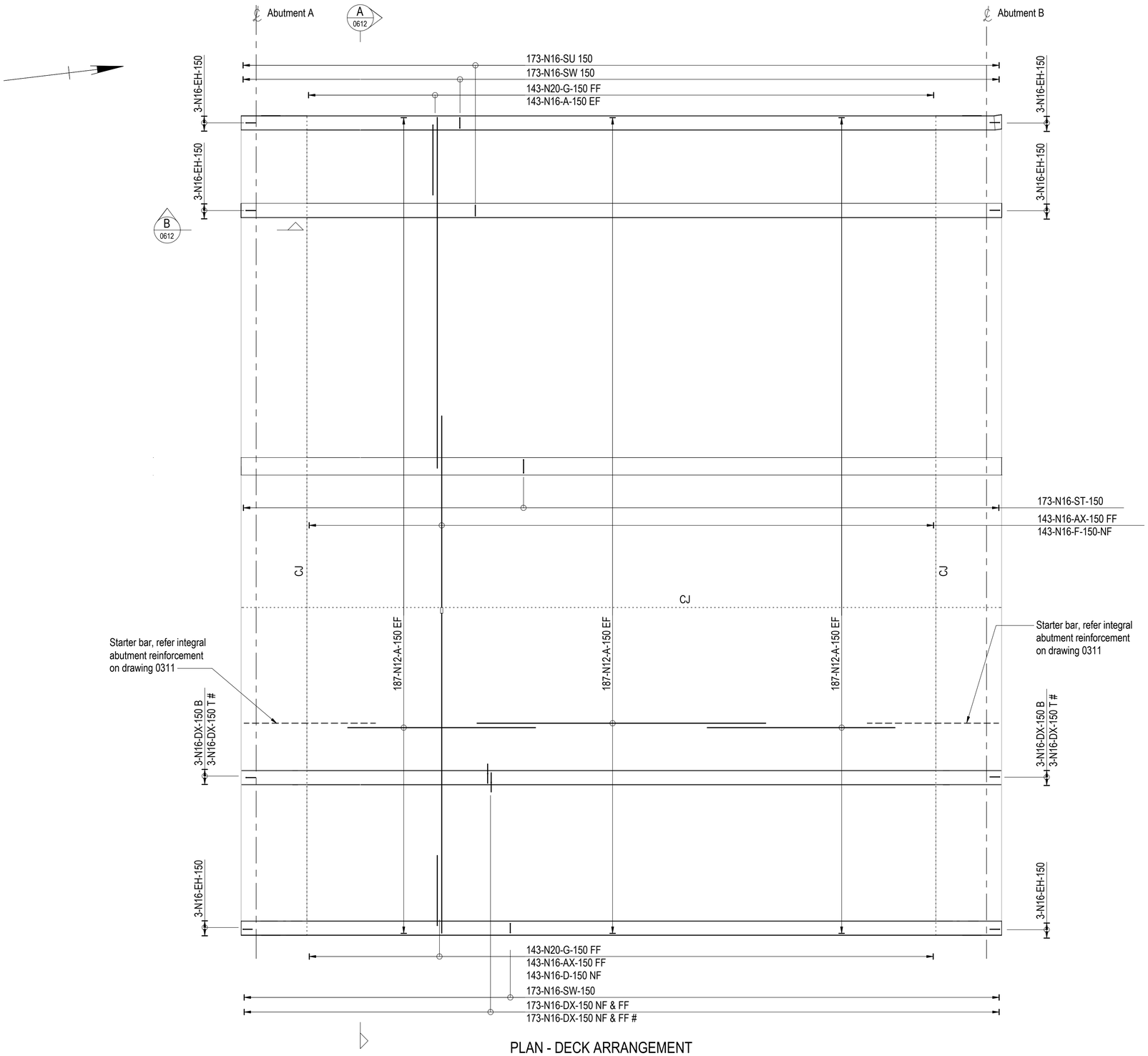
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DETAILED DESIGN



PLAN - DECK ARRANGEMENT

SCALE 1:75

Denotes, where required, reinforcement to be installed as "AX" bar shape and bent on site to designated bar shape.

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 0.8 1.5 2.3 3 m
1:75(A1) / 1:150(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - REINFORCEMENT
SHEET 1

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:75
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0611

Coordinate System MGA2020 Z56
Height Datum AHD Derived

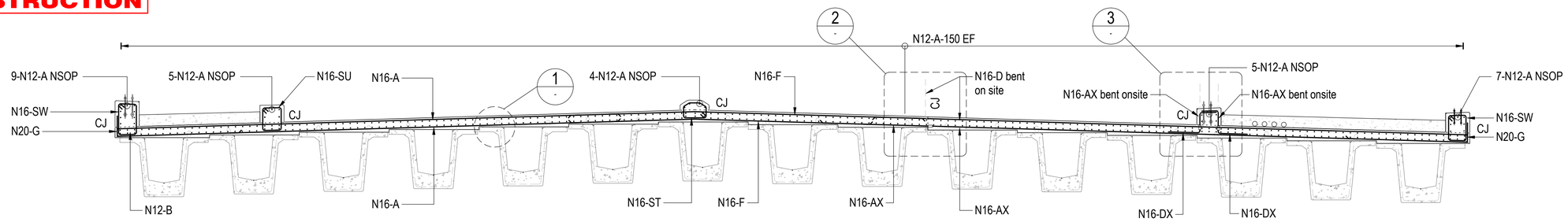
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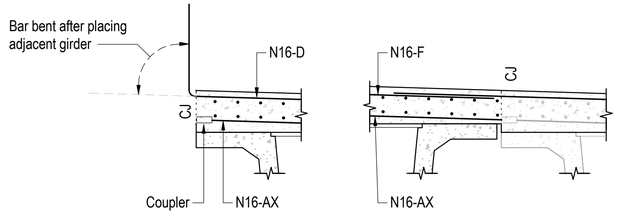
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NOT FOR CONSTRUCTION

DETAILED DESIGN



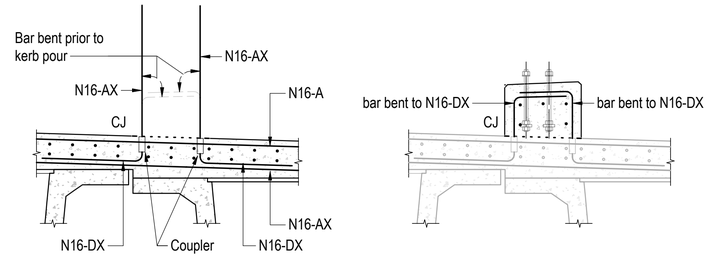
SECTION A (0611)
SCALE 1:50



FIRST DECK POUR

SECOND DECK POUR

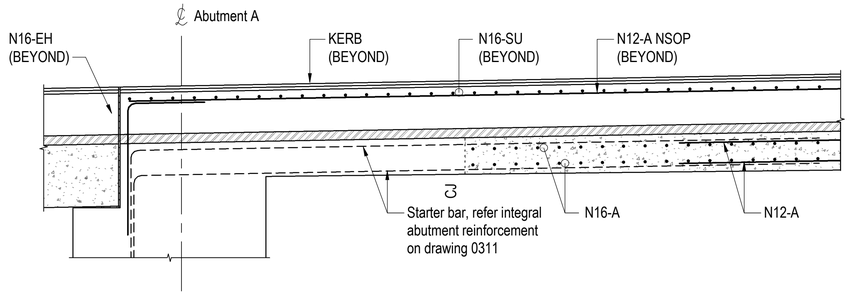
DETAIL 2 (-)
SCALE 1:20



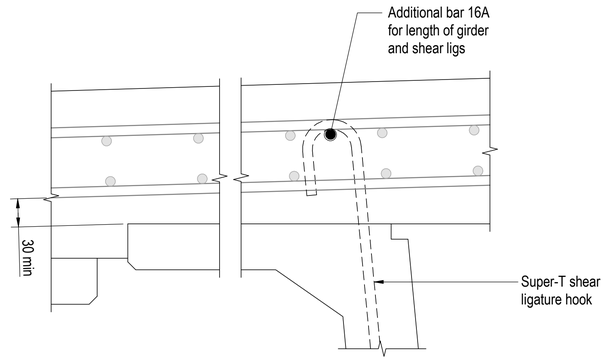
PRE-KERB POUR

POST-KERB POUR

DETAIL 3 (-)
SCALE 1:20



SECTION B (0611)
SCALE 1:20



DETAIL 1 (-)
SCALE 1:5

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales
0 1 2 m
1:50(A1) / 1:100(A3)
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

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Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE DECK - REINFORCEMENT
SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50 , 1:20, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0612

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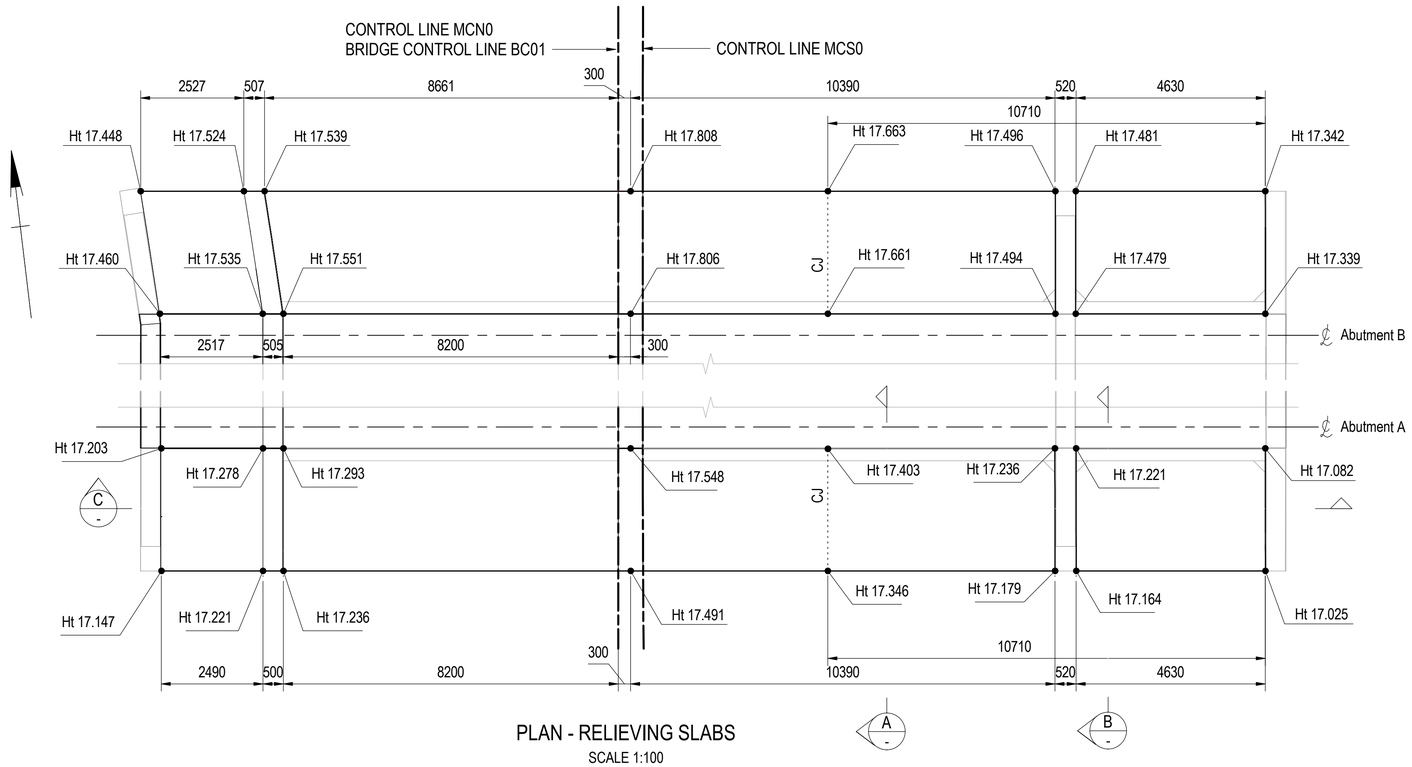
Coordinate System MGA2020 Z56
Height Datum AHD Derived

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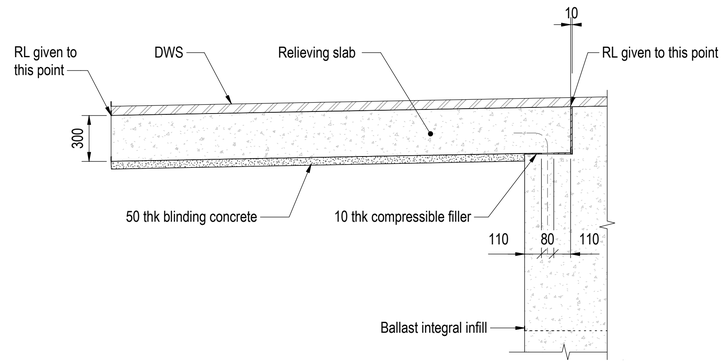
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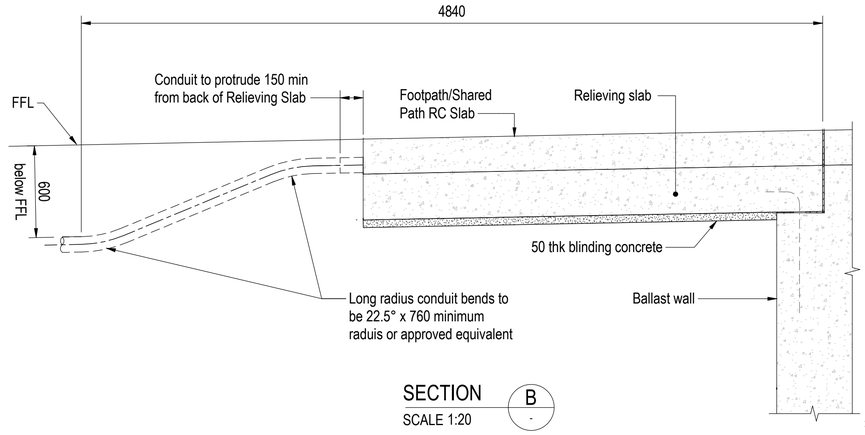
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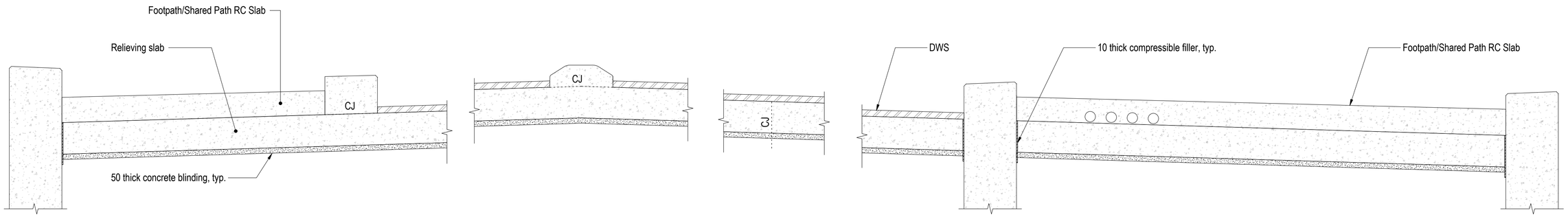
PLAN - RELIEVING SLABS
SCALE 1:100



SECTION A
SCALE 1:20



SECTION B
SCALE 1:20



SECTION C
SCALE 1:20

Scales
0 1 2 3 4 m
1:100(A1) / 1:200(A3)
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title
BRIDGE OVER FRESH WATER CREEK
RELIEVING SLABS DETAILS

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:100, 1:20
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0701

Coordinate System MGA2020 Z56
Height Datum AHD Derived

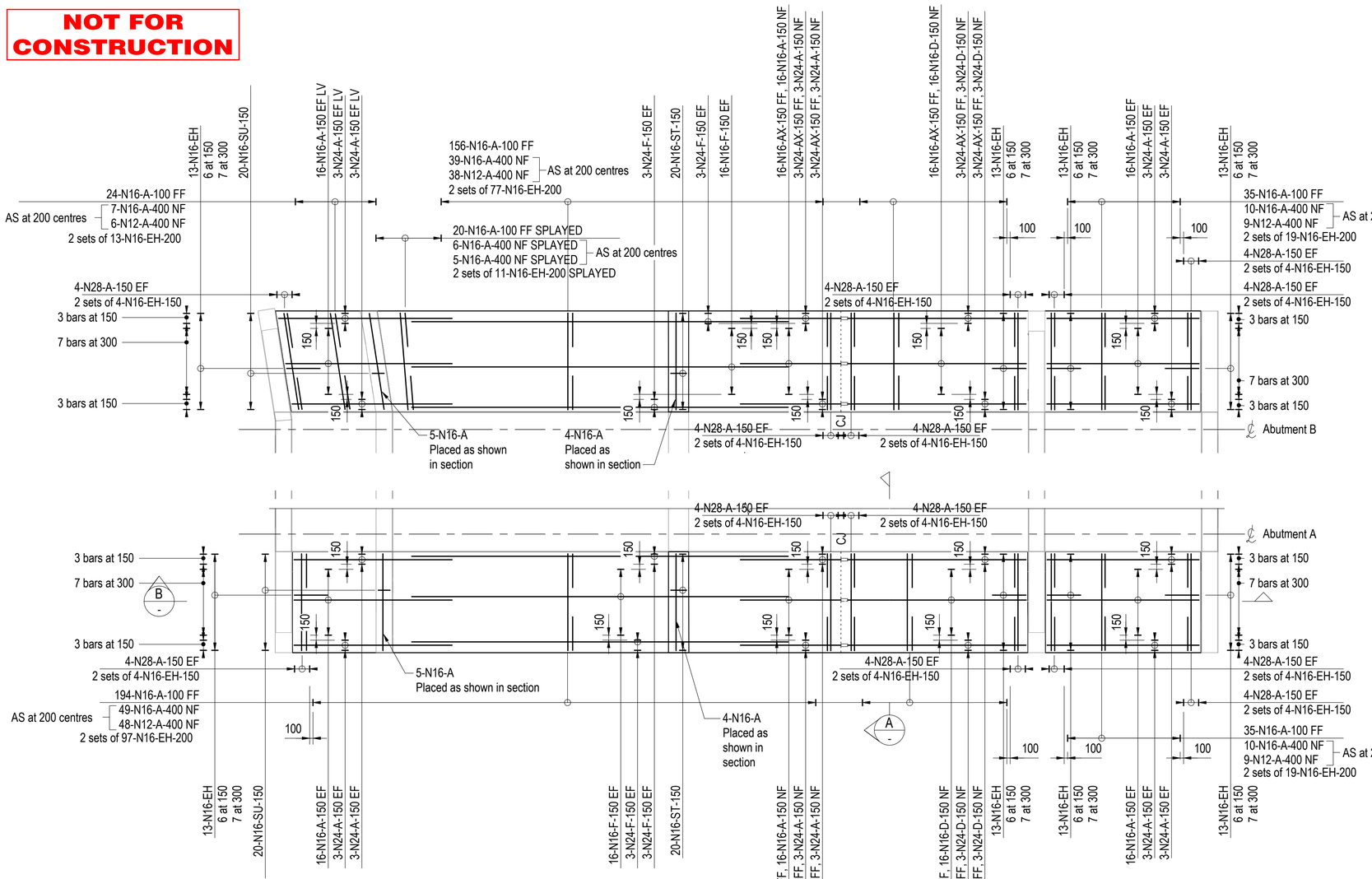
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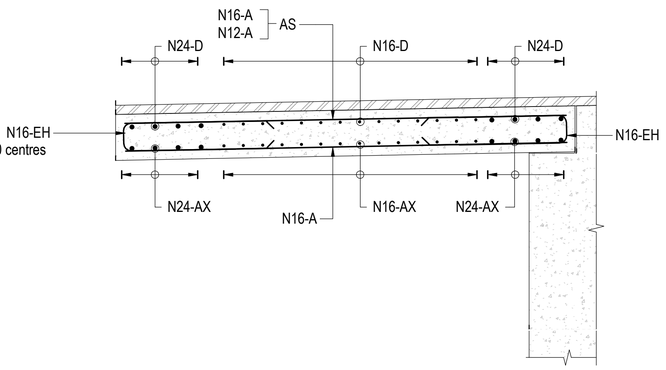
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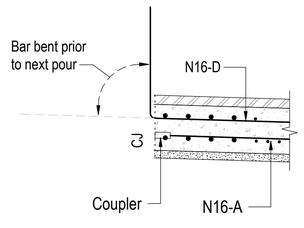
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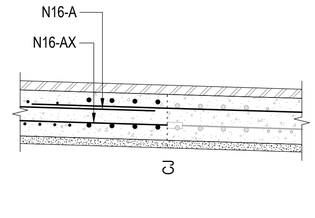




SECTION A
SCALE 1:20



FIRST SLAB POUR

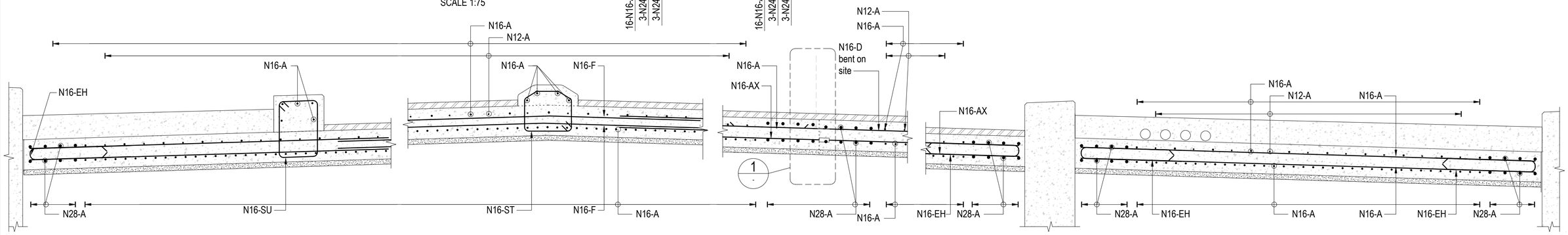


SECOND SLAB POUR

DETAIL 1
SCALE 1:20

PLAN - RELIEVING SLAB REINFORCEMENT

SCALE 1:75



SECTION B
SCALE 1:20

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 0.8 1.5 2.3 3 m
1:75(A1) / 1:150(A3)
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
RELIEVING SLABS - REINFORCEMENT

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:75 , 1:20
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0711

Coordinate System MGA2020 Z56
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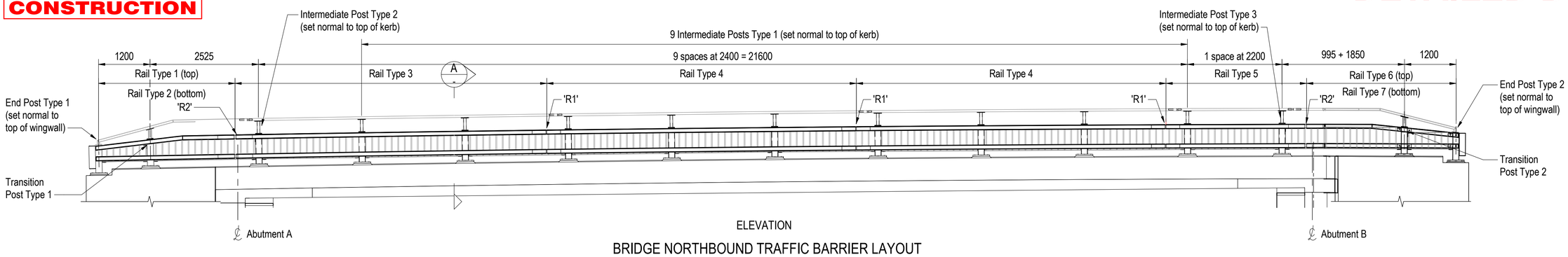
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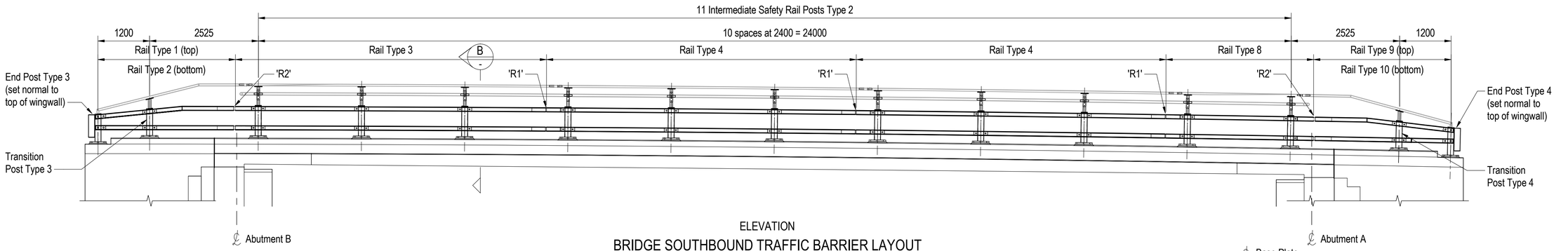
DETAILED DESIGN



ELEVATION

BRIDGE NORTHBOUND TRAFFIC BARRIER LAYOUT

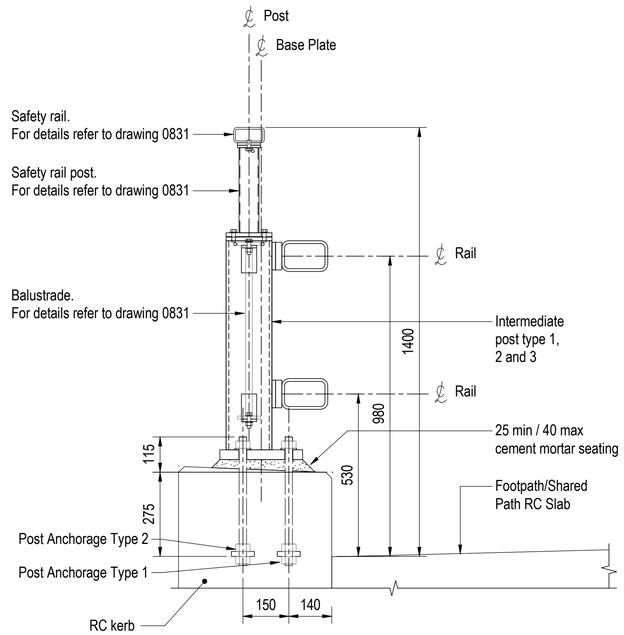
SCALE 1:50



ELEVATION

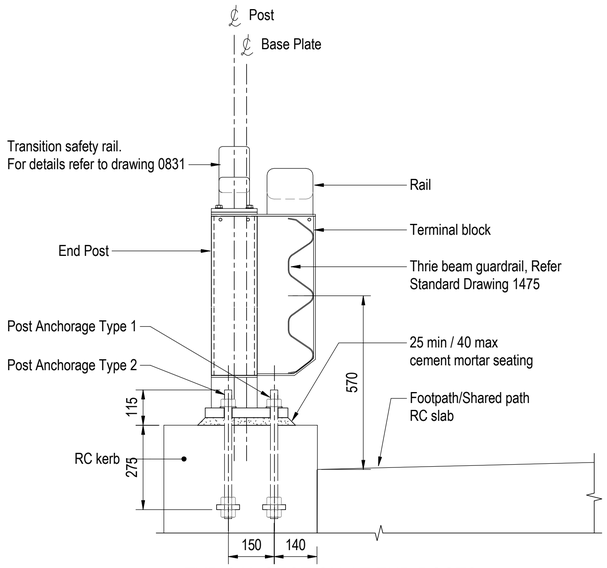
BRIDGE SOUTHBOUND TRAFFIC BARRIER LAYOUT

SCALE 1:50



SECTION A

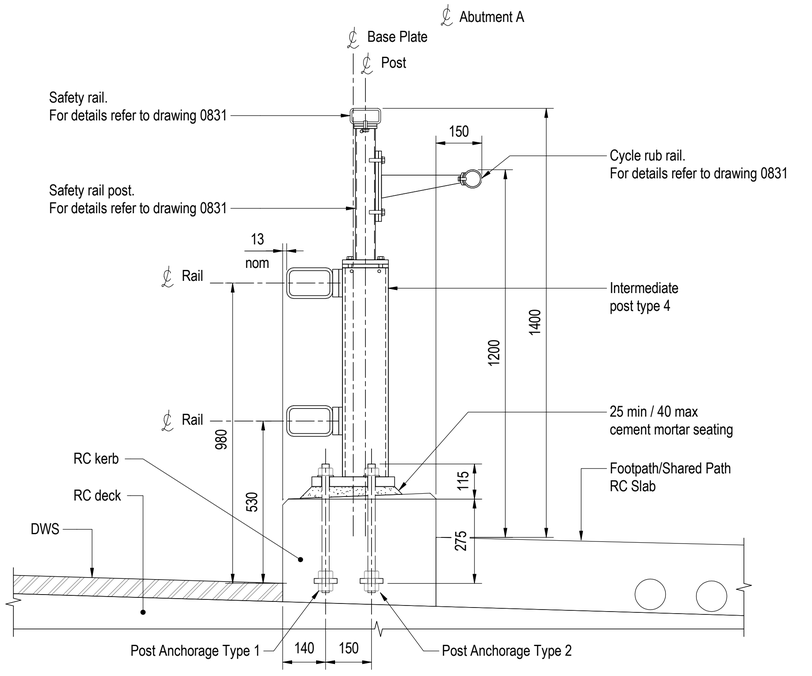
SCALE 1:10



TYPICAL SECTION AT END POSTS

SCALE 1:10

NORTHBOUND SHOWN, SOUTHBOUND SIMILAR



SECTION B

SCALE 1:10

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 1 2 m
1:50(A1) / 1:100(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE TRAFFIC BARRIER
SHEET 1

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50, 1:10
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0821

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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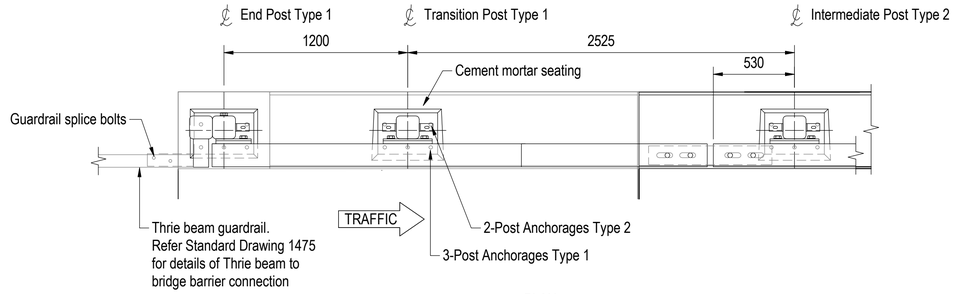
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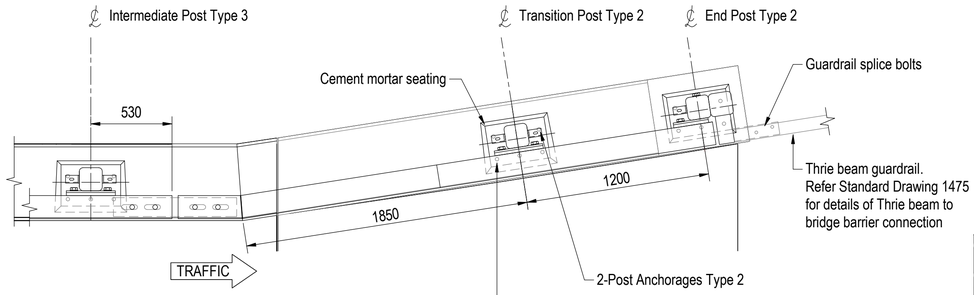
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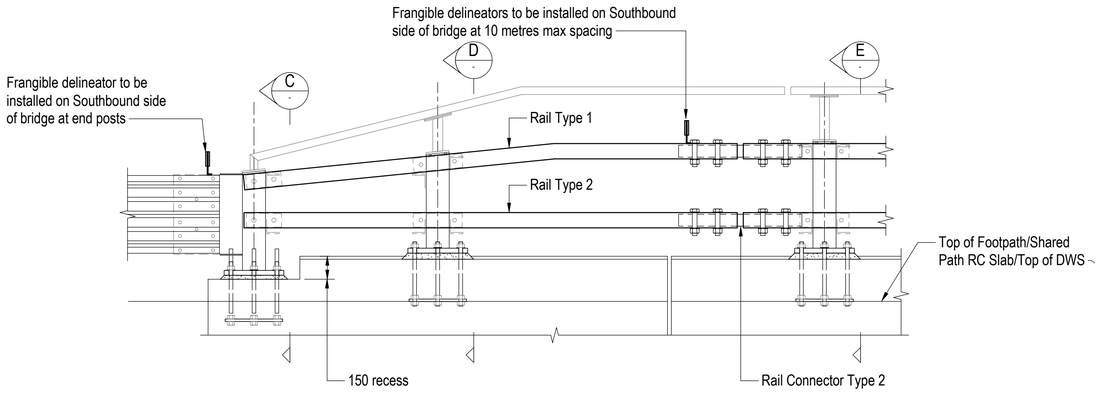
DETAILED DESIGN



PLAN

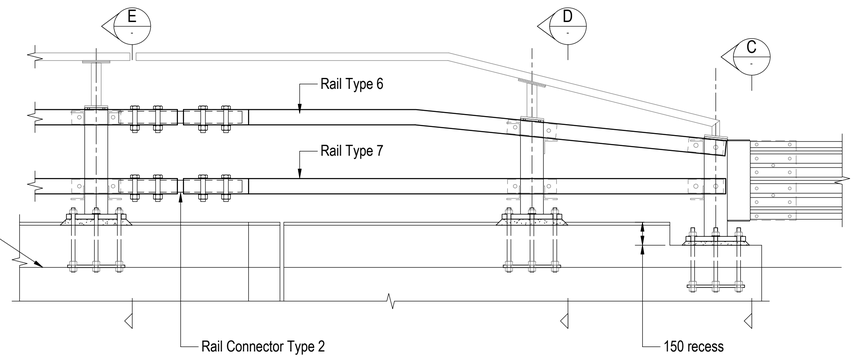


PLAN



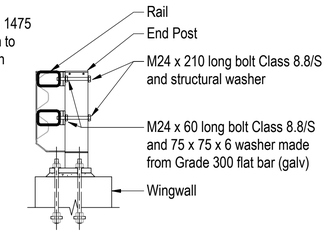
ELEVATION

NORTHBOUND ABUTMENT A SHOWN, (BALUSTRADE OMITTED FOR CLARITY)
SOUTHBOUND ABUTMENT A AND B SIMILAR, (CYCLE RAIL OMITTED FOR CLARITY)

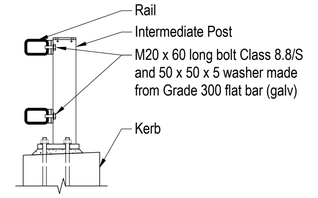


ELEVATION

NORTHBOUND ABUTMENT B SHOWN, (BALUSTRADE OMITTED FOR CLARITY)



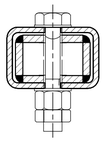
SECTION C
SCALE 1:20



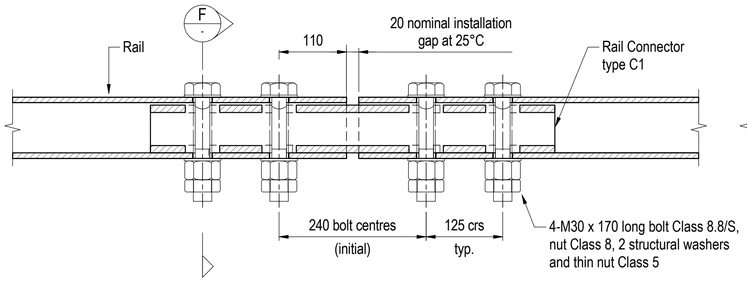
SECTION E D SIMILAR
SCALE 1:20

TYPICAL ASSEMBLY - END TRANSITION AND INTERMEDIATE POSTS

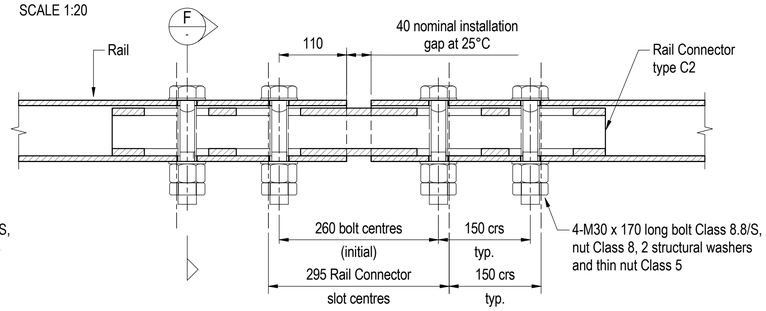
SCALE 1:20



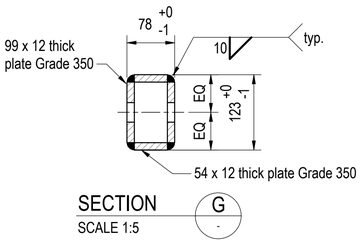
SECTION F
SCALE 1:5



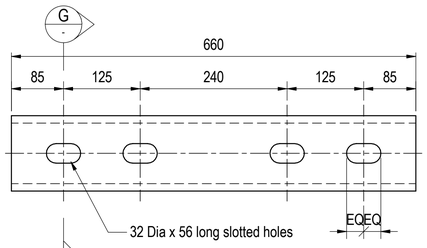
ELEVATION - RAIL JOINT ASSEMBLY 'R1'
SCALE 1:5



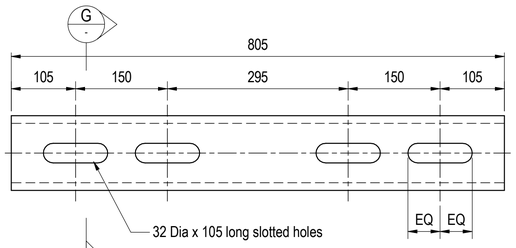
ELEVATION - RAIL JOINT ASSEMBLY 'R2'
SCALE 1:5



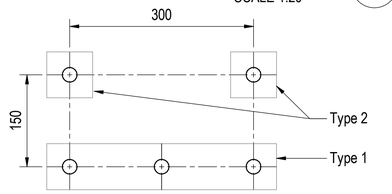
SECTION G
SCALE 1:5



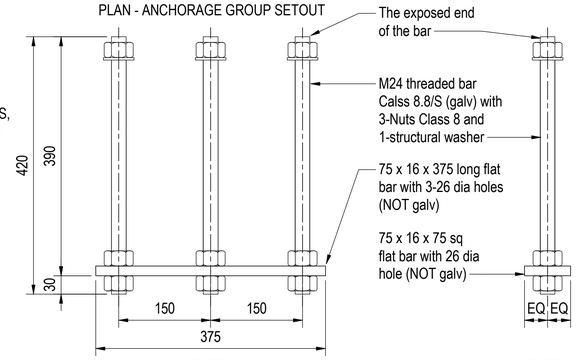
PLAN - RAIL CONNECTOR 'C1'
SCALE 1:5



PLAN - RAIL CONNECTOR 'C2'
SCALE 1:5



PLAN - ANCHORAGE GROUP SETOUT



POST ANCHORAGES
SCALE 1:5

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 200 400 600 800 mm
1:20(A1) / 1:40(A3)

0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE TRAFFIC BARRIER
SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0822

Coordinate System MGA2020 Z56
Height Datum AHD Derived

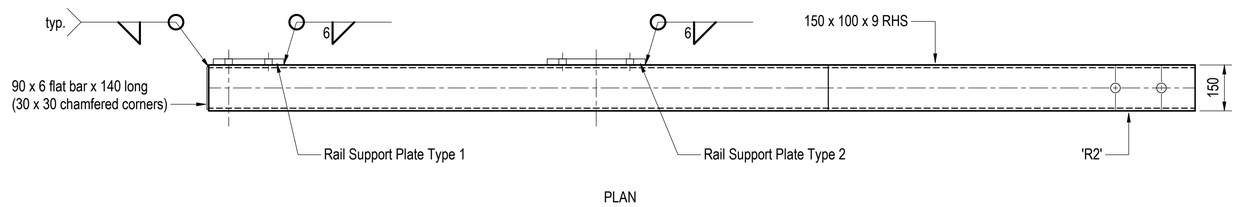
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Last Modified: - 6/03/2026 5:19:37 PM
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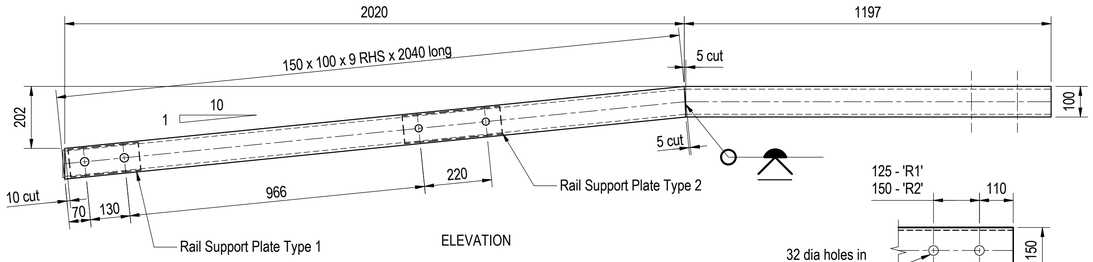
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NOT FOR CONSTRUCTION

DETAILED DESIGN



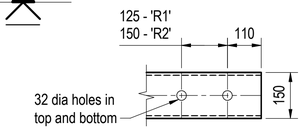
PLAN



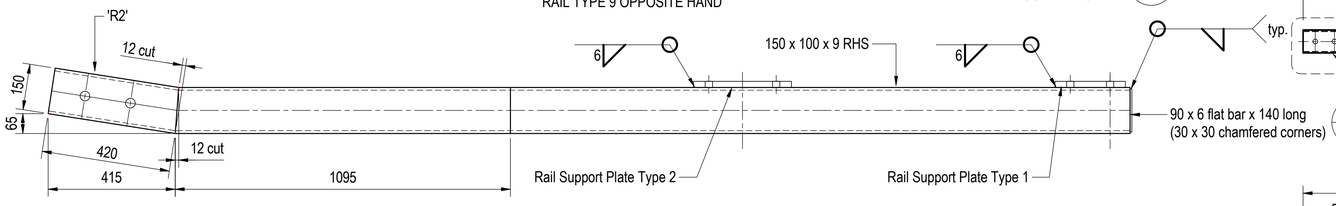
ELEVATION

RAIL TYPE 1 AND 9
SCALE 1:10

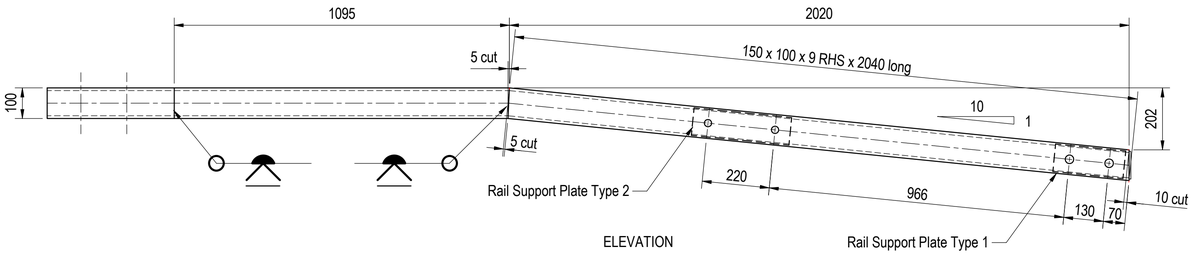
RAIL TYPE 1 SHOWN
RAIL TYPE 9 OPPOSITE HAND



DETAIL
SCALE 1:10

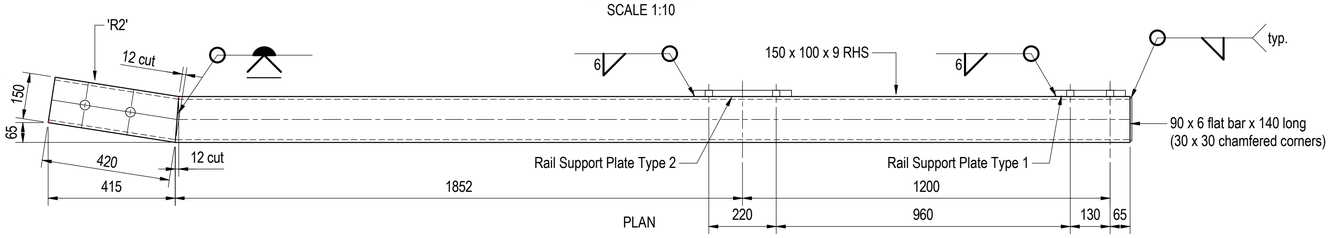


PLAN



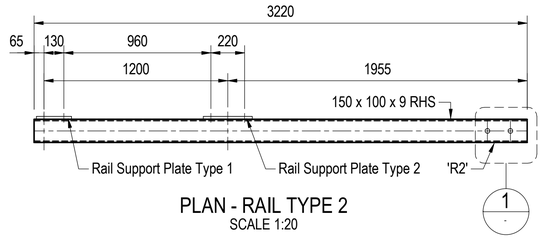
ELEVATION

RAIL TYPE 6
SCALE 1:10

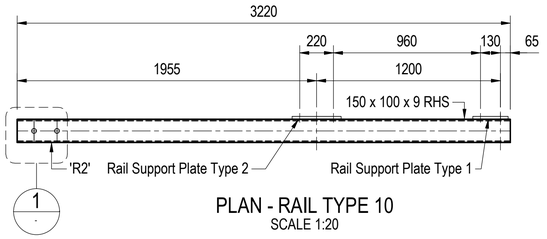


PLAN

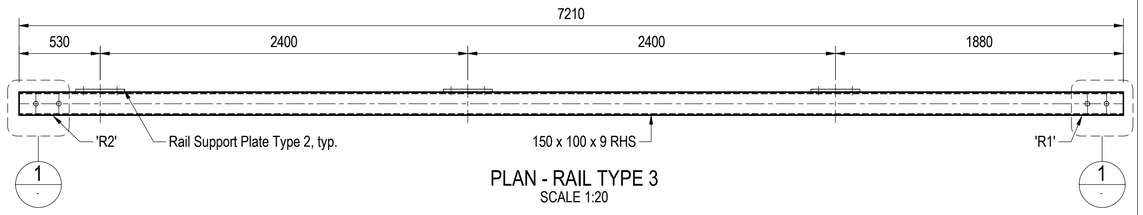
RAIL TYPE 7
SCALE 1:10



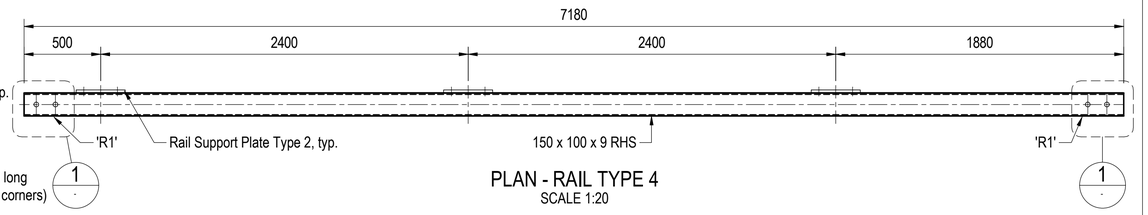
PLAN - RAIL TYPE 2
SCALE 1:20



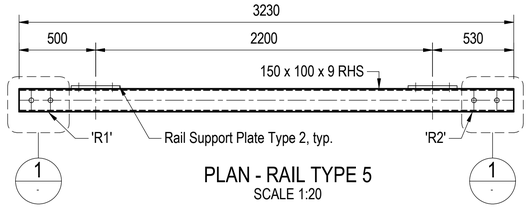
PLAN - RAIL TYPE 10
SCALE 1:20



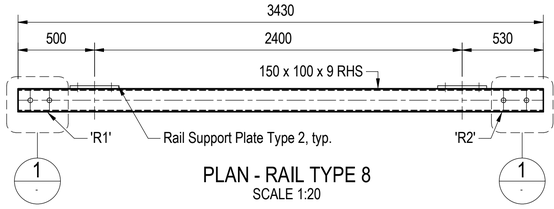
PLAN - RAIL TYPE 3
SCALE 1:20



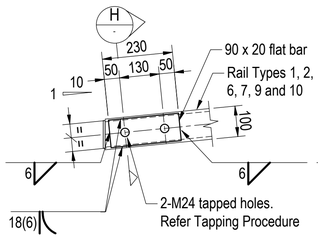
PLAN - RAIL TYPE 4
SCALE 1:20



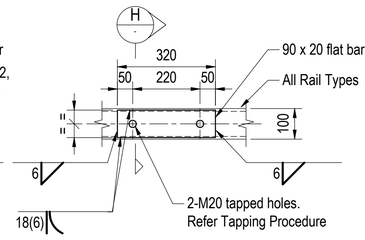
PLAN - RAIL TYPE 5
SCALE 1:20



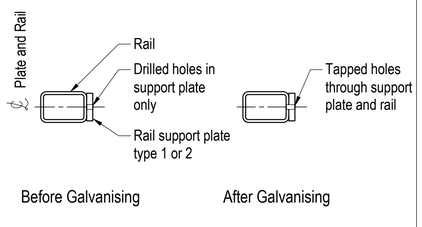
PLAN - RAIL TYPE 8
SCALE 1:20



RAIL SUPPORT PLATE - TYPE 1
SCALE 1:10



RAIL SUPPORT PLATE - TYPE 2
SCALE 1:10



SECTION
SCALE 1:10

TAPPING PROCEDURE:

1. Drill holes through the support plates only (using the correct tapping drill to match bolt size or smaller size drill).
2. Position and weld the support plates to the rail.
3. Fill the holes in the support plates with natural silicone.
4. Hot dip galvanize the rail.
5. After galvanizing, drill and tap the required size holes through the support plates and the rail.

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE TRAFFIC BARRIER
SHEET 3

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:10
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0823

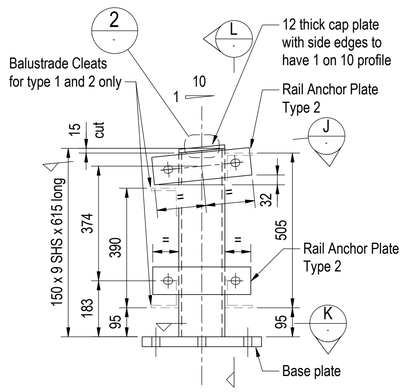
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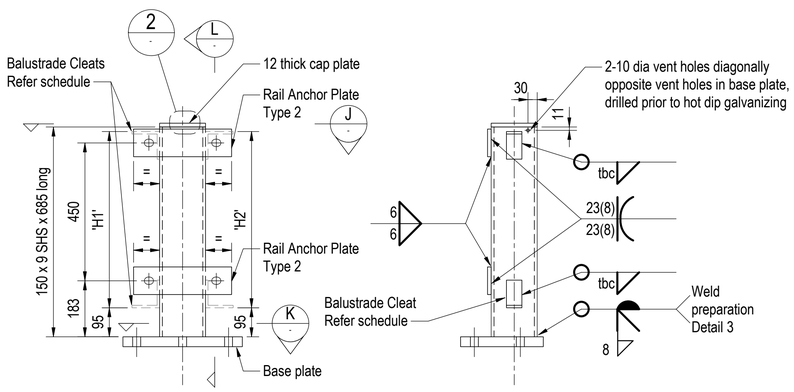
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DETAILED DESIGN



ELEVATION

TRANSITION POSTS
TYPE 1 AS SHOWN, TYPE 3 SIMILAR
TYPE 2 AND 4 OPPOSITE HAND
SCALE 1:10



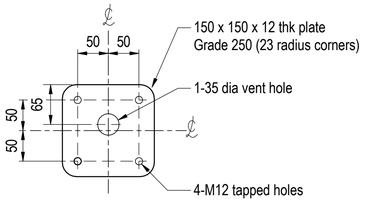
ELEVATION

INTERMEDIATE POSTS
SCALE 1:10

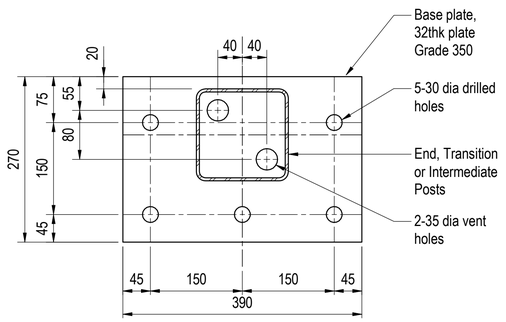
SECTION L
SCALE 1:10

BALUSTRADE CLEATS SCHEDULE

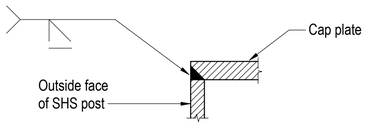
POST TYPE	'H1' mm	'H1' mm
INTERMEDIATE POST TYPE 1	575	575
INTERMEDIATE POST TYPE 2	505	575
INTERMEDIATE POST TYPE 3	575	505
INTERMEDIATE POST TYPE 4	-	-



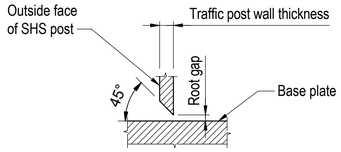
SECTION J
SCALE 1:5



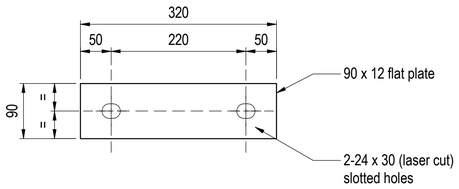
SECTION K
SCALE 1:5



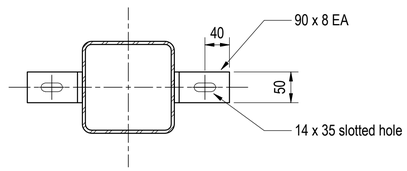
DETAIL 2
SCALE 1:2



DETAIL 3
SCALE 1:2



RAIL ANCHOR PLATE - TYPE 2
SCALE 1:5



PLAN

BALUSTRADE CLEAT DETAIL
SCALE 1:5

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)
0 20 40 60 80 mm
1:2(A1) / 1:4(A3)

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Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE TRAFFIC BARRIER
SHEET 4

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:10, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0824

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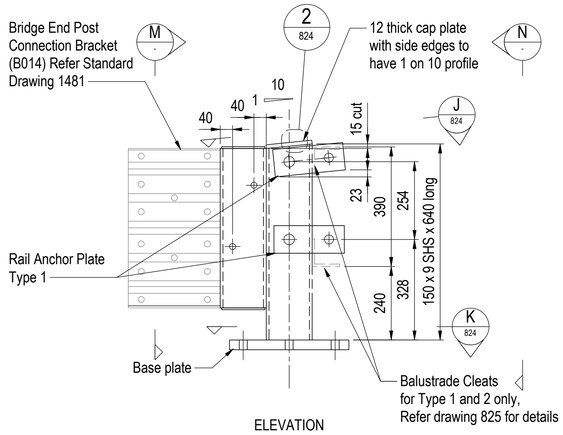
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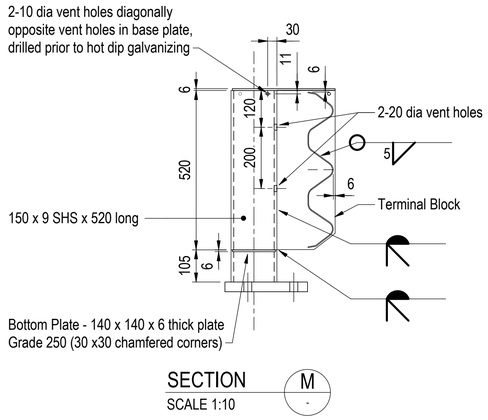
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DETAILED DESIGN

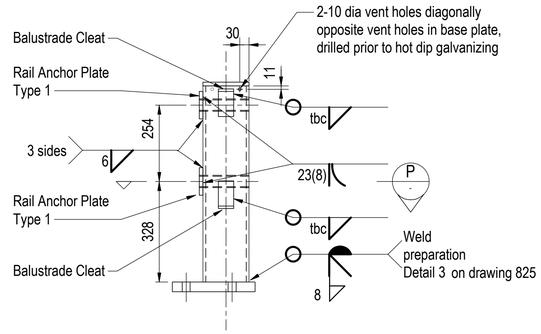


ELEVATION

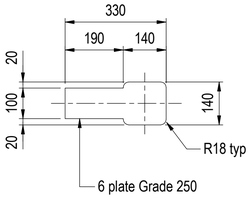
ENDPOSTS
TYPE 1 AS SHOWN, TYPE 3 SIMILAR
TYPE 2 AND 4 OPPOSITE HAND
SCALE 1:10



SECTION M
SCALE 1:10

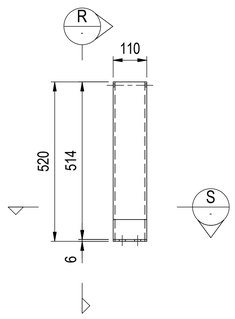


SECTION N
SCALE 1:10



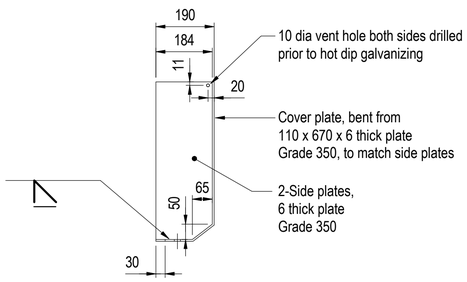
PLAN

TERMINAL BLOCK TOP PLATE
SCALE 1:10

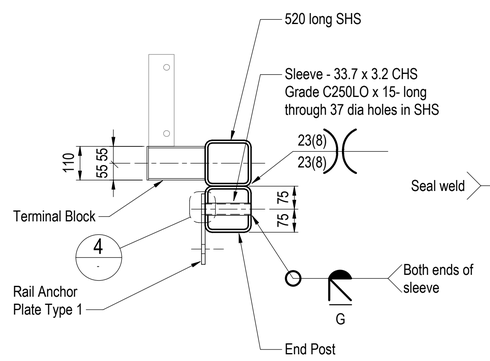


ELEVATION

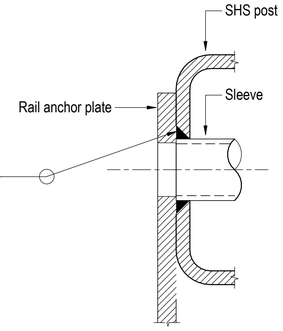
TERMINAL BLOCK
SCALE 1:10



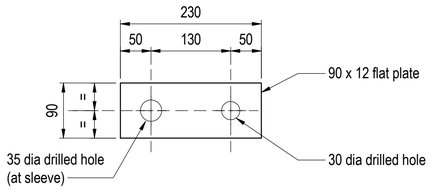
VIEW R
SCALE 1:10



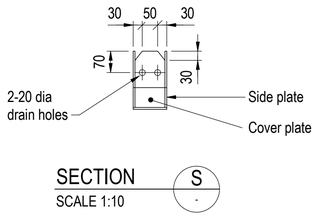
SECTION P
SCALE 1:10



DETAIL 4
SCALE 1:2



RAIL ANCHOR PLATE - TYPE 1
SCALE 1:5



SECTION S
SCALE 1:10

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)
0 20 40 60 80 mm
1:2(A1) / 1:4(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK
BRIDGE TRAFFIC BARRIER

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:10, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0825

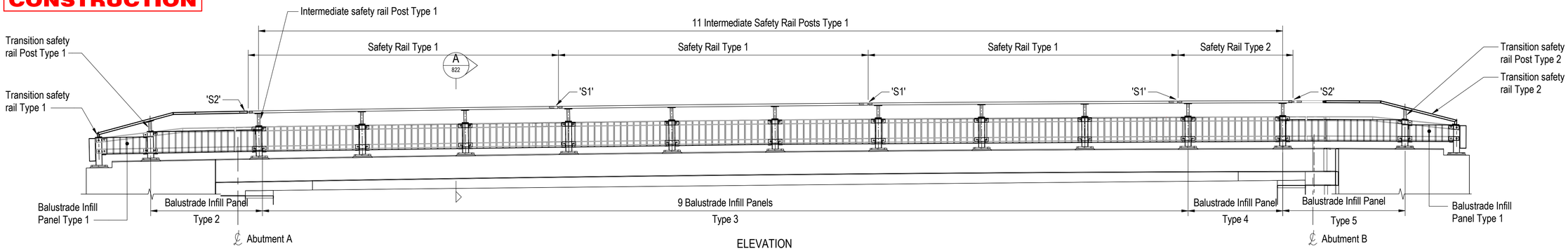
Coordinate System MGA2020 Z56
Height Datum AHD Derived
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Arup_A1h_Frame_r2024_v1.dwg 27/06/2024 9:02:55 AM

NOT FOR CONSTRUCTION

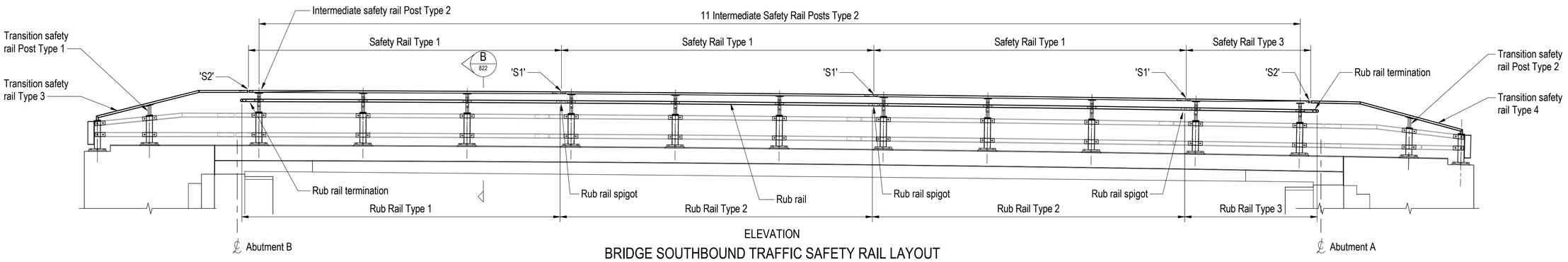
DETAILED DESIGN



ELEVATION

BRIDGE NORTHBOUND TRAFFIC SAFETY RAIL LAYOUT

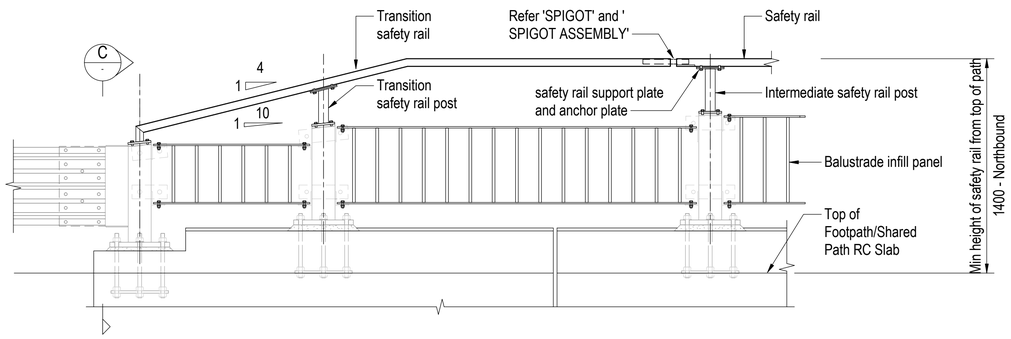
SCALE 1:50



ELEVATION

BRIDGE SOUTHBOUND TRAFFIC SAFETY RAIL LAYOUT

SCALE 1:50



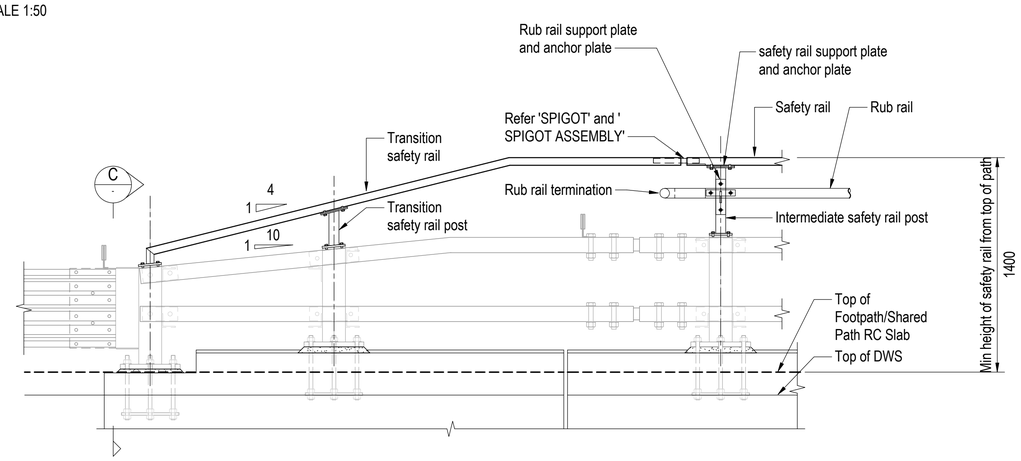
ELEVATION

ABUTMENT A SHOWN, ABUTMENT B SIMILAR

(Traffic barrier rail omitted for clarity)

NORTHBOUND ASSEMBLY - END, TRANSITION AND INTERMEDIATE POSTS

SCALE 1:20

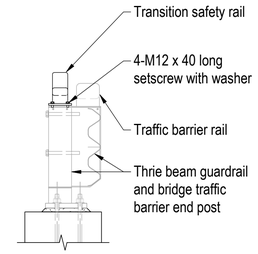


ELEVATION

ABUTMENT B SHOWN, ABUTMENT A SIMILAR

SOUTHBOUND ASSEMBLY - END, TRANSITION AND INTERMEDIATE POSTS

SCALE 1:20



SECTION C

SCALE 1:20

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales 0 1 2 m
1:50(A1) / 1:100(A3)
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CYCLE SAFETY RAIL AND HANDRAIL DETAILS - SHEET 1

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:50, 1:20
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0831

Coordinate System MGA2020 Z56
Height Datum AHD Derived

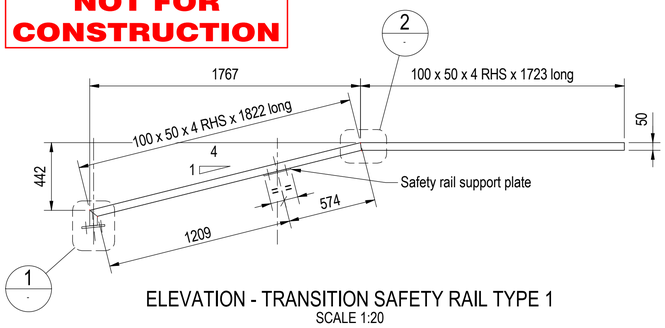
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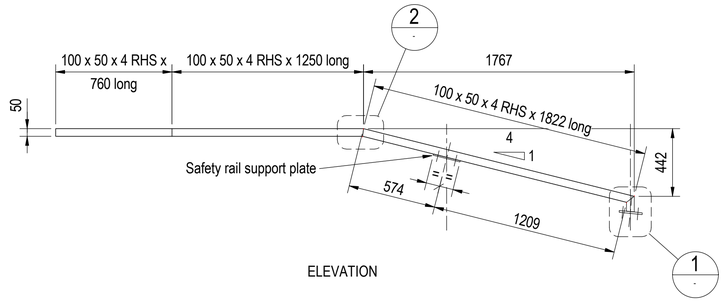
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NOT FOR CONSTRUCTION

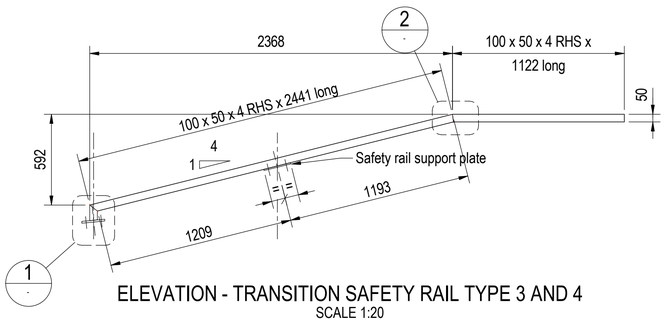
DETAILED DESIGN



ELEVATION - TRANSITION SAFETY RAIL TYPE 1
SCALE 1:20

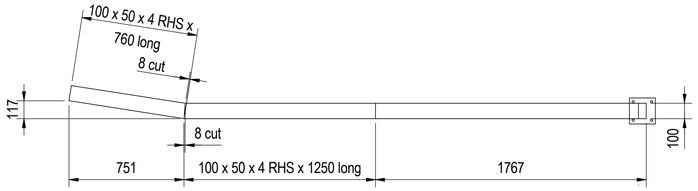


ELEVATION



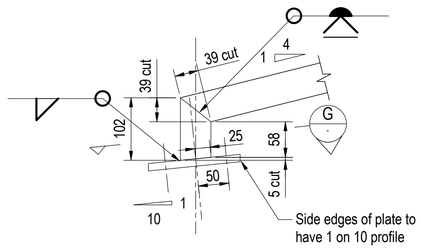
ELEVATION - TRANSITION SAFETY RAIL TYPE 3 AND 4
SCALE 1:20

TRANSITION SAFETY RAIL TYPE 3 SHOWN
TRANSITION SAFETY RAIL TYPE 4 OPPOSITE HAND

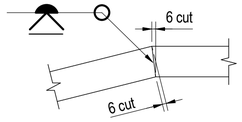


PLAN

ELEVATION - TRANSITION SAFETY RAIL TYPE 2
SCALE 1:20



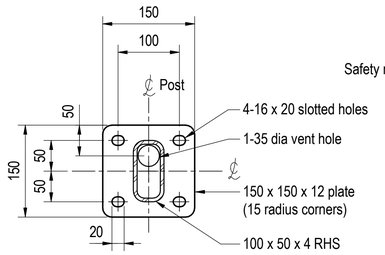
DETAIL 1
SCALE 1:5



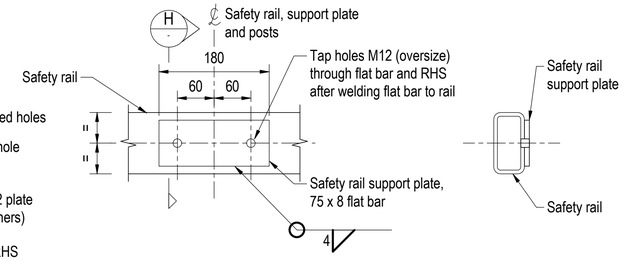
DETAIL 2
SCALE 1:5

TAPPING PROCEDURE:

1. Drill holes through the support plates only (using the correct tapping drill to match bolt size or smaller size drill).
2. Position and weld the support plates to the rail.
3. Fill the holes in the support plates with natural silicone.
4. Hot dip galvanize the rail.
5. After galvanizing, drill and tap the required size holes through the support plates and the rail.

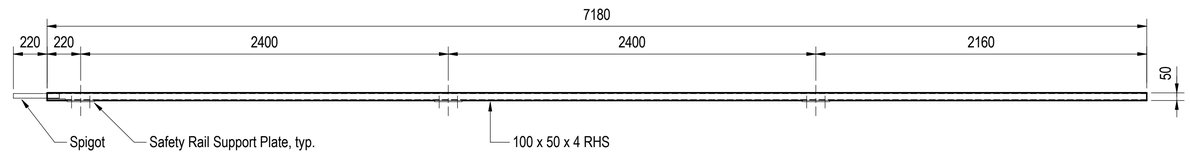


SECTION G
SCALE 1:5

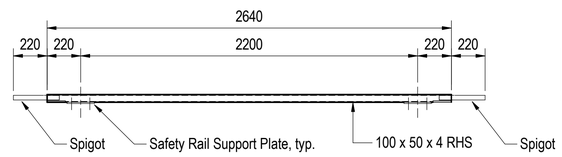


PLAN - LOOKING UP
SAFETY RAIL SUPPORT PLATE
SCALE 1:5

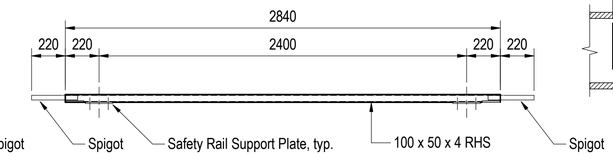
SECTION H
SCALE 1:5



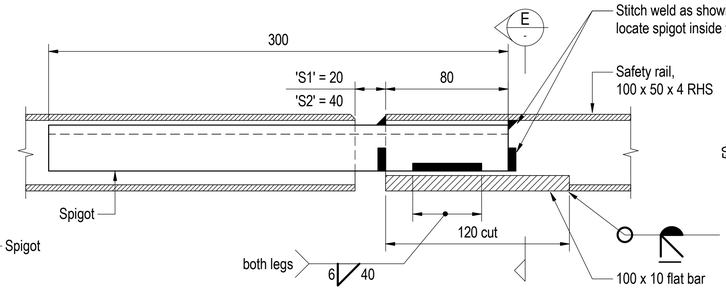
ELEVATION - SAFETY RAIL TYPE 1
SCALE 1:20



ELEVATION - SAFETY RAIL TYPE 2
SCALE 1:20

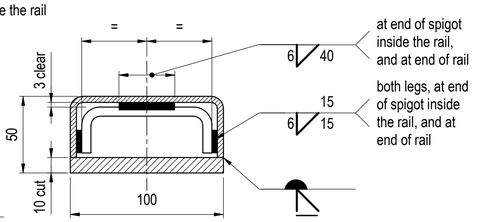


ELEVATION - SAFETY RAIL TYPE 3
SCALE 1:20

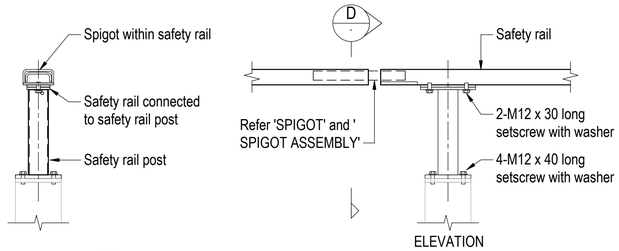


ELEVATION

SPIGOT ASSEMBLY
SCALE 1:2



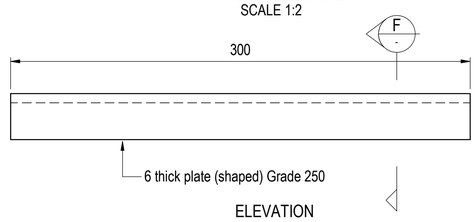
SECTION E
SCALE 1:2



VIEW D
SCALE 1:10

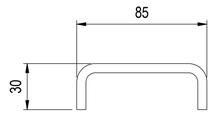
TYPICAL SAFETY RAIL ASSEMBLY
SCALE 1:10

INTERMEDIATE POST SHOWN, TRANSITION POST
AND CONNECTION TO TRAFFIC BARRIER END POST SIMILAR
(Traffic barrier rail omitted for clarity)



ELEVATION

SPIGOT
SCALE 1:2



SECTION F
SCALE 1:2

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK CYCLE SAFETY RAIL AND HANDRAIL DETAILS - SHEET 2

Drawn: Mick Aguis
Designed: Kobe Vetter
Design Check: Emmanuel Joy
Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:10, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2
OGRU-ARU-10-STBR-DRG-0832

Coordinate System: MGA2020 Z56
Height Datum: AHD Derived

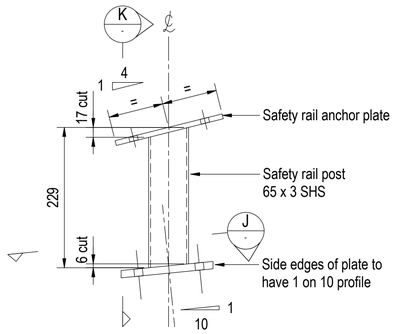
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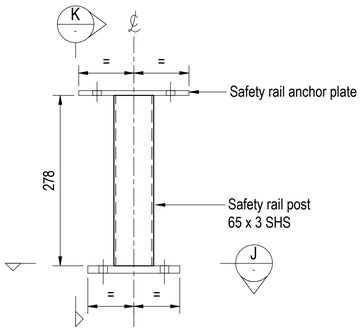
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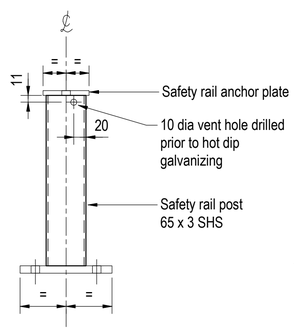


TRANSITION SAFETY RAIL POST
TYPE 1 AND TYPE 2
SCALE 1:5

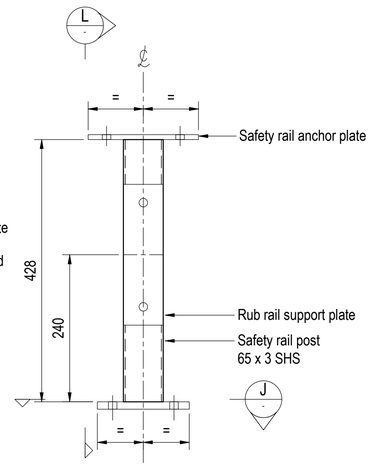
TYPE 1 SHOWN
TYPE 2 OPPOSITE HAND



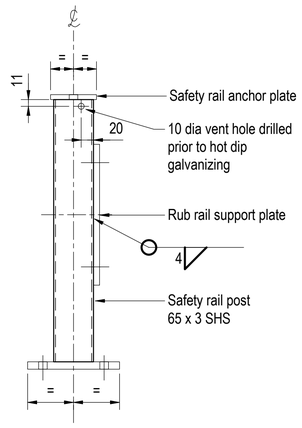
INTERMEDIATE SAFETY RAIL
POST TYPE 1
SCALE 1:5



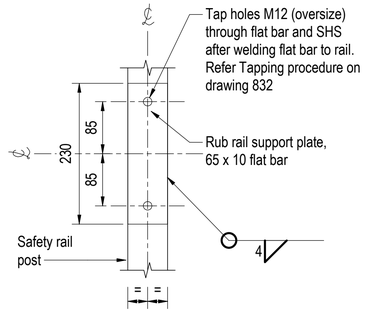
SECTION K
SCALE 1:5



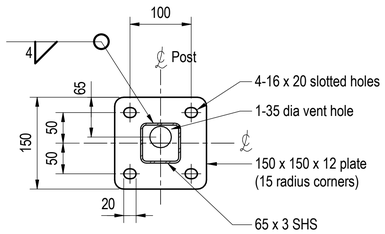
INTERMEDIATE SAFETY RAIL
POST TYPE 2
SCALE 1:5



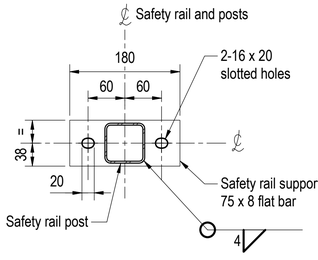
SECTION L
SCALE 1:5



RUB RAIL SUPPORT PLATE
SCALE 1:5

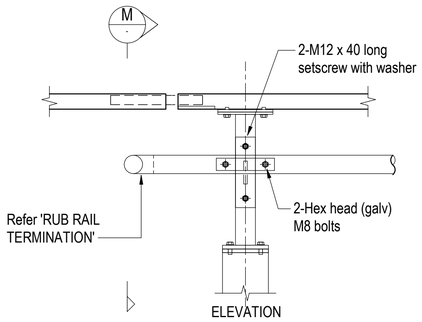


SECTION J
SCALE 1:5

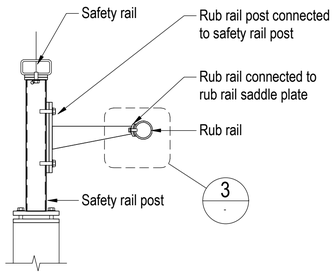


PLAN - LOOKING UP

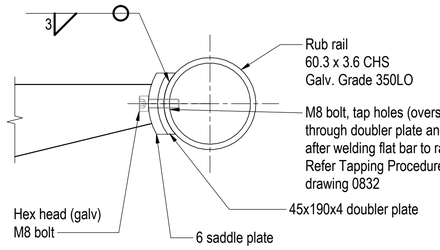
SAFETY RAIL ANCHOR PLATE
SCALE 1:5



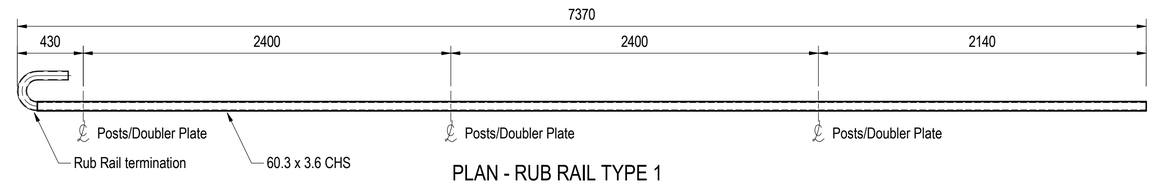
TYPICAL RUB RAIL ASSEMBLY
SCALE 1:10



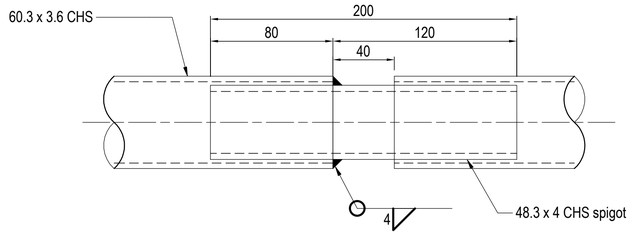
VIEW M
SCALE 1:10



DETAIL 3
SCALE 1:2

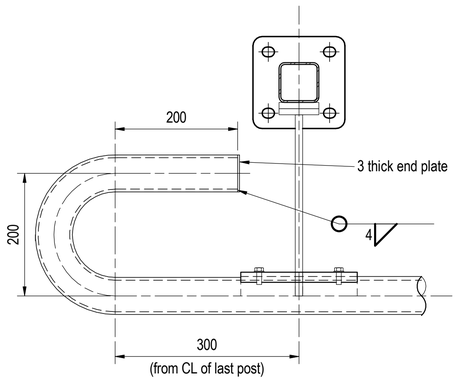


PLAN - RUB RAIL TYPE 1
SCALE 1:20

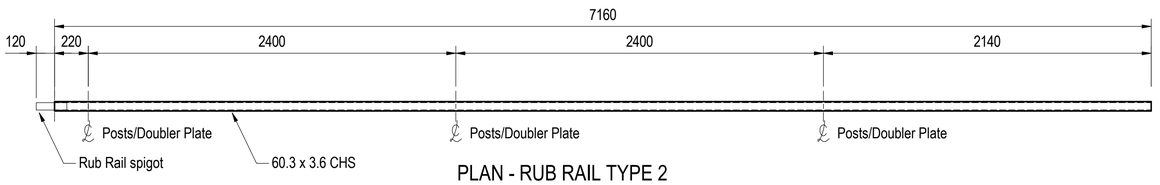


Locate to match balustrade spigot locations

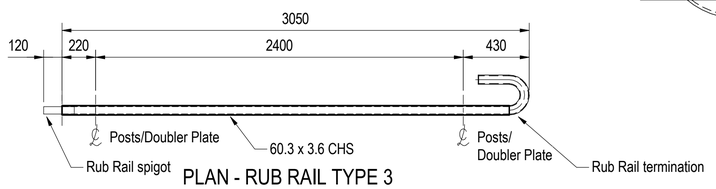
TYPICAL RUB RAIL SPIGOT ASSEMBLY DETAIL
SCALE 1:2



PLAN - RUB RAIL TERMINATION DETAIL
SCALE 1:5



PLAN - RUB RAIL TYPE 2
SCALE 1:20



PLAN - RUB RAIL TYPE 3
SCALE 1:20

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client
CITY OF MORETON BAY

Project Title
OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title
BRIDGE OVER FRESH WATER CREEK
CYCLE SAFETY RAIL AND HANDRAIL
DETAILS - SHEET 3

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:10, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 2

OGRU-ARU-10-STBR-DRG-0833

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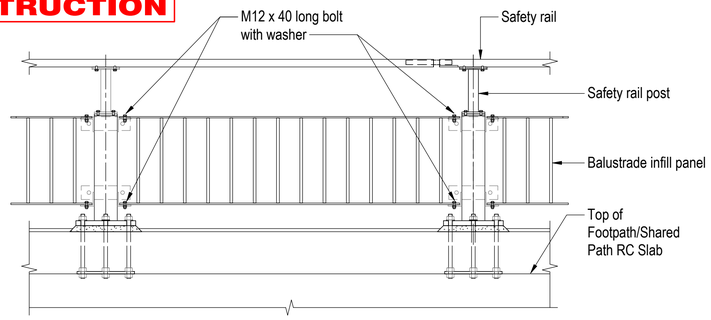
Coordinate System MGA2020 Z56
Height Datum AHD Derived

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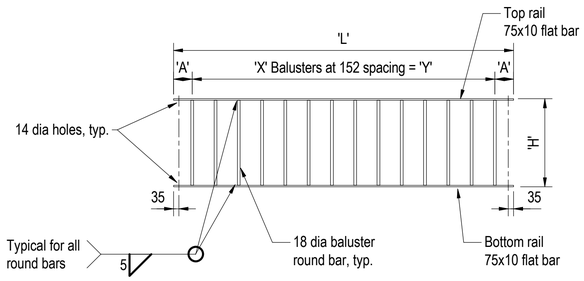
NOT FOR CONSTRUCTION

DETAILED DESIGN



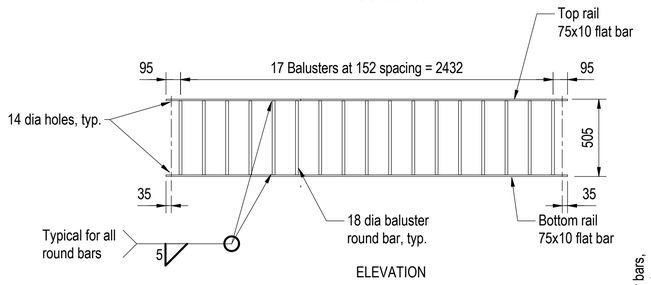
ELEVATION

TYPICAL BALUSTRADE INFILL PANEL ASSEMBLY
SCALE 1:20

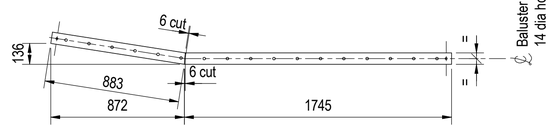


ELEVATION

TYPICAL BALUSTRADE INFILL PANEL
SCALE 1:20



ELEVATION

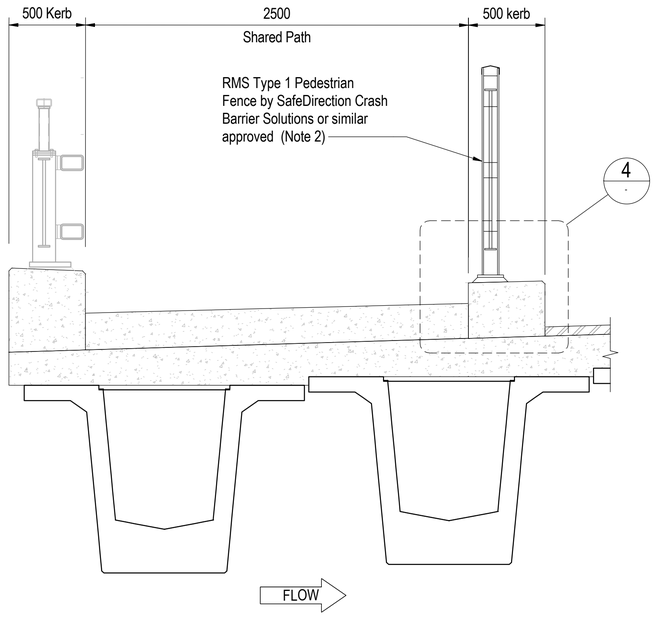


PLAN

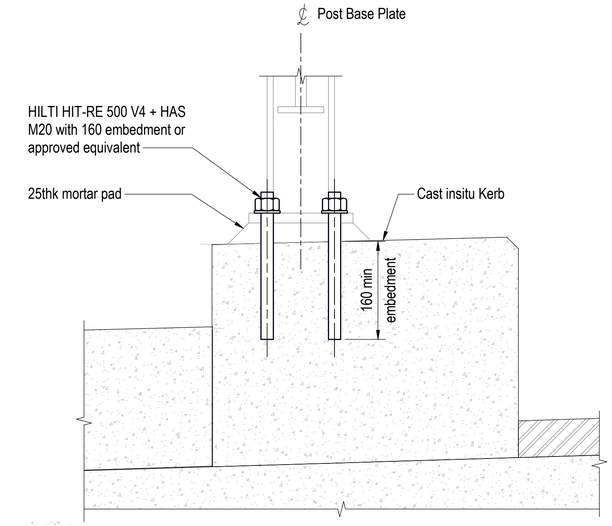
BALUSTRADE INFILL PANEL - TYPE 5
SCALE 1:20

BALUSTRADE INFILL PANELS SCHEDULE

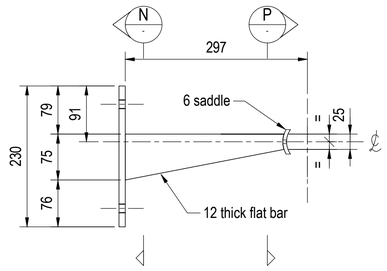
BALUSTRADE INFILL PANEL TYPE	LENGTH 'L' (mm)	HEIGHT 'H' (mm)	BALUSTER SPACINGS		
			A' (mm)	QUANTITY 'X'	Y' (mm)
TYPE 1	1020.0	390	130	6	760.0
TYPE 2	2345.0	505	109	15	2128.0
TYPE 3	2220.0	575	122	14	1976.0
TYPE 4	2020.0	575	98	13	1824.0
TYPE 5	Refer Elevation and Plan				



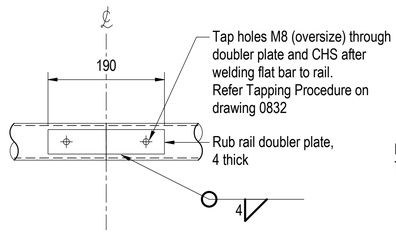
TYPICAL FENCE AND RAIL ARRANGEMENT SECTION
SCALE 1:20



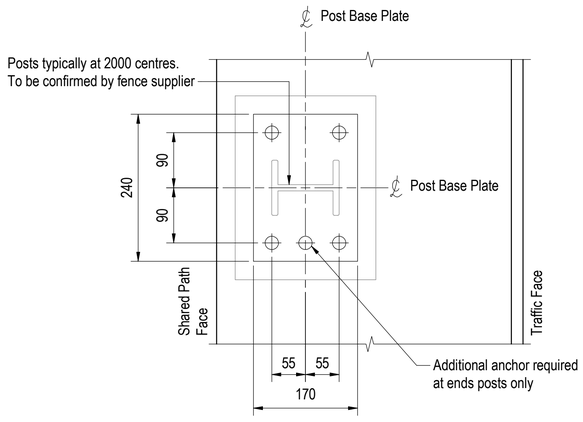
DETAIL 4
SCALE 1:5



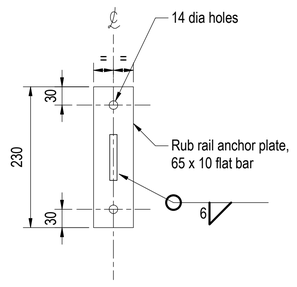
RUB RAIL POST
SCALE 1:5



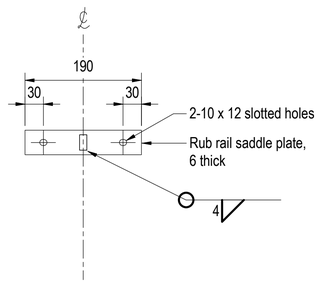
RUB RAIL DOUBLER PLATE
SCALE 1:5



PEDESTRIAN FENCE - BASE PLATE DETAIL
SCALE 1:5



SECTION N
SCALE 1:5



SECTION P
SCALE 1:5

NOTES
1. For General Notes refer drawings 0011 and 0012.
2. Pedestrian fence as per TfNSW RMS standard drawing R0800 series. Fence may be installed post construction as required by road authority.

Scales 0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
2	06/03/26	90% Detailed Design
1	03/10/25	50% Preliminary Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CYCLE SAFETY RAIL AND HANDRAIL DETAILS - SHEET 4

Drawn: Mick Aguis | Design Check: Emmanuel Joy
Designed: Kobe Vetter | Approved: Eoin O'Donovan

Scale at A1: 1:20, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00 | Rev: 2

OGRU-ARU-10-STBR-DRG-0834

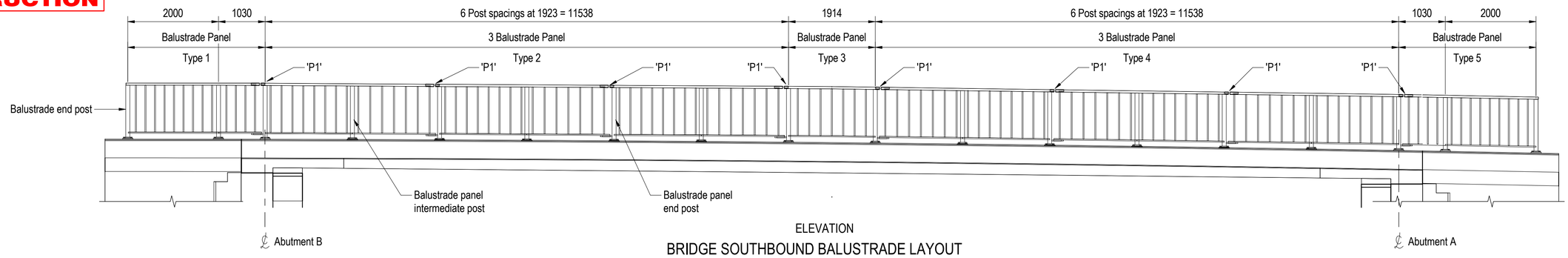
Coordinate System MGA2020 Z56
Height Datum AHD Derived
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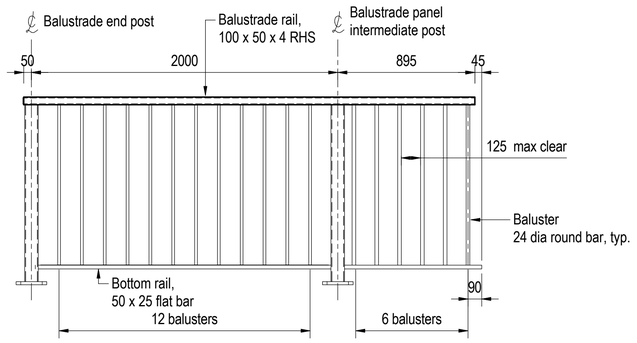
DETAILED DESIGN



ELEVATION

BRIDGE SOUTHBOUND BALUSTRADE LAYOUT

SCALE 1:50

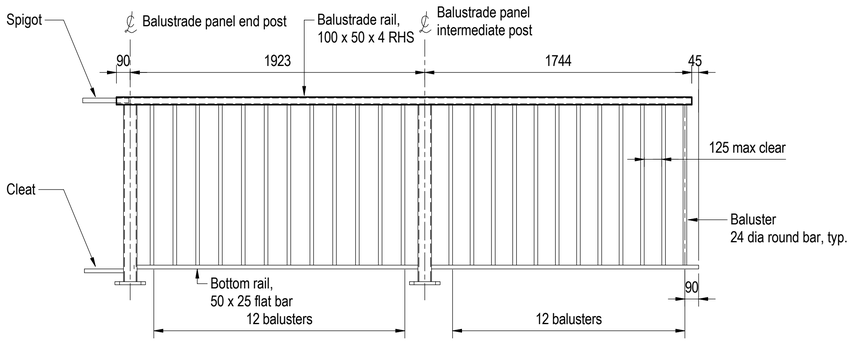


ELEVATION

TYPICAL BALUSTRADE PANEL TYPE 1 AND 5

SCALE 1:20

TYPE 1 SHOWN, TYPE 5 OPPOSITE HAND

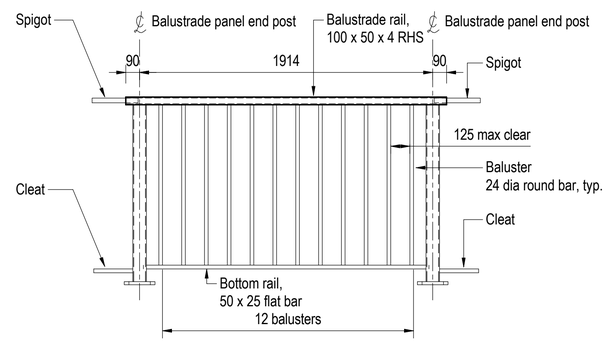


ELEVATION

TYPICAL BALUSTRADE PANEL TYPE 2 AND 4

SCALE 1:20

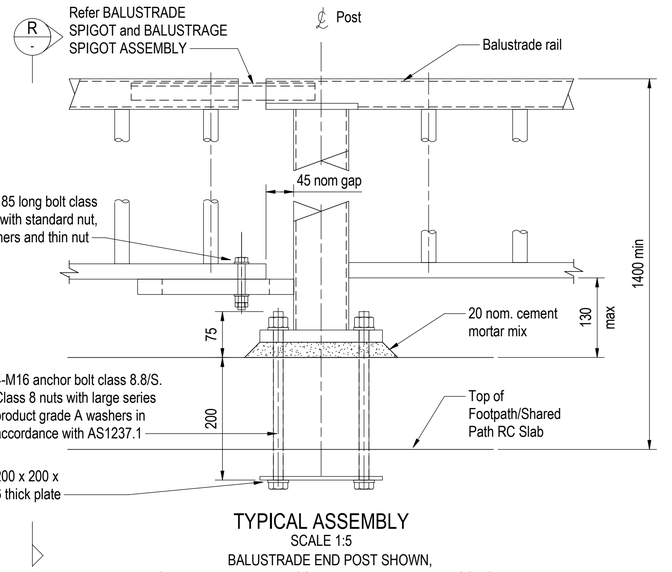
TYPE 2 SHOWN, TYPE 4 OPPOSITE HAND



ELEVATION

TYPICAL BALUSTRADE PANEL TYPE 3

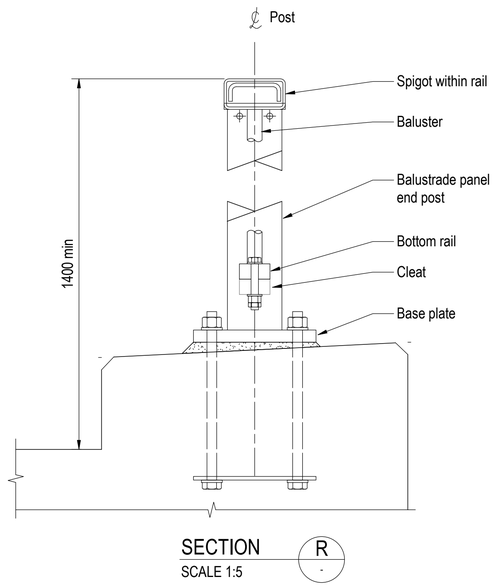
SCALE 1:20



TYPICAL ASSEMBLY

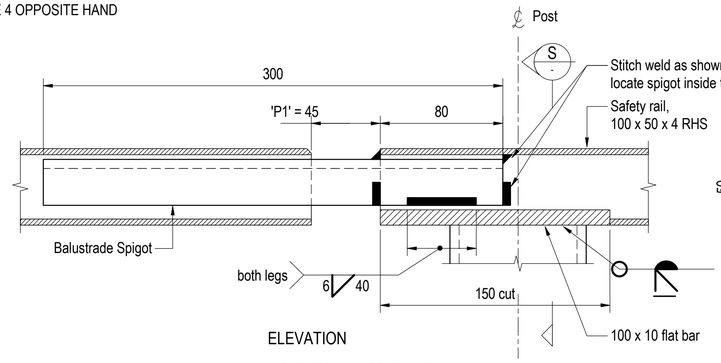
SCALE 1:5

BALUSTRADE END POST SHOWN,
BALUSTRADE PANEL END POST AND INTERMEDIATE POST SIMILAR



SECTION R

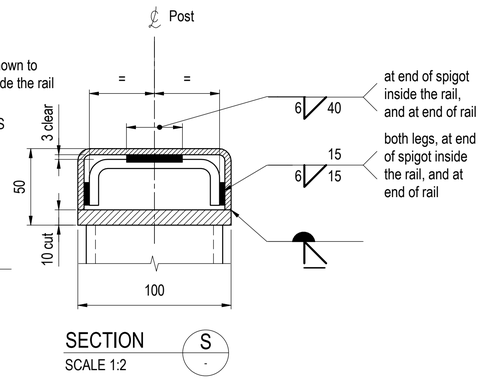
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ELEVATION

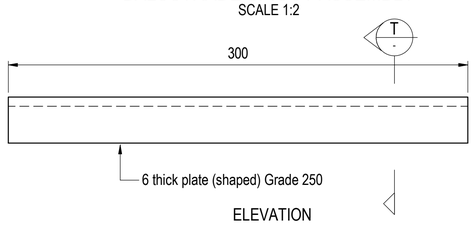
BALUSTRADE SPIGOT ASSEMBLY

SCALE 1:2



SECTION S

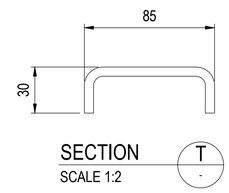
SCALE 1:2



ELEVATION

BALUSTRADE SPIGOT

SCALE 1:2



SECTION T

SCALE 1:2

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales
0 1 2 m
1:50(A1) / 1:100(A3)
0 200 400 600 800 mm
1:20(A1) / 1:40(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CYCLE SAFETY RAIL AND HANDRAIL DETAILS - SHEET 5

Drawn	Design Check
Mick Aguis	Emmanuel Joy
Designed	Approved
Kobe Vetter	Eoin O'Donovan

Scale at A1: 1:50, 1:20, 1:5, 1:2
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0835

Coordinate System MGA2020 Z56
Height Datum AHD Derived

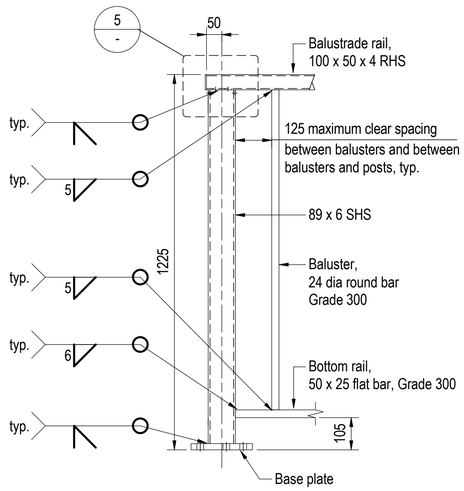
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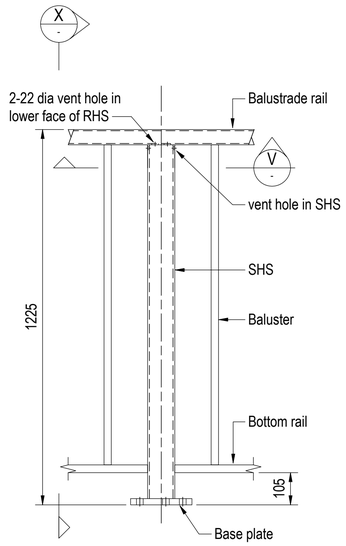
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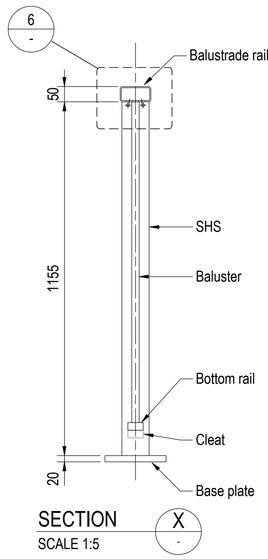
DETAILED DESIGN



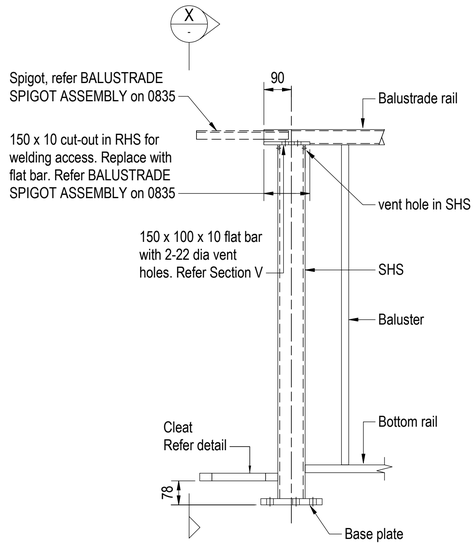
ELEVATION - BALUSTRADE END POST



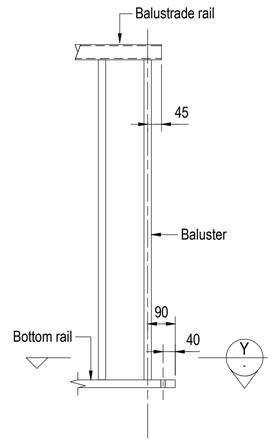
ELEVATION - PANEL INTERMEDIATE POST



SECTION X
SCALE 1:5

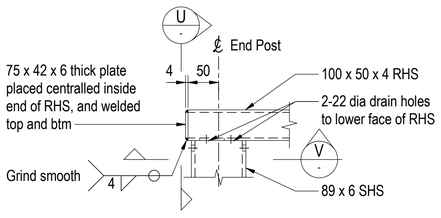


ELEVATION - PANEL END POST

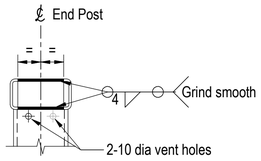


ELEVATION - TYPICAL END
CONNECTION ARRANGEMENT

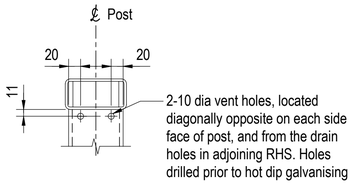
POST DETAILS
SCALE 1:10



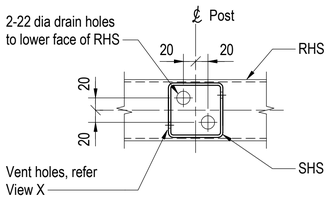
DETAIL 5
SCALE 1:5



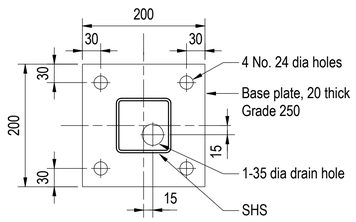
SECTION U
SCALE 1:5



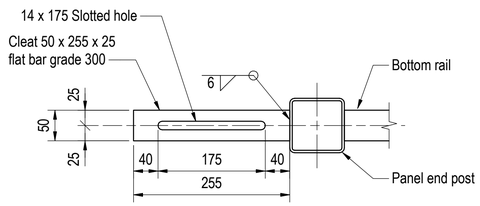
DETAIL 6
SCALE 1:5



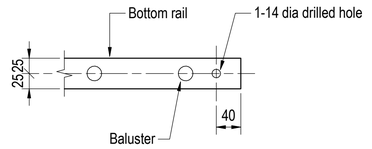
SECTION V
SCALE 1:5



PLAN - BASE PLATE
SCALE 1:5



PLAN - CLEAT
SCALE 1:5



SECTION Y
SCALE 1:5

NOTES
1. For General Notes refer drawings 0011 and 0012.

Scales 0 100 200 300 400 mm
1:10(A1) / 1:20(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CYCLE SAFETY RAIL AND HANDRAIL DETAILS - SHEET 6

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:10, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0836

Coordinate System MGA2020 Z56
Height Datum AHD Derived

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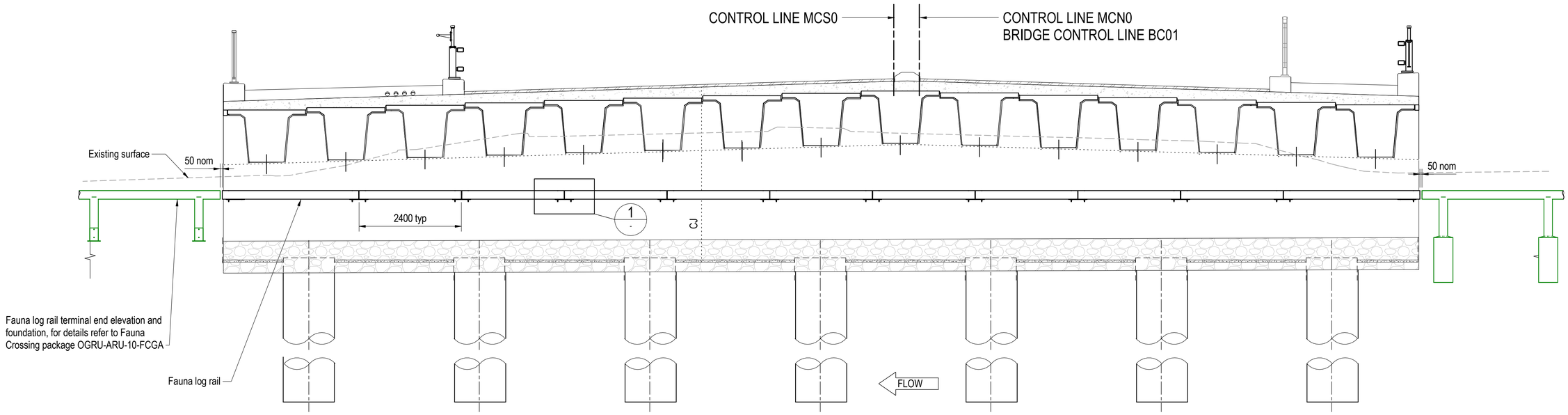
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A1

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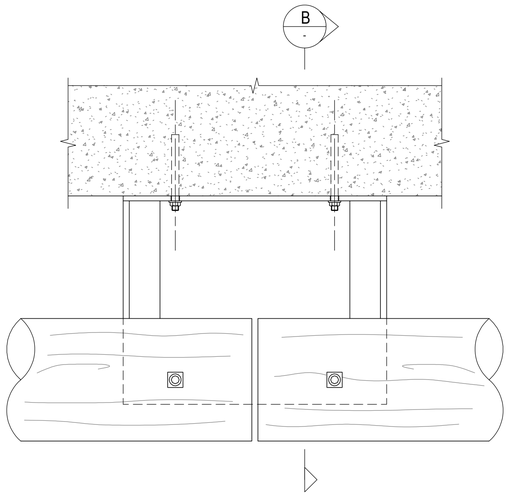
DETAILED DESIGN



ELEVATION AT ABUTMENT A

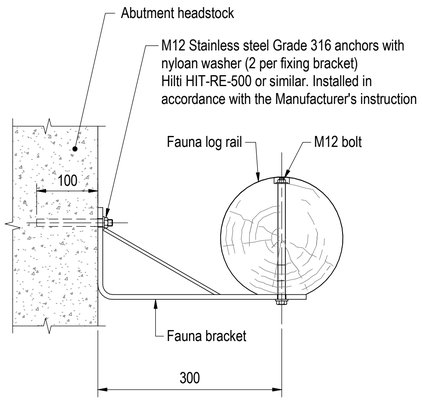
SCALE 1:50

ABUTMENT B SIMILAR



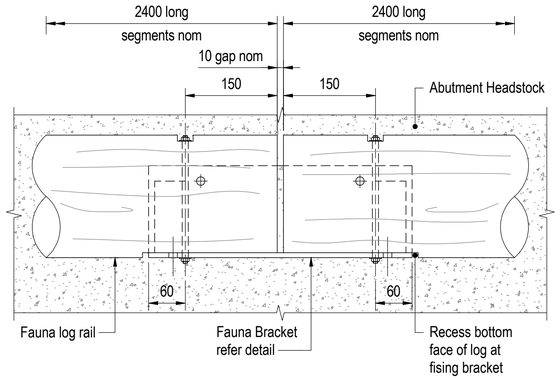
PART PLAN - FAUNA LOG RAIL BACKET CONNECTION

SCALE 1:5



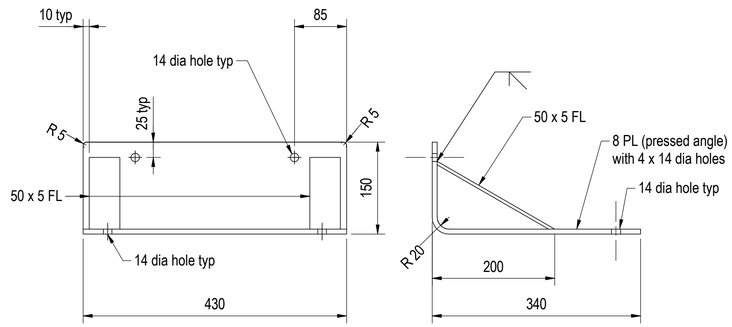
SECTION B

SCALE 1:5



DETAIL 1

SCALE 1:5



ELEVATION SECTION

FAUNA BRACKET

SCALE 1:5

NOTES

1. For General Notes refer drawings 0011 and 0012.

Scales
0 1 2 m
1:50(A1) / 1:100(A3)
0 50 100 150 200 mm
1:5(A1) / 1:10(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP

CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Drawing Title: BRIDGE OVER FRESH WATER CREEK MISCELLANEOUS DETAILS - FAUNA RAIL

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawn	Design Check
Mick Aguis	Emmanuel Joy
Designed	Approved
Kobe Vetter	Eoin O'Donovan

Scale at A1: 1:50, 1:5
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0851

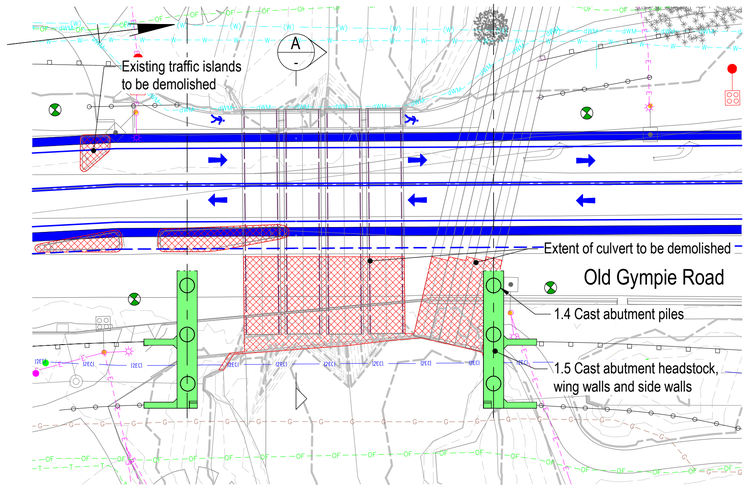
Coordinate System MGA2020 Z56
Height Datum AHD Derived

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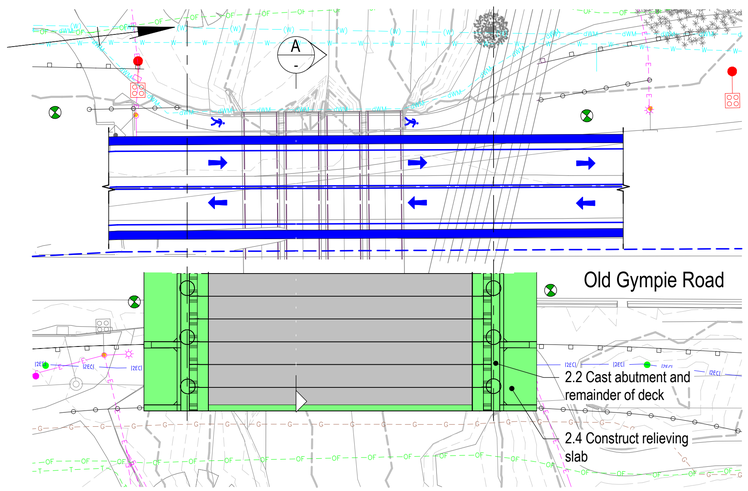
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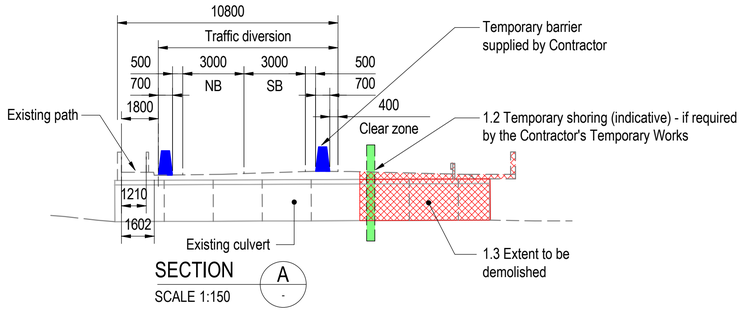
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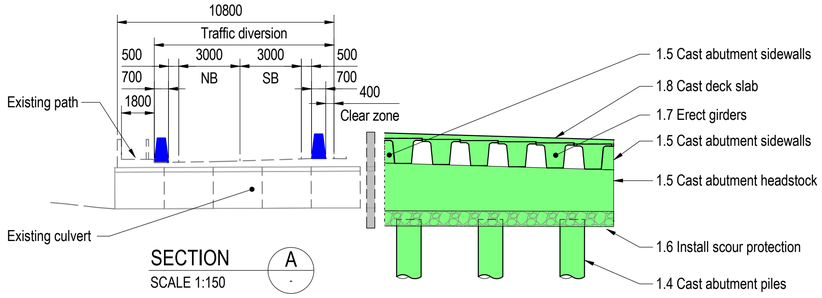
STAGE 1
SCALE 1:250
STEPS 1.1 TO 1.5



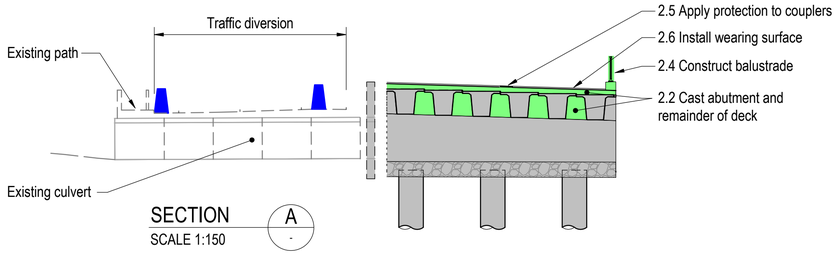
STAGE 2
SCALE 1:250



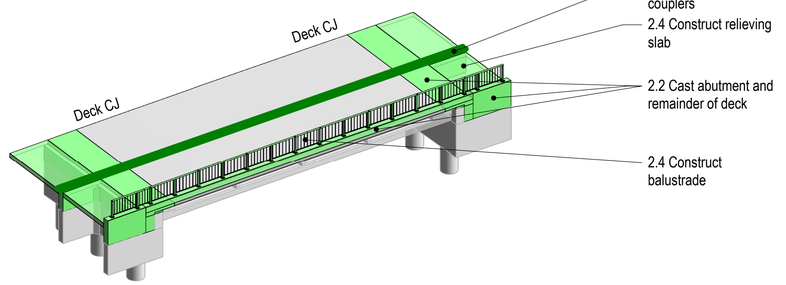
STAGE 1 - DEMOLITION AND DIVERSION WORKS



STAGE 1 - CONSTRUCTION WORKS



STAGE 2



STAGE 2 - ISOMETRIC VIEW
NTS

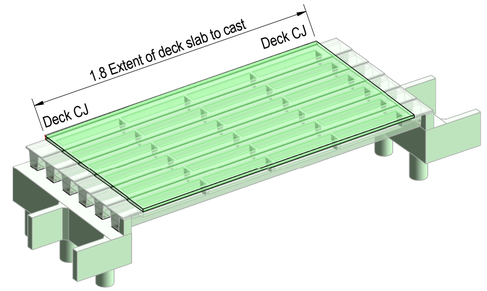
DETAILED DESIGN

STAGE 0

0.1. Complete Site Preparation works including all appropriate utility relocations and waterway works as approved by the Principal prior to commencing bridge and foundation works.
0.2 Temporary Traffic Management shall be undertaken by the Contractor.
0.3 Temporary barriers and their restraint shall be by the Contractor.
0.4 The site shall be maintained in a safe and stable condition. Temporary shoring shall be provided by the Contractor as required to keep the works, excavations and demolitions stable at all times.

STAGE 1

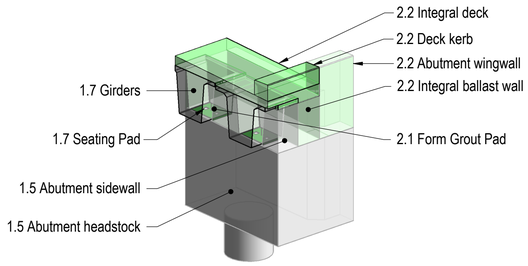
1.1. Temporarily divert two-way traffic to the Western side of Old Gympie Road as shown in plan and section.
1.2. Provide sufficient temporary works including temporary shoring and/or retaining as required to enable excavation of the Eastern side as shown accounting for the diverted temporary carriageway traffic.
1.3. Undertake partial demolition of existing culverts as shown in plan and section.
1.4. Install Abutment Piles A/5 to A/7 and B/5 to B/7.
1.5. Cast Abutment Headstock up to the bearing shelf, including wingwalls and sidewalls.
1.6. Install scour protection in the channel.
1.7. After the Abutment headstock has attained a minimum concrete compressive strength of 32MPa, install the remaining Girders on the Girder seating pads.
1.8. Cast the RC Deck Slab between the construction joints shown on Drg. 0601.



STAGE 1 - ISOMETRIC VIEW
NTS

STAGE 2

2.1. Form and pour the grout pads under the Girders.
2.2. Cast the Abutment along with the remaining RC Deck Slab to make the super and substructure integral.
2.3. Backfill the Abutments.
2.4. Construct the Relieving Slabs and exterior balustrade.
2.5. Apply protection locally over the rebar coupler of the barrier to allow placement and removal of wearing surface and installation of the reinforcement on the couplers for the permanent barrier at later stages.
2.6. Install (temporary) wearing surface for the newly cast deck, relieving slab and approaches.



STAGE 2 - DETAILED ISOMETRIC VIEW
NTS

NOTES

1. For General Notes refer drawings 0011 and 0012.

LEGEND

- Demolition during current stage
- Temporary traffic barrier
- Temporary traffic diversion direction
- Construction works during current stage
- Construction works from previous stage
- Pedestrian path

Scales
0 2 4 6 8 10 m
1:250(A1) / 1:500(A3)
0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA
Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy
Signature:
RPEQ No: 33726
Area: Structural
Date:

Drawing Title: BRIDGE OVER FRESH WATER CREEK CONSTRUCTION STAGING - SHEET 1

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:250, 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0901

Coordinate System: MGA2020 Z56
Height Datum: AHD Derived

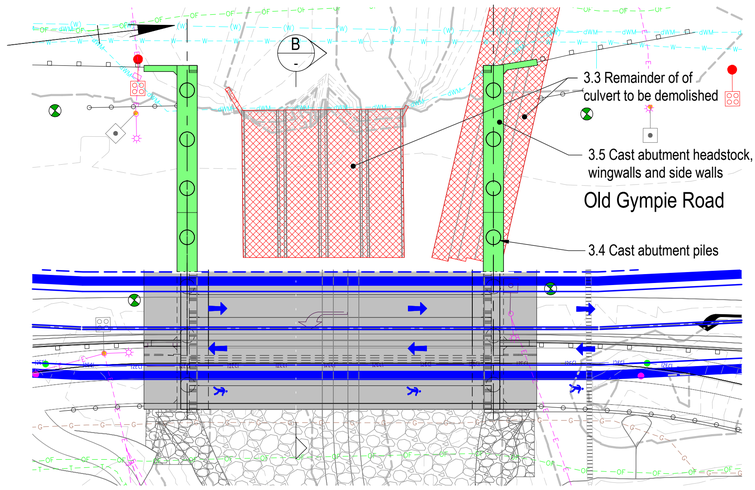
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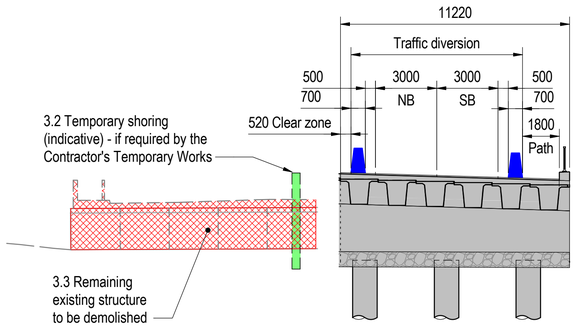
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NOT FOR CONSTRUCTION

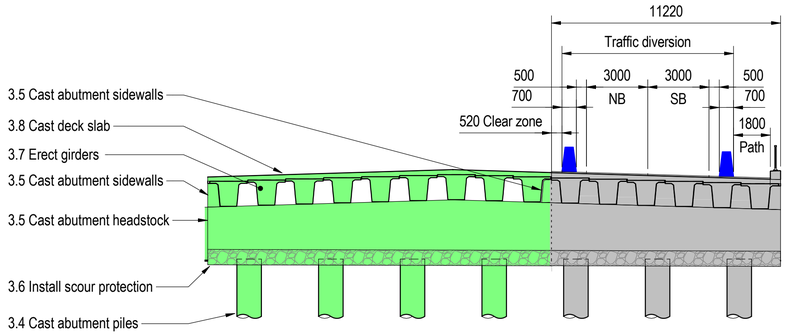


STAGE 3
SCALE 1:250
STEPS 3.1 TO 3.5



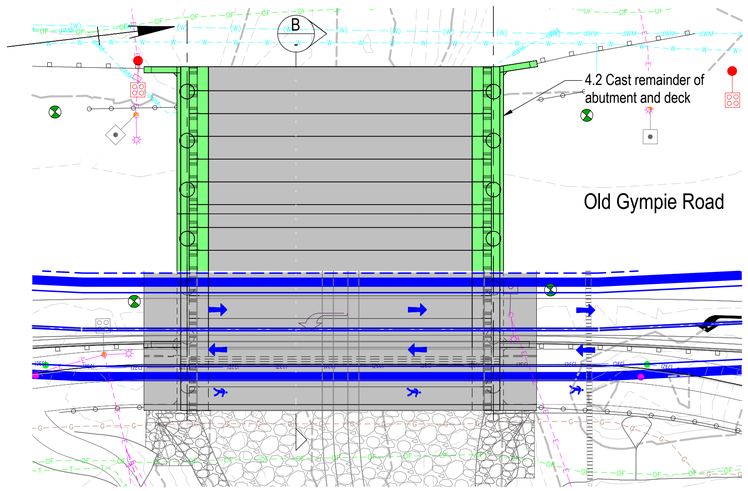
SECTION B
SCALE 1:150

STAGE 3 - DEMOLITION AND DIVERSION WORKS

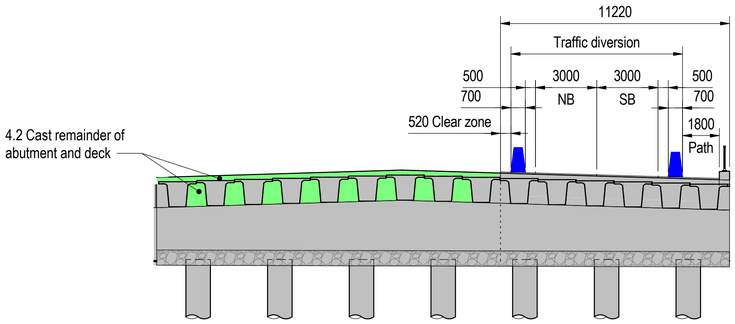


SECTION B
SCALE 1:150

STAGE 3 - CONSTRUCTION WORKS



STAGE 4
SCALE 1:250



SECTION B
SCALE 1:150

STAGE 4

DETAILED DESIGN

STAGE 3

3.1. Once the new RC Deck Slab has achieved 32MPa, temporarily divert traffic along the newly cast RC Deck Slab as shown in plan and section.
3.2. Provide sufficient temporary works including temporary shoring and/or retaining as required to enable excavation of the Western side as shown accounting for the diverted temporary carriageway traffic.
3.3. Complete demolition of existing culverts as shown in plan and section.
3.4. Install Abutment Piles A/1 to A/4 and B/1 to B/4.
3.5. Cast Abutment Headstock up to the bearing shelf, including wingwalls and sidewall.
3.6. Install the remaining scour protection in the channel.
3.7. After the Abutment headstock has attained a minimum concrete compressive strength of 32MPa, erect the remaining Girders on the Girder seating pads.
3.8. Cast the RC Deck Slab between the construction joints shown on Drg. 0601, making it monolithic with the Eastern deck.

STAGE 4

4.1. Form and pour the grout pads under the Girders.
4.2. Cast the Abutment ballast wall along with the remaining RC Deck Slab to make the super and substructure integral.

NOTES

1. For General Notes refer drawings 0011 and 0012.

LEGEND

- Demolition during current stage
- Temporary traffic barrier
- Temporary traffic diversion direction
- Construction works during current stage
- Construction works from previous stage
- Pedestrian path

Scales 0 2 4 6 8 10 m
1:250(A1) / 1:500(A3)
0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

ARUP
CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CONSTRUCTION STAGING - SHEET 2

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:250, 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

OGRU-ARU-10-STBR-DRG-0902

Coordinate System MGA2020 Z56
Height Datum AHD Derived

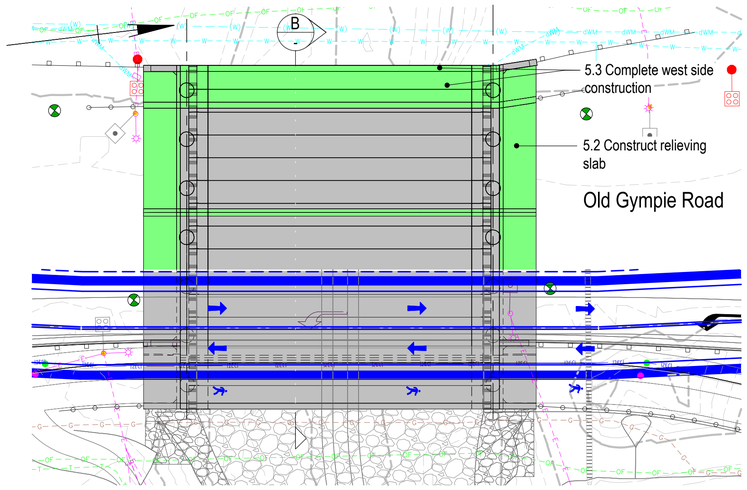
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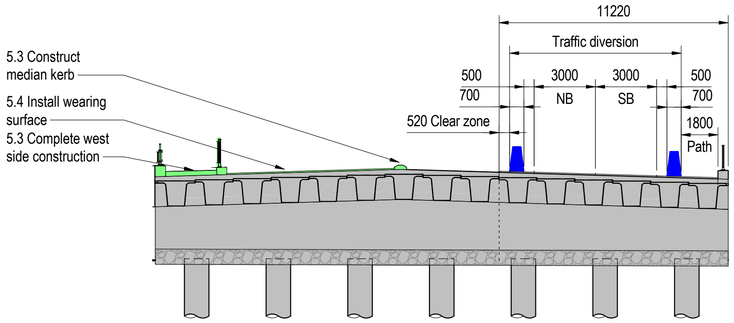
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DETAILED DESIGN



STAGE 5
SCALE 1:250

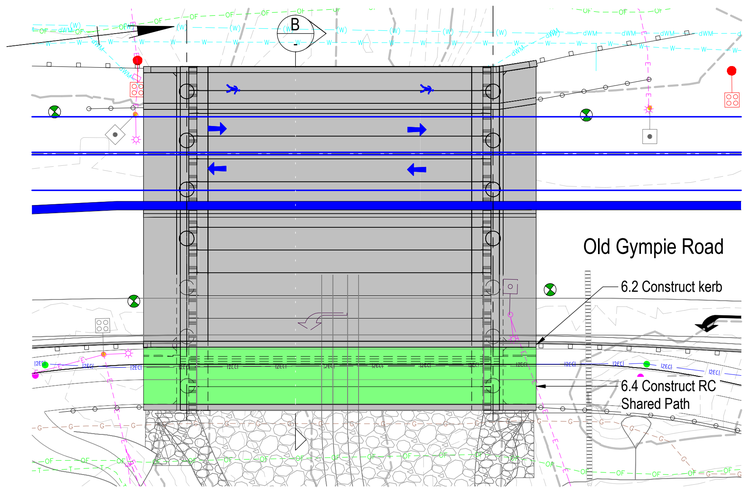


SECTION B
SCALE 1:150

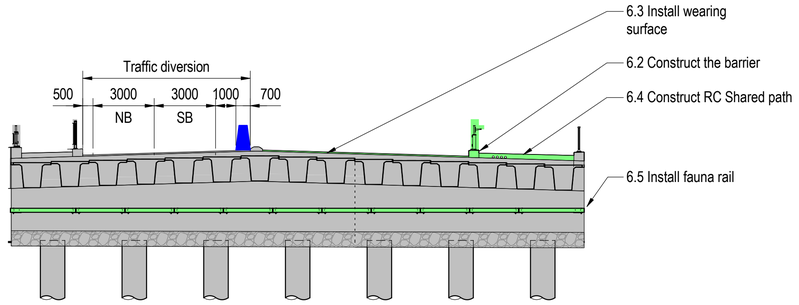
STAGE 5

STAGE 5

5.1. Backfill the Abutment.
5.2. Construct the Relieving Slabs.
5.3. Complete remaining works on the Western side including construction of kerb, barrier, and RC Shared Path slabs.
5.4. Install deck wearing surface (DWS) for the newly cast deck, relieving slab and approaches.



STAGE 6
SCALE 1:250



SECTION B
SCALE 1:150

STAGE 6

STAGE 6

6.1. Temporarily divert traffic to Western side as shown in plan and section.
6.2. Remove temporary wearing surface and prepare RC Deck Slab for construction joint and for new kerb and barrier.
6.3. Install remaining permanent DWS.
6.4. Construct RC Shared Path slab.
6.5. Complete line-marking and remaining Civil Works.

NOTES

1. For General Notes refer drawings 0011 and 0012.

LEGEND

- Demolition during current stage
- Temporary traffic barrier
- Temporary traffic diversion direction
- Construction works during current stage
- Construction works from previous stage
- Pedestrian path

Scales 0 2 4 6 8 10 m
1:250(A1) / 1:500(A3)
0 1.5 3 4.5 6 m
1:150(A1) / 1:300(A3)

Issue	Date	Description
1	06/03/26	90% Detailed Design

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CONSULT AUSTRALIA Member Firm
Arup Australia Pty Ltd
ABN 76 625 912 665

Client: CITY OF MORETON BAY

Project Title: OLD GYMPIE ROAD UPGRADE

Engineering Certification (RPEQ)
Name: Emmanuel Joy Area: Structural
Signature: Date:
RPEQ No: 33726

Drawing Title: BRIDGE OVER FRESH WATER CREEK CONSTRUCTION STAGING - SHEET 3

Drawn: Mick Aguis
Design Check: Emmanuel Joy
Designed: Kobe Vetter
Approved: Eoin O'Donovan

Scale at A1: 1:250, 1:150
Role: CIVIL STRUCTURES
Status: DETAILED DESIGN
Arup Job No: 304487-00
Rev: 1

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Coordinate System MGA2020 Z56
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